<div align="center">

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检 索 结 果 证 明

</div>

委 托 单 位：深圳大学科技处

检索课题名称：深圳大学教师发表的论文被美国《工程索引》（EI）收录情况

检 索 数据库：美国《Ei Compendex Web》（EI）数据库

检索式： (((("shenzhen university") WN AF) OR ((518060) WN AF)) OR (("shenzhen univ*") WN AF)) ,2010

检索结果：用上述检索式对美国《Ei Compendex Web》（EI）数据库的检索结果表明，截止到 2011 年 3 月 29 日深圳大学教师 2010 年发表的论文共有 410 篇被美国《工程索引》（EI）收录（详见附件）。

<div align="right">

检索员：查颖

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（盖章）

2011 年 3 月 29 日

</div>

附件：

<RECORD 1>

Accession number:20105213525923Title:Large format x-ray image detector of high resolution and sensitivity

Authors:Guo, Jinchuan (1); Zhou, Bin (1); Liu, Xin (1); Lei, Yaohu (1); Yang, Qiang (1); Niu, Hanben (1); Wang, Yuncheng (1); Kuo, Xiaomei (1)

Author affiliation:(1) Key Laboratory of Optoelectronic Devices, Systems of Ministry of Education and Guangdong Province, Shenzhen University, Shenzhen 518060, China

Corresponding author:Guo, J.

　　(JCGUO@SZU.EDU.CN)

Source title:Progress in Biomedical Optics and Imaging - Proceedings of SPIE

Abbreviated source title:Progr. Biomed. Opt. Imaging Proc. SPIE

Volume:7845

Monograph title:Optics in Health Care and Biomedical Optics IV

Issue date:2010

Abstract:X-ray phase contrast imaging technique that can be used as a practical diagnostic tool for medical purposes requires the image detector of higher resolution and sensitivity, and of larger format as well. The above mentioned parameters cannot be come to their best on one detector at present, so there is some kind of compromise among these parameters, for example, improving one parameter may be at the cost of impairing another one. This paper designed an x-ray image detector composed of a structured scintillation screen, optic taper and CCD camera etc. Photo-assisted electrochemical etching method was used to make an array of deep holes in the crystal silicon. The scintillator (CsI:Tl) was molten into the deep holes after the silicon wafer had been heat-oxidized. When the screen was coupled with CCD camera by optic taper, the detector fabrication was finished. We use the detector and an x-ray tube of 1mm focal spot to image a test pattern, the spatial resolution better than 20lp/mm was obtained under the x-ray tube voltage of 45kVp and current of 2mA. The total image pixel of this detector is 2048 x 2048, with the 13.5 micrometer pixel size of the camera. The ratio of the input face size of optic taper to output size was 2:1. High sensitivity was implemented by the course of x-rays in the scintillator, the longer the course, the more the x-ray was absorbed, and the higher the sensitivity. In our detector scintillation screen, the depth of the holes was great than 150 micrometers, with the 1.5 micrometers side length of the square section of a hole. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:18

Main heading:Electrochemical etching

Controlled terms:Aspect ratio - Cameras - CCD cameras - Detectors - Health care - Medical imaging - Micrometers - Pixels - Scintillation - Semiconducting silicon compounds - Silicon wafers - X ray analysis - X ray tubes - X rays

Uncontrolled terms:Deep holes - photo-assisted electrochemical etching - resolution - sensitivity - X ray conversion

Classification code:746 Imaging Techniques - 801 Chemistry - 914 Safety Engineering - 932.1 High Energy Physics - 943 Mechanical and Miscellaneous Measuring Instruments - 943.1 Mechanical Instruments - 951 Materials Science - 742.2 Photographic Equipment - 421 Strength of Building Materials; Mechanical Properties - 422.1 Strength of Building Materials : Test Equipment - 461.7 Health Care - 712.1.2 Compound Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 741 Light, Optics and Optical Devices - 741.1

<RECORD 2>

Authors:Guo, Jinchuan (1); Ren, Xikui (1); Zhou, Bin (1); Niu, Hanben (1)
Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems, Ministry of Education and Guangdong Province, Shenzhen University, Shenzhen 518060, China
Corresponding author:Guo, J.
          (jcguo@szu.edu.cn)

Abstract:The grating-based x-ray phase-contrast imaging have more advantages over the conventional x-ray imaging techniques based on the attenuation of x-rays in soft tissues in the medical diagnosis. However, until now the phase contrast imaging technique have not been put into practical uses, one of the reasons is that there is no compact x-ray source suitable for phase signal detection. The x-ray tube that can be used as the source of phase contrast imaging system is becoming the focus of research, the key issues of which could be the shape and the uniformity of focal spot. This paper provided and studied one kind of x-ray tube based on the electron impinging target. According to the system design of the phase contrast imaging, an x-ray tube with square focal spot of 0.8 mm side length was needed. An electrode structure which could form a planar electric field distribution was so designed that the emitted electrons from filament could move to target along straight paths. For comparison, an axis-symmetry field x-ray tube was designed too.

The electron trajectories were simulated following the computation of the electric potential distributions in the two cases of electrode structure, respectively. The simulation results show that the x-ray tube of planar field structure may lend more regular square shape to focus spot than the axis-symmetry field structures. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:7

Main heading:X rays

Controlled terms:Diagnosis - Electric fields - Electric potential - Focusing - Health care - Medical imaging - Systems analysis - Tubes (components) - X ray tubes

Uncontrolled terms:Compact X-ray sources - Electric field distributions - Electric potential distribution - Electrode configurations - Electrode structure - Electron trajectories - Emitted electron - Field structures - Focal spot - Key issues - Medical diagnosis - Phase-contrast imaging - Planar fields - Practical use - Side length - Simulation result - Soft tissue - Square shape - System design - X-ray imaging techniques - X-ray phase-contrast imaging

Classification code:932.1 High Energy Physics - 746 Imaging Techniques - 741.1 Light/Optics - 741 Light, Optics and Optical Devices - 961 Systems Science - 701.1 Electricity: Basic Concepts and Phenomena - 461.7 Health Care - 461.6 Medicine and Pharmacology - 422.1 Strength of Building Materials : Test Equipment - 616.1 Heat Exchange Equipment and Components

DOI:10.1117/12.869969

Database:Compendex

Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 3>

Authors:Li, Fuming (1); Peng, Jianchun (1); Duan, Guang-Ren (2)

Author affiliation:(1) Shenzhen University, College of Mechatronics and Control Engineering, Shenzhen 518060, China; (2) Harbin Institute of Technology, Center for Control Theory and Guidance, Harbin 150001, China

Corresponding author:Li, F.
(lifuming@szu.edu.cn)

Conference date:July 29, 2010 - July 31, 2010
Conference location:Beijing, China
Conference code:82524
Sponsor:IEEE Control Systems Society (CSS); The ICROS OF Korea; IEEE CSS Singapore Chapter; IEEE CSS Hong Kong Chapter; IEEE CSS Beijing Chapter
Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:This paper proposes a memory state feedback controller for discrete time-delay systems based on the state feedback eigenstructure assignment (ESA) result for high-order linear systems [1-2]. It is shown that the problem is closely related with a type of so-called high-order Sylvester matrix equations. Through establishing two complete parametric solutions to this type of matrix equations, two complete parametric methods for the proposed eigenstructure assignment problem are presented. Both methods give simple complete parametric expression for the feedback gains and the closed loop eigenvector matrices. The first one mainly depends one a series of singular value decompositions, and is thus numerically simple and reliable; the second one utilizes the right factorization of the systems, and allows the closed-loop eigenvalues to be set undetermined and sought via certain optimization procedures. An example shows the effect of the proposed approaches.

Number of references:17
Main heading:State feedback
Controlled terms:Delay control systems - Eigenvalues and eigenfunctions - Equations of state - Feedback - Linear systems - Singular value decomposition - Time delay
Uncontrolled terms:Closed loops - Closed-loop eigenvalues - Discrete time-delay system - Eigenstructure assignment - Eigenvector matrices - ESA - Feedback gain - High-order - High-order linear system - Matrix equations - Memory state feedback - Optimization procedures - Parametric approach - Parametric expressions - Parametric method - Parametric solutions - Right factorization - Sylvester matrix equations
Classification code:713 Electronic Circuits - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 921 Mathematics - 921.1 Algebra
Database:Compendex

<RECORD 4>

Authors:Li, Fuming (1); Peng, Jianchun (1); Duan, Guang-Ren (2)
Author affiliation:(1) Shenzhen University, College of Mechatronics and Control Engineering, Shenzhen 518060, China; (2) Harbin Institute of Technology, Center for Control Theory and Guidance, Harbin 150001, China
Corresponding author:Li, F.
        (lifuming@szu.edu.cn)

Source title:Proceedings of the 29th Chinese Control Conference, CCC'10

Abbreviated source title:Proc. Chin. Control Conf., CCC
Monograph title:Proceedings of the 29th Chinese Control Conference, CCC'10
Issue date:2010
Publication year:2010
Pages:3606-3611
Article number:5572396
Language:Chinese
ISBN-13:9787894631046
Document type:Conference article (CA)
Conference name:29th Chinese Control Conference, CCC'10
Conference date:July 29, 2010 - July 31, 2010
Conference location:Beijing, China
Conference code:82524
Sponsor:IEEE Control Systems Society (CSS); The ICROS OF Korea; IEEE CSS Singapore Chapter; IEEE CSS Hong Kong Chapter; IEEE CSS Beijing Chapter
Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:This paper considers eigensturcture assignment (ESA) in discrete time-delay systems via memory output feedback. Parametric expression for the left and right closed-loop eigenvectors associated with the closed-loop eigenvalues and two simple and complete parametric solutions for the feedback gain matrix are obtained on the basis of the parametric solution of the generalized high-order Sylvester matrix equation. This method provides more freedom, possesses good reliability, and does not impose any restriction on the closed-loop eigenvalues. A numerical example demonstrates that this approach is simple and effective for design of discrete time-delay systems.

Number of references:17
Main heading:Delay control systems
Controlled terms:Eigenvalues and eigenfunctions - Time delay
Uncontrolled terms:Closed-loop - Closed-loop eigenvalues - Discrete time-delay system - Eigenvectors - ESA - Feedback gain matrix - High-order - Memory output - Numerical example - Parametric expressions   - Parametric solutions - Sylvester matrix equations
Classification code:713 Electronic Circuits - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 921.1 Algebra
Database:Compendex

<RECORD 5>

Accession number:20105113503781Title:RFDI in linear systems with time-delays: A parametric approach

Authors:Li, Fuming (1); Jianchun, Peng (1); Duan, Guang-Ren (2)
Author affiliation:(1) Shenzhen University, College of Mechatronics and Control Engineering, Shenzhen 518060, China; (2) Harbin Institute of Technology, Center for Control Theory and Guidance, Harbin 150001, China

Corresponding author:Li, F.
(lifuming@szu.edu.cn)

Abstract:A new Luenberger-type unknown-input observer-based parametric approach for robust fault detection and isolation (RFDI) in linear multiple time-delays systems with unknown disturbances is proposed. Using recent result, in terms of the eigenvalues of observer matrix and a group of free parameter vector, the necessary and sufficient condition of disturbance decoupling and fault isolation are established. By choosing the free parameter satisfying some constraints appropriately, the RFDI scheme is realized by employing only one observer-based residual generator. The proposed approach offers all degrees of the design freedom. A numerical example is employed to illustrate the effect of the proposed approach.
Number of references:14
Main heading:Fault detection
Controlled terms:Eigenvalues and eigenfunctions - Electric fault location - Linear systems - Observability - Time delay
Uncontrolled terms:Disturbance decoupling - Luenberger-type unknown-input observers - Parametric approach - Residual generator - Robust fault detection and isolation
Classification code:706.2 Electric Power Lines and Equipment - 713 Electronic Circuits - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 921.1 Algebra
Database:Compendex

<RECORD 6>

Accession number:20105013490781Title:Integrated multi-agent-based platform for emergency logistics management

Authors:Yang, Chang (1); Chu, Dazhi (2); Lu, Shaoping (1)
Author affiliation:(1) College of Economics, Shenzhen University, 518060, China; (2) College of Management, Shenzhen University, 518060, China
Corresponding author:Yang, C.
(yangchang3000@126.com)

Abstract:In recent years various disasters with enormous consequences occurred frequently around the world. Emergency logistics management (ELM) has got much attention and has become a new efficient methodology in dealing with disasters. Based on the multi-agent theory, this paper presents an integrated platform for ELM, in which emergency responses are managed by a set of intelligent agents for one or more activities. The platform infrastructure of ELM is constructed and the functionalities and responsibilities of its compositional modules are defined respectively. It is necessary that it has potential value for practical applications. © 2010 ASCE.

<RECORD 7>

Accession number:20105013487313Title:Temperature sensor using a long period fiber grating fabricated by 800 nm femtosecond laser pulses

Authors:Yu, Yongqin (1); Ruan, Shuangchen (1); Yang, Haili (1); Du, Chenlin (1); Zheng, Jiarong (1)

Author affiliation:(1) Shenzhen Key Laboratory of Laser Engineering, College of Electronic Science and Technology, Shenzhen University, Shenzhen, Guangdong 518060, China; (2) College of Physical Science and Technology, Shenzhen University, Guangdong 518060, China

Corresponding author:Yu, Y.

    (yuyq@szu.edu.cn)

Abstract:In this letter, LPFGs in standard telecommunication fibers without hydrogen loading were fabricated in air using laser direct writing method, by femtosecond laser pulses with pulse duration of 200 fs and output wavelength of 800 nm. The loss peak of 1430 nm, the transmission loss of 22.86 dB and the FWHM of 6.6 nm were obtained. Temperature dependence of wavelength shift in air was measured by placing the LPFG in a temperature chamber that is temperature controlled in the range of 70 -150°C. The temperature sensitivities (Δλ/ΔT) are estimated by using linearly regression fits, which was 43.2

pm/°C. The linearity of the temperature sensitivities is high and the R-squared values for Δλ/ΔT is larger than 0.9979. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:14

Main heading:Ultrashort pulses

Controlled terms:Composite micromechanics - Diffraction gratings - Fiber lasers - Fibers - Manufacture - Micromachining - Technology - Temperature sensors - Testing - Ultrafast lasers

Uncontrolled terms:Femtosecond laser pulse - Hydrogen loadings - Laser direct writing - Long period fiber grating - long-period fiber gratings - Loss peaks - Output wavelengths - Pulse durations - Telecommunication fibers - Temperature chamber - Temperature dependence - Temperature sensitivity - Transmission loss - Wavelength shift

Classification code:901 Engineering Profession - 817 Plastics and Other Polymers: Products and Applications - 812 Ceramics, Refractories and Glass - 744.4 Solid State Lasers - 744.1 Lasers, General - 931.1 Mechanics - 741.3 Optical Devices and Systems - 732 Control Devices - 604.2 Machining Operations - 537.1 Heat Treatment Processes - 423.2 Non Mechanical Properties of Building Materials: Test Methods - 741.1.2 Fiber Optics

DOI:10.1117/12.865346

Database:Compendex

Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 8>

Title:Molecular dynamics study of the structures and dynamics of the iodine molecules confined in AlPO$_4$-11 crystals

Authors:Hu, J.M. (1); Zhai, J.P. (2); Wu, F.M. (3); Tang, Z.K. (1)

Author affiliation:(1) Department of Physics, Institute of Nano Science and Technology, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (3) Institute of Condensed Matter Physics, Zhejiang Normal University, Jinhua, Zhejiang 321004, China

Corresponding author:Tang, Z. K.
        (phzktang@ust.hk)

Document type:Journal article (JA)

Abstract:Structural and dynamical properties of iodine molecules incorporated in one-dimensional elliptic channels of AlPO$_4$-11 (AEL) crystals were studied by means of molecular dynamics (MD) simulations. It was found that the iodine molecules in the AEL channels are restricted in the (101) planes with only two favorite orientations: lying along the channels and standing along the major axes of the ellipses, which are well consistent with the experimental observations. In addition, the iodine structures are largely dependent on the loading level: with the increase of loading, the iodine specimens change their structures accordingly from isolated molecules as in the gas phase to single molecular chains and molecular ribbon sheets. The molecular ribbon sheets are composed of equally distributed and parallel molecules as in the iodine crystals. The simulation results show that the standing iodine molecules in the AEL channels are well restricted due to both the appropriate size of ellipses and their alternation throughout the channels. They can diffuse along the channels only after overcoming the rotational barriers to become lying molecules, which indicate that the iodine molecules in the ribbon sheets can keep the configurations without rotational and translational motion. The confined iodine molecules with such structures and properties may be used to improve the accuracy of the frequency standards. © 2010 American Chemical Society.

Number of references:36

Main heading:Molecules

Controlled terms:Crystals - Frequency standards - Geometry - Industrial chemicals - Iodine - Molecular dynamics

Uncontrolled terms:Dynamical properties - Elliptic channels - Experimental observation - Gasphase - Iodine crystals - Iodine molecule - Isolated molecules - Loading level - Molecular chains - Molecular dynamics simulations   - Rotational barriers - Simulation result - Translational motions

Classification code:801.4 Physical Chemistry - 804 Chemical Products Generally - 902.2 Codes and Standards - 921 Mathematics - 931.3 Atomic and Molecular Physics

DOI:10.1021/jp1076615

Database:Compendex

<RECORD 9>

Title:Case study: An inverted index for mass spectra similarity query and comparison with a metric-space method

Authors:Mao, Rui (1); Ramakrishnan, Smriti R. (2); Miranker, Daniel P. (2); Nuckolls, Glen (3)

Author affiliation:(1) Shenzhen University, Office Tower 342, 3688 Nanhai Road, Shenzhen, Guangdong 518060, China; (2) University of Texas at Austin, 1 University Station, C0500, Austin, TX 78712, United States; (3) NetApp, 1601 Trapelo Road, Waltham, MA 02451, United States

Corresponding author:Mao, R.

(mao@szu.edu.cn)

Source title:Proceedings - 3rd International Conference on SImilarity Search and APplications, SISAP 2010
Abbreviated source title:Proc. - Int. Conf. SImilarity Search APpl., SISAP
Monograph title:Proceedings - 3rd International Conference on SImilarity Search and APplications, SISAP 2010
Issue date:2010
Publication year:2010
Pages:93-99
Language:English
ISBN-13:9781450304207
Document type:Conference article (CA)
Conference name:3rd International onference on SImilarity Search and APplications, SISAP 2010
Conference date:September 18, 2010 - September 19, 2010
Conference location:Istanbul, Turkey
Conference code:82618
Sponsor:Mexican Computer Science Society; ACM Special Interest Group on Spatial Information (SIGSPATIAL); Bilkent University
Publisher:Association for Computing Machinery, 1515 Broadway, 17th Floor, New York, NY 10036-5701, United States

Abstract:Query performance is a determining factor in the adoption of an indexing method for similarity query. Metric space indexing methods take great pride in their general applicability. However, it is usually hard for a general method to perform well for every domain. Therefore, it is of interest to investigate the performance of metric-space methods, comparing with domain specific methods, on a particular domain. This paper describes such an investigation for proteomic mass spectra. An inverted index method that exploits the sparsity of mass spectra binary format data and acts as a coarse filter before fine ranking is proposed and empirically compared with an existing metric-space indexing method. Results show that the inverted index method yields greater search efficiency and outperforms the metric-space method in query speed and index size. Copyright 2010 ACM.
Number of references:20
Main heading:Mass spectrometry
Controlled terms:Indexing (of information) - Mass spectrometers - Topology
Uncontrolled terms:Inverted indices - Mass spectra - Metric-space indexing - Similarity query - Sparse matrices
Classification code:903.1 Information Sources and Analysis - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 943.3 Special Purpose Instruments
DOI:10.1145/1862344.1862359
Database:Compendex

<RECORD 10>

Accession number:20105013473272Title:Dimension reduction for distance-based indexing
Authors:Mao, Rui (1); Miranker, Willard L. (2); Miranker, Daniel P. (3)

Author affiliation:(1) Shenzhen University, Office Tower 342, 3688 Nanhai Rd., Shenzhen, Guangdong 518060, China; (2) Yale University, PH2E, 227 Church Street, New Haven, CT 06510, United States; (3) University of Texas at Austin, 1 University station C0500, Austin, TX 78712, United States
Corresponding author:Mao, R.
        (mao@szu.edu.cn)

Abstract:Distance-based indexing exploits only the triangle inequality to answer similarity queries in metric spaces. Lacking of coordinate structure, mathematical tools in R^n can only be applied indirectly, making it difficult for theoretical study in metric space indexing. Toward solving this problem, we formalize a "pivot space model" where data is mapped from metric space to R^n, preserving all the pair wise distances under L^∞. With this model, it can be shown that the indexing problem in metric space can be equivalently studied in R^n. Further, we show the necessity of dimension reduction for R^n and that the only effective form of dimension reduction is to select existing dimensions, i.e. pivot selection. The coordinate structure of R^n makes the application of many mathematical tools possible. In particular, Principle Component Analysis (PCA) is incorporated into a heuristic method for pivot selection and shown to be effective over a large range of workloads. We also show that PCA can be used to reliably measure the intrinsic dimension of a metric-space. Copyright 2010 ACM.

Number of references:25
Main heading:Set theory
Controlled terms:Heuristic methods - Indexing (of information) - Principal component analysis - Query processing - Topology
Uncontrolled terms:Dimension reduction - Intrinsic dimensions - Metric spaces - Pivot selection -

<RECORD 11>

Authors:Yin, Yongkai (1); Liu, Xiaoli (2); Li, Ameng (2); Zhang, Chenggong (2); He, Dong (2); Peng, Xiang (1)

Author affiliation:(1) College of Precision Instrument and Opto-electronics Engineering, State Key Laboratory of Precision Measurement Technology and Instruments, Tianjin University, Tianjin, 300072, China; (2) College of Optoelectronics Engineering, Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Shenzhen University, Shenzhen, 518060, China

Corresponding author:Yin, Y.

         (xpeng@szu.edu.cn)

Abstract:Circular targets are commonly used in vision measurement and photogrammetry. Due to the asymmetric projection, the geometric centroid of the ellipse projection and the true projection of the target center are not identical, which leads to a systematic center location error. A method to correct the center location error is presented in this paper. Surface normal directions of circular targets are determined by camera calibration in advance. Then the correction values of the geometric centroids are calculated with space analytic geometry. The experimental results show

the improvement of accuracy can be achieved after error correction by our method. © 2010 Copyright SPIE - The International Society for Optical Engineering.

<RECORD 12>

Title:Gender, culture or topics: Any impacts on primary school students' collaborative knowledge construction in VLC? - 'Learning Villages' as an example

Authors:Li, WenGuang (1); Yu, Mingmei (2); Wang, XinHui (1)
Author affiliation:(1) ShenZhen University, Shenzhen, China; (2) University of HongKong, HongKong, Hong Kong
Corresponding author:Li, W.
        (liwg@szu.edu.cn)

United States

Abstract:Analyzing online discussion transcripts could help researchers study the process of collaborative knowledge construction in VLC - Virtual Learning Community. Gender, culture and topics are always the most meaningful and useful aspects considering the quality of online discussion. The quality of students' collaborative knowledge construction could be described by three divisions: knowledge construction level, diversity of posts and total number of posts. With 60 primary school students as our case study objects, and after adopting content analysis method and revised online discussion analysis model IAM, we found: most of the students got the first and the second knowledge construction level and the complex relationships between the variables mentioned above had been investigated respectively. ©2010 IEEE.

Number of references:22

Main heading:Education computing

Controlled terms:Computer science - E-learning - Engineering education - Knowledge management - Students

Uncontrolled terms:Collaborative knowledge - Culture - Gender - Topics - Virtual Learning Community

Classification code:721 Computer Circuits and Logic Elements - 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 901.2 Education

DOI:10.1109/ICCSE.2010.5593636

Database:Compendex

<RECORD 13>

Accession number:20104813439460Title:Coordinate the supply chain with risk-averse agents under CVaR criteria

Authors:Ma, Lijun (1); Li, Jianbin (2); Wang, Haifeng (3)

Author affiliation:(1) School of Management, Shenzhen University, Shenzhen, 518060, China; (2) School of Management, Huazhong University of Science and Technology, Wuhan, 430074, China; (3) Department of Automation, Tsinghua University, Beijing, 100084, China

Corresponding author:Ma, L.

(lijun.ma@gmail.com)

Source title:2010 International Conference on Management and Service Science, MASS 2010

Abbreviated source title:Int. Conf. Manage. Serv. Sci., MASS

Monograph title:2010 International Conference on Management and Service Science, MASS 2010

Issue date:2010

Publication year:2010

Article number:5577719

Language:English

ISBN-13:9781424453269

Document type:Conference article (CA)

Conference name:2010 International Conference on Management and Service Science, MASS

2010

Abstract:Following the coordination framework created by Gan, Sethi and Yan [1], we address the supply chain coordination issues with a supplier and a retailer where their risk measure is Conditional Value-at-Risk (CVaR). We find the set of paretooptimal solutions, and design contracts to achieve these solutions. When the supplier's profit is deterministic, we find that the wholesale price contract can coordinate the supply chain and when the supplier and the retailer have the same risk attitudes, we find that the revenue-sharing contract and the buy-back contract can coordinate the supply chain. © 2010 IEEE.

<RECORD 14>

Title:Improvement of the uniformity of surface barrier discharge in atmospheric nitrogen by spark discharge
Authors:Gao, Liang (1); Qi, Bing (1); Huang, Jianjun (1); Ru, Lili (1)
Author affiliation:(1) Applied Low Temperature Plasma Laboratory, School of Physics, Shenzhen University, Shenzhen 518060, China
Corresponding author:Huang, J.
(huangjj@szu.edu.cn)

Abstract:A spark generator was employed to assist surface barrier discharge (SBD) in nitrogen at atmospheric pressure. The influence of spark discharge on the SBD electrical behavior is investigated by means of volt-ampere characteristics. Also, the electron density of plasma in the filament of each SBD arrangement is determined by plasma radiation method. It is found that the filaments in spark-assistant SBD are much stronger, while the corresponding mean electron density is much lower. Results show that the spark generator can improve the uniformity of SBD in atmospheric nitrogen in a particular range of applied frequency.
Number of references:20
Main heading:Electric sparks
Controlled terms:Atmospheric pressure - Carrier concentration - Cyclotron resonance - Density functional theory - Electron density measurement - Nitrogen - Plasmas - Radiation
Uncontrolled terms:Atmospheric nitrogen - Electrical behaviors - Electron densities - Ion density - plasma radiation - Pre-ionization - Spark discharge - Spark generators - surface barrier discharge - Volt-ampere characteristics
Classification code:932.3 Plasma Physics - 932 High Energy Physics; Nuclear Physics; Plasma Physics - 922.1 Probability Theory - 804 Chemical Products Generally - 711 Electromagnetic Waves - 701.1 Electricity: Basic Concepts and Phenomena - 443.1 Atmospheric Properties
DOI:10.1088/1009-0630/12/6/06
Database:Compendex

<RECORD 15>

Accession number:20104813430041Title:Synthesis and magnetic properties of hollow α-Fe$_2$O$_3$ nanospheres templated by carbon nanospheres
Authors:Sun, Lingna (1); Cao, Minhua (2); Hu, Changwen (2)
Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China; (2) Department of Chemistry, Institute for Chemical Physics, Beijing Institute of Technology, Beijing, 100081, China; (3) State Key Laboratory of Explosion Science and Technology, Beijing Institute of Technology, Beijing 100081, China
Corresponding author:Sun, L.
        (lindasun1999@126.com)

Abstract:Hollow α-Fe$_2$O$_3$ nanospheres were synthesized by using novel carbon spheres as templates. By carefully controlling the fundamental experimental parameters, porous nanospheres with diameters of 60-80 nm and nanojujubes with diameters of 80-100 nm have been efficiently obtained, respectively. The growth mechanism and magnetic properties are also discussed in detail. The coercivity values of the hollow α-Fe$_2$O$_3$ nanospheres and nanojujubes are much higher than those of other α-Fe$_2$O$_3$ nanomaterials. Due to the unique morphology with cavum and porous wall, the ferromagnetic nanospheres could be promising candidates as a magnetic carrier for drug targeting.

<RECORD 16>

Authors:Lou, Yan (1)
Author affiliation:(1) College of Mechatronics and Control Engineering, Shenzhen University, Guangdong Shenzhen, 518060, China
Corresponding author:Lou, Y.
        (susanlou121@163.com)

Abstract:By data mining from 3DFEM simulation and Rough Set Theory (RST), it was performed that the extrusion process and die structures effect on the quality of AZ80 magnesium extrudate. The weights of the effect can be obtained. The results show that the effect of the billet temperature on the product quality is dominate, and its average weight is 0.27. The second important parameter is the ram speed and its average weight is 0.22. In addition, it was also found that the effect of the die characteristic parameters on the extrudate is insignificant. © (2010) Trans Tech Publications.
Number of references:5
Main heading:Rough set theory
Controlled terms:Alloys - Cerium alloys - Extrusion - Extrusion dies - Magnesium - Magnesium alloys - Manufacture
Uncontrolled terms:3DFEM simulation - Az80 alloy - AZ80 magnesium alloy - Characteristic parameter - Die structure - Extrudates - Extrusion process - Product quality - Quantitative study - Ram speed   - Rough set
Classification code:921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 816.2 Plants and Machinery for Plastics and Other Polymers - 547.2 Rare Earth Metals - 542.2 Magnesium and Alloys - 537.1 Heat Treatment Processes - 535.2.2 Metal Forming Practice - 531.1 Metallurgy
DOI:10.4028/www.scientific.net/AMR.129-131.1191
Database:Compendex

<RECORD 17>

Title:Fuzzy methods for the Gaussian mixture probability hypothesis density filter
Authors:Wang, Pin (1); Xie, Wei Xin (1); Liu, Zong Xiang (1)
Author affiliation:(1) ATR Key Lab. of National Defense, Shenzhen University, Shenzhen 518060, China
Corresponding author:Wang, P.
(wangpin@vip.qq.com)

Source title:International Conference on Signal Processing Proceedings, ICSP

Abstract:The Gaussian mixture probability hypothesis density (GM-PHD) filter method is presented, which is a closed-form solution to the probability hypothesis density (PHD) recursion. The approach involves applying the Kalman filter to predict and update the probability hypothesis density (PHD), which is a first order statistic of the random finite set of targets. The GM-PHD not only has a good tracking performance, but also greatly reduces the computational complexity, compares with the probability hypothesis density particle filter (PF-PHD). However the GM-PHD filter does not provide identities of individual target state estimates, which are needed to construct tracks of individual targets. In this paper we propose a new fuzzy method involving initiating, propagating and terminating tracks based on the GM-PHD filter, which gives the trajectory of each target and filters out unwanted clutter point over time. Various issues regarding initiating, propagating and terminating tracks are discussed. Finally, simulation results validate the proposed method can effectively estimate multi-target track in complex background and this method also can improve the tracking accuracy. © 2010 IEEE.

<RECORD 18>

Title:Selecting informative genes by lasso and dantzig selector for linear classifiers
Authors:Zheng, Songfeng (1); Liu, Weixiang (2)
Author affiliation:(1) Department of Mathematics, Missouri State University, Springfield, MO 65897, United States; (2) Biomedical Engineering Lab., School of Medicine, Shenzhen University, Shenzhen, Guangdong 518060, China
Corresponding author:Zheng, S.
        (SongfengZheng@MissouriState.edu)

Abstract:Automatically selecting a subset of genes with strong discriminative power is a very important step in classification problems based on gene expression data. Lasso and Dantzig selector are known to have automatic variable selection ability in linear regression analysis. This paper employs Lasso and Dantzig selector to select most informative genes for representing the class label as a linear function of gene expression data. The selected genes are further used to fit linear classifiers for cancer classification. On 3 publicly available cancer datasets, the experimental results show that in general, Lasso is more capable than Dantzig selector in selecting informative genes for classification. ©2010 IEEE.

<RECORD 19>

Authors:Li, Jiming (1); Qian, Yuntao (1); Senjia (2)
Author affiliation:(1) College of Computer Science, Zhejiang University, Hangzhou 310027, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Li, J.

Abstract:Remotely sensed data by sensors on satellite or airborne platform, is becoming more and more important in monitoring the local, regional and global resources and environment. In this paper, we utilize the regularized logistic regression model for change detection of large scale remotely sensed bi-temporal multispectral images. Change detection methods base on

classification schemes under this kind of condition should put more emphasis on the model's simplicity and efficiency in addition to the detection accuracy. The simple linear classifier is solved by recent proposed "Pathwise Coordinate Descent". When applied on the L1-regularized regression problem, the algorithm can handle large problems in a comparatively very low timing cost. Through computing the solutions for a decreasing sequence of regularization parameters, the algorithm also combines model selection procedure into itself. We experiment the logistic regression with elastic-net convex penalty. Experimental results from a real data set demonstrate that, models obtained by Pathwise Coordinate Descent algorithm only need very low computational costs. The achieved remarkable efficiency indicates that regularized logistic regression via Pathwise Coordinate Descent is a promising method for large scale change detection problem in remote sensing. © 2010 IEEE.

Number of references:7

Main heading:Regression analysis

Controlled terms:Algorithms - Echo suppression - Image processing - Imaging systems - Remote sensing - Signal detection

Uncontrolled terms:Airborne platforms - Change detection - Classification scheme - Computational costs - Coordinate descent - Data sets - Detection accuracy - Global resources - Linear classifiers - Logistic regression - Logistic regression method - Logistic regression models - Logistic regressions - Model selection procedures - Multi-spectral - Multi-spectral data - Multispectral images - Regression problem - Regularization parameters - Remotely sensed data

Classification code:922.2 Mathematical Statistics - 921 Mathematics - 746 Imaging Techniques - 741 Light, Optics and Optical Devices - 731.1 Control Systems - 723 Computer Software, Data Handling and Applications - 716.1 Information Theory and Signal Processing

DOI:10.1109/ICIP.2010.5654271

Database:Compendex

<RECORD 20>

Accession number:20110113550942Title:Phase calibration of spatial light modulators by heterodyne interferometry

Authors:Wang, Ruisong (1); Li, Dong (1); Hu, Mingxi (1); Tian, Jindong (1)

Author affiliation:(1) Institute of Optoelectronics, Shenzhen University, Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Shenzhen 518060, China

Corresponding author:Wang, R.

Source title:Proceedings of SPIE - The International Society for Optical Engineering

Abbreviated source title:Proc SPIE Int Soc Opt Eng

Volume:7848

Monograph title:Holography, Diffractive Optics, and Applications IV

Issue date:2010

Publication year:2010

Article number:78481F

Language:English

Abstract:In this paper, a method of measuring the phase modulation properties of spatial light modulator (SLM) by heterodyne interferometry is proposed. As a kind of key elements in the advanced optical information processing systems, spatial light modulators is widely used in many important fields, especially used as a dynamic phase modulating device. So, the phase calibration plays an important role in the SLM applications. Compared with the methods based on traditional interferometry, this method measures the phase response directly by taking advantage of the heterodyne mechanism, so it leads to higher accuracy. A heterodyne-interferometer based calibration system making use of acousto-optic frequencyshifters has been designed and realized. Theoretical analysis and experimental results demonstrate the validity of this method. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:30

Main heading:Light modulators

Controlled terms:Calibration - Heterodyning - Holographic interferometry - Light - Light modulation - Optical data processing - Phase modulation

Uncontrolled terms:Acousto-optics - Calibration system - Dynamic phase - Heterodyne interferometry - Key elements - Modulation properties - Optical information processing - Phase calibration - phase modulation properties - Phase response - Spatial light modulator - Spatial light modulators

Classification code:943 Mechanical and Miscellaneous Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 941.4 Optical Variables Measurements - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 941 Acoustical and Optical Measuring Instruments - 741.1 Light/Optics - 716 Telecommunication; Radar, Radio and Television - 741.3 Optical Devices and Systems

DOI:10.1117/12.869961

Database:Compendex

<RECORD 21>

Accession number:20110213560486Title:Research on optical one-way cryptosystem

Authors:He, Wenqi (1); Peng, Xiang (1); Meng, Xiangfeng (2)

Author affiliation:(1) College of Optoelectronic Engineering, Key Laboratory of Optoelectronics Devices and Systems, Shenzhen University, Shenzhen, 518060, China; (2) School of Information

Science and Engineering, Shandong University, Jinan, Shandong 250100, China
Corresponding author:He, W.
Abstract:In this paper, we introduced a concept of cascaded phase-truncated Fourier transforms (CPTFTs), which is a nonlinear iterative operator. Meanwhile, an optical/digital hybrid system was presented to implement the operator of CPTFTs. Thereafter, by adopting CPTFTs as main processing unit, we have done some research on optical one-way cryptosystem: an optical Hash function (O-Hash) and a keyed optical Hash function (K-O-Hash) were put forward respectively, which can be applied to message integrity check and authentication. Both of the O-Hash and K-O-Hash can transform an arbitrary-length pre-encoded message (without or with a secret key) into a fixed-length output by means of taking a two-step one-way encryption process. Finally, a set of numerical experiments were carried out to evaluate the performance of avalanche effect and collision resistance of the O-Hash and K-O-Hash constructed with our approach. © 2010 Copyright SPIE - The International Society for Optical Engineering.
Number of references:17
Main heading:Fourier transforms
Controlled terms:Hash functions - Hybrid systems - Industrial research - Optical data processing - Optical data storage
Uncontrolled terms:cascaded phase-truncated Fourier transforms - Cryptosystems - Fourier - keyed optical Hash function - optical Hash function
Classification code:741.3 Optical Devices and Systems - 901.3 Engineering Research - 921 Mathematics - 921.3 Mathematical Transformations
DOI:10.1117/12.868289
Database:Compendex

Accession number:20110813686345Title:Design of low power CMOS band-pass Gm-C filter for 5.8 GHz RF transceiver of ETC system

Authors:Li, Yan (1); Yu, Hang (1); Jiang, Lai (1); Ji, Zhen (1)
Author affiliation:(1) Shenzhen City Key Laboratory of Embedded System Design, Shenzhen University, Shenzhen, 518060, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Li, Y.

Source title:International Conference on Communication Technology Proceedings, ICCT
Abbreviated source title:Int. Conf. Commun. Technol. Proc. ICCT
Monograph title:Proceedings - 2010 IEEE 12th International Conference on Communication Technology, ICCT'2010
Issue date:2010
Publication year:2010
Pages:1410-1413
Article number:5689013
Language:English
ISBN-13:9781424468690
Document type:Conference article (CA)
Conference name:2010 IEEE 12th International Conference on Communication Technology, ICCT'2010
Conference date:November 11, 2010 - November 14, 2010
Conference location:Nanjing, China
Conference code:83784
Sponsor:IEEE Beijing Section; IEEE Nanjing Section; Nanjing University of Posts and Telecommunications (NUPT)
Publisher:Institute of Electrical and Electronics Engineers Inc., 445 Hoes Lane / P.O. Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:Since electronic tolling collection (ETC) allows vehicles passing through without slowing down which improves greatly transportation efficiency, it is chosen as the basic technology for new national highway network construction. The key component of the ETC system is a 5.8 GHz RF transceiver that enables wireless communication between toll booth and vehicles. A 1-V Gm-C sixth order band pass filter is designed in a 0.18 mm CMOS process for this purpose. Based on a pseudo differential operational transconductance amplifier (OTA), a wide tuning range and large input voltage swing is achieved. A common-mode feed forward (CMFF) circuit is introduced to reduce the distortion caused by common mode signal. The filter is implemented as a cascade of three identical second-order blocks. The power consumption is about 456 μW. © 2010 IEEE.

Number of references:12
Main heading:Bandpass filters
Controlled terms:Bandpass amplifiers - CMOS integrated circuits - Signal processing - Space optics - Transceivers - Wireless telecommunication systems
Uncontrolled terms:Band pass - CMOS processs - Common mode signal - Commonmode - ETC

system - Feed forward - GM-C filters - Highway networks - Input voltages - Key component - Low power CMOS - Operational transconductance amplifiers - Order bands - Power Consumption - Pseudo differential - RF transceivers - Second orders - Transportation efficiency - Wide tuning range - Wireless communications

Classification code:703.2 Electric Filters - 713.1 Amplifiers - 714.2 Semiconductor Devices and Integrated Circuits - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 741.1 Light/Optics

<RECORD 23>

Title:Adaptive resource allocation for preemptable jobs in cloud systems

Authors:Li, Jiayin (1); Qiu, Meikang (1); Niu, Jian-Wei (2); Chen, Yu (3); Ming, Zhong (4)
Author affiliation:(1) Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY 40506, United States; (2) State Key Lab. of Software Develop. Environment, Beihang University, Beijing 100191, China; (3) Department of Computer Science and Technology, Tsinghua University, Beijing 100084, China; (4) College of Computer Science and Software, Shenzhen University, Shenzhen 518060, China
Corresponding author:Li, J.
(jli6@engr.uky.edu)

Abstract:In cloud computing, computational resources are provided to remote users in the form of leases. For a cloud user, he/she can request multiple cloud services simultaneously. In this case, parallel processing in the cloud system can improve the performance. When applying parallel processing in cloud computing, it is necessary to implement a mechanism to allocate resource and schedule the tasks execution order. Furthermore, a resource allocation mechanism with preemptable task execution can increase the utilization of clouds. In this paper, we propose an adaptive resource allocation algorithm for the cloud system with preemptable tasks. Our algorithms adjust the resource allocation adaptively based on the updated of the actual task executions. And the experimental results show that our algorithms works significantly in the situation where resource contention is fierce. © 2010 IEEE.
Number of references:14
Main heading:Cloud computing
Controlled terms:Adaptive algorithms - Computer resource management - Computer systems - Intelligent systems - Resource allocation - Systems analysis
Uncontrolled terms:Adaptive resource allocations - Adaptive scheduling - Allocation mechanism - Cloud services - Cloud systems - Computational resources - Parallel processing - Pre-emptable scheduling - Preemptable jobs - Remote users   - Resource contention - Task executions
Classification code:722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 912.3 Operations Research - 961 Systems Science
DOI:10.1109/ISDA.2010.5687294
Database:Compendex

<RECORD 24>

Accession number:20105113498454Title:3.1 W laser-diode-end-pumped composite Nd: YVO$_4$ self-Raman laser at 1176 nm
Authors:Du, C.L. (1); Zhang, L. (1); Yu, Y.Q. (2); Ruan, S.C. (1); Guo, Y.Y. (1)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Du, C. L.
        (cldu@szu.edu.cn)

CODEN:APBOEM
Document type:Journal article (JA)

Abstract:We report a laser-diode-end-pumped acousto-optical Q-switched double-end diffusion-bonded Nd: YVO<inf>4</inf> self-Raman laser at 1176 nm. The maximum average output power at the first-Stokes wavelength of 1176 nm was obtained to be 3.1 W at the incident pump power of 25 W and the repetition rate of 90 kHz, with the corresponding optical conversion efficiency of 12.4%. The shortest pulse width, the maximum pulse energy and the highest peak power were measured to be 5 ns, 42 μJ and 7.5 kW, respectively. © 2010 Springer-Verlag.

Number of references:10
Main heading:Pumping (laser)
Controlled terms:Conversion efficiency - Fiber lasers - Neodymium - Pumps
Uncontrolled terms:Acousto-optical Q-switched - Diode end-pumped - Incident pump power - Optical conversion efficiency - Output power - Peak power - Pulse energies - Pulse width - Repetition rate - Self-Raman laser   - Stokes wavelength - W lasers
Classification code:525.5 Energy Conversion Issues - 547.2 Rare Earth Metals - 618.2 Pumps - 744.1 Lasers, General - 744.4 Solid State Lasers
DOI:10.1007/s00340-010-4133-4
Database:Compendex

<RECORD 25>

Authors:Pan, Feng (1); Wang, Jiandong (1); Lin, Xiaohui (3)
Author affiliation:(1) College of Information Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing, 210016, Jiangsu, China; (2) College of Management, Shenzhen University, Shenzhen, 518060, Guangdong, China; (3) College of Information Engineer, Shenzhen University, Shenzhen, 518060, Guangdong, China
Corresponding author:Pan, F.
        (stridence@gmail.com)

Conference date:October 21, 2010 - October 23, 2010

Conference location:Chongqing, China

Conference code:83403

Abstract:Spectral clustering algorithm has been demonstrated to be an effective unsupervised learning method. The spectral graph theory indicates that the eigenvalues and eigenvectors of the graph Laplacian are closely related with the clustering results. In this paper we prove that the distribution of the eigenvalues describes the distinctness of clusters and the eigenvectors implicitly present the target values of the samples when normalized graph Laplacian is adopted. Based on this observation we propose a feature significance ranking algorithm, and the experiments on synthetic and real-world data sets have shown the efficacy of our approach. ©2010 IEEE.

Number of references:14

Main heading:Clustering algorithms

Controlled terms:Cluster analysis - Eigenvalues and eigenfunctions - Graph theory - Laplace transforms - Pattern recognition - Spectrum analysis - Unsupervised learning

Uncontrolled terms:Clustering results - Eigenvalues - Eigenvalues and eigenvectors - Eigenvectors - Feature ranking - Graph Laplacian - Normalized graph Laplacian - Ranking algorithm - Real world data - Spectral analysis - Spectral graph theory - Target values - Unsupervised learning method

Classification code:944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 943 Mechanical and Miscellaneous Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 941 Acoustical and Optical Measuring Instruments - 922 Statistical Methods - 921 Mathematics - 723 Computer Software, Data Handling and Applications - 721 Computer Circuits and Logic Elements - 716 Telecommunication; Radar, Radio and Television

DOI:10.1109/CCPR.2010.5659182

Database:Compendex

<RECORD 26>

Accession number:20110913712351Title:A novel ZrCuNiAlNb bulk metallic glass with large plastic strain at room temperature

Authors:Xie, Shenghui (1); Zeng, Xierong (2); Hu, Qiang (1); Fu, Dongju (1)

Author affiliation:(1) Northwestern Polytechnical University, Xi'an 710072, China; (2) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen University, Shenzhen 518060, China

Corresponding author:Zeng, X.

(zengxierong@163.com)

Source title:Xiyou Jinshu Cailiao Yu Gongcheng/Rare Metal Materials and Engineering

Abstract:A novel bulk metallic glass, $Zr_{60.59}$ $Cu_{15.78}$ $Ni_{10.73}Al_{10.75}Nb_{2.15}$, was obtained by micro-alloying of brittle ZrCuNiAl bulk alloys with Nb addition. The structure and thermodynamics parameters were determined by XRD, DSC and HRTEM, and the mechanical properties were studied by quasistatic compression. Although XRD and DSC results show the glass nature of the alloy rods, HRTEM surely indicates the precipitation of nanocrystals of 1-2 nm in the as-cast alloys. The Nb addition significantly reduces the crystallization activation energy of Zr-based alloy and favors the further nucleation of nanocrystals during the subsequent deformation. The nanocrystals increase the potential nucleation sites of shear bands, inhibit the propagation of shear bands, and disrupt the operating shear bands; therefore the room-temperature plasticity of the alloy is largely improved. The yield strength, the average plastic strain, and the maximum and minimum plastic strain for the $Zr_{60.59}Cu_{15.78}$ $Ni_{10.73}$ $Al_{10.75}Nb_{2.15}$ alloy are 1850 MPa, 11.95%, 25.37% and 2.95%, respectively. There is also strain-hardening phenomenon. © 2010, Northwest Institute for Nonferrous Metal Research. Published by Elsevier BV. All rights reserved.

Number of references:27

Main heading:Nanocrystalline alloys

Controlled terms:Activation energy - Glass - Hardening - Mechanical properties - Metallic glass - Nanocrystals - Niobium - Nucleation - Plastic deformation - Plasticity - Precipitation (chemical) - Shear bands - Temperature - Thermodynamics - Zirconium

Uncontrolled terms:As cast alloy - Bulk alloys - Bulk metallic glass - Crystallization activation energy - Nb addition - Nucleation sites - Plastic strain - Quasi-static compression - Room temperature - Room temperature plasticity - Thermodynamics parameters - XRD - Yield strength - Zr-based alloy

Classification code:951 Materials Science - 933.1.2 Crystal Growth - 812.3 Glass - 802.3 Chemical Operations - 801.4 Physical Chemistry - 761 Nanotechnology - 641.1 Thermodynamics - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 537.1 Heat Treatment Processes - 531 Metallurgy and Metallography - 421 Strength of Building Materials; Mechanical Properties

Database:Compendex

<RECORD 27>

Accession number:20111113746538Title:The Markov model of shuffled frog leaping algorithm and its convergence analysis

Authors:Luo, Jian-Ping (1); Li, Xia (1); Chen, Min-Rong (1)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong 518060, China
Corresponding author:Luo, J.-P.
        (camelrock@126.com)

Abstract:The Markov chain model for the shuffled frog leaping algorithm (SFLA) was established. It was shown that the frog memeplex state sequence containing both the frog states and the current local and the global optimal frog states constructs a homogeneous Markov chain. The transition process of the frog memeplex state sequence was analyzed, and the conclusion that sequence will eventually converges to the optimal state set was drawn. Furthermore, it was proved that the shuffled frog leaping algorithm ensures global convergence as it meets the global convergence criterions of random search algorithms.

Number of references:16
Main heading:Convergence of numerical methods
Controlled terms:Algorithms - Markov processes - Optimization
Uncontrolled terms:Convergence analysis - Global convergence - Intelligent optimization - Markov Chain - Markov chain models - Markov model - Memeplex - Optimal state - Random search algorithm - Shuffled frog-leaping algorithms   - State sequences - Transition process
Classification code:723 Computer Software, Data Handling and Applications - 921 Mathematics - 922.1 Probability Theory
Database:Compendex

<RECORD 28>

Accession number:20110113545113Title:Research of electrical and hydration behavior of phosphoaluminate cementitious material

Authors:Zhang, Ming (1); Ding, Zhu (2); Liu, Peng (1); Wang, Mingke (2); Xing, Feng (2)

Author affiliation:(1) School of Civil Engineering and Architecture, Central South University, Changsha 410075, China; (2) Shenzhen Durability Center for Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhang, M.
(zhangmingjob@sina.com)

Abstract:Electrodeless resistivity and impedance spectroscopy measurement are reliable equipments of test online for monitoring the hydration process of cement-based materials continuously and accurately. Phosphoaluminate cement (PAC) sets quickly and develops high early strength. In order to understand the mechanism, the hydration products and microstructure formation of PAC in early age need to be studied. In the study, early hydration process and impedance spectroscopy characteristics of PAC with different dosage of retarder were investigated. According to the test, resistivity of freshly mixed PAC paste decreases sharply and then rises slowly, some characteristic peaks appear at different hydration stages of PAC, which indicates the hydration process of PAC includes four stages which are dissolution, induction, acceleration and deceleration. Impedance spectroscopy can reflect the change of micro-structure and ion concentribution of PAC matrix by resistance and capacitance. © (2010) Trans Tech Publications.

Number of references:9
Main heading:Cements
Controlled terms:Dissolution - Electric impedance - Hydration - Manufacture
Uncontrolled terms:Ac impedance spectroscopy - Acceleration and deceleration - Cement based material - Cementitious materials - Characteristic peaks - Early age - Early hydration process - Electrodeless - High early strength - Hydration behaviors - Hydration process - Hydration products - Impedance spectroscopy - Impedance spectroscopy measurements - matrix - Microstructure formation - Phosphoaluminate cements - Reliable equipment

<RECORD 29>

Title:Effect of buffer layers on the performance of P3HT:PCBM solar cells
Authors:Li, Weimin (1); Guo, Jinchuan (3); Sun, Xiuquan (4); Zhou, Bin (3)
Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems, Ministry of Education and Guangdong Province, Shenzhen University, Shenzhen 518060, China; (2) School of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, China; (3) Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China; (4) School of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Li, W.
Abstract:We have studied the effect of buffer layers on the performance of poly(3-hexylthiophene-2,5-diy1) (P3HT):C61-butyric acid methyl ester (PCBM) bulk heterojunction solar cells. We proved that depositing a thin pentacene layer between metal cathode and P3HT: PCBM blend and introducing a thin P3HT layer between ITO and photoactive layer, would improve the power conversion efficiency of polymer bulk heterojunction solar cells when compared with the cells without the buffer layers. In the study, the buffer layers increased short circuit density (Jsc) and open circuit voltage (Voc) under the illumination by white light from a solar simulator with an incident intensity of 100mW/cm2. The thin pentacene layer as a cathode

buffer layer modifying the contact between the active layer and the cathode, the thin layer of P3HT as a anode buffer layer enhancing the electron blocking ability were responsible for the improvement on the performance of photovoltaic device. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:17

Main heading:Heterojunctions

Controlled terms:Buffer layers - Conversion efficiency - Electric network analysis - Electrooptical devices - Epitaxial layers - Esters - Excitons - Fatty acids - Open circuit voltage - Optical waveguides - Optoelectronic devices - Photovoltaic effects - Solar cells

Uncontrolled terms:Active Layer - Anode buffer layers - Bulk heterojunction - Bulk heterojunction solar cells - Butyric acids - Electron blocking - Incident intensity - Metal cathodes - Methyl esters - P3HT - Pentacene layers - Pentacenes - performance - Photoactive layers - Photovoltaic devices - Polymer bulk - Power conversion efficiencies - Short circuit - Solar simulator - Thin layers - White light

Classification code:931.3 Atomic and Molecular Physics - 804.1 Organic Compounds - 714 Electronic Components and Tubes - 933.1 Crystalline Solids - 703.1.1 Electric Network Analysis - 615.2 Solar Power - 525.5 Energy Conversion Issues - 701.1 Electricity: Basic Concepts and Phenomena

DOI:10.1117/12.868175

Database:Compendex

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<RECORD 30>

Accession number:20110213573981Title:Current statistical model based on maximum entropy fuzzy clustering

Authors:Li, Dong-Wei (1); Xie, Wei-Xin (2); Huang, Jian-Jun (2); Huang, Jing-Xiong (2); Jin, Kai-Chun (3)

Author affiliation:(1) School of Electronic Engineering, Xidian Univ., Xi'an 710071, China; (2) ATR Lab., Shenzhen University, Shenzhen 518060, China; (3) Air Defence Forces Command Academy, Zhengzhou 450052, China

Corresponding author:Li, D.-W.

Source title:International Conference on Signal Processing Proceedings, ICSP

Abbreviated source title:Int Conf Signal Process Proc

Monograph title:ICSP2010 - 2010 IEEE 10th International Conference on Signal Processing, Proceedings

Issue date:2010

Publication year:2010

Pages:1414-1417

Article number:5656931

Language:English

ISBN-13:9781424458981

Document type:Conference article (CA)

Conference name:2010 IEEE 10th International Conference on Signal Processing, ICSP2010

Conference date:October 24, 2010 - October 28, 2010
Conference location:Beijing, China
Conference code:83255
Sponsor:IEEE Beijing Section; The Chinese Institute of Electronics (CIE); The Institution of Engineering and Technology (IET); Union Radio Scientifique Internationale (URSI); National Natural Science Foundation of China

Abstract:In the view of the unfitness to the actual maneuver of targets that a fixed maneuvering frequency used in the current statistical model. Firstly, predicted measurements of special maneuvering frequency are clustered with the aid of maximum entropy fuzzy clustering. Then, the estimated means and covariance of the state are mixed by utilizing the fuzzy membership degree of the predicted measurements. Unscented kalman filter is employed to solving the nonlinearity of the measurement equations. Simulation results show that the proposed method has higher accuracy than some existing methods based on the current statistical model in the estimation. © 2010 IEEE.

Number of references:7
Main heading:Target tracking
Controlled terms:Computer simulation - Entropy - Fuzzy clustering - Fuzzy systems - Signal processing - Statistics
Uncontrolled terms:Current statistical - Hybrid States - Maneuvering target tracking - Maximum entropy - UKF
Classification code:961 Systems Science - 922.2 Mathematical Statistics - 723.5 Computer Applications - 723 Computer Software, Data Handling and Applications - 716.2 Radar Systems and Equipment - 716.1 Information Theory and Signal Processing - 641.1 Thermodynamics
DOI:10.1109/ICOSP.2010.5656931
Database:Compendex

<RECORD 31>

Accession number:20110213578010Title:A new algorithm for multiple maneuvering target tracking

Authors:Li, Liang-Qun (1); Xie, Wei-Xin (1)
Author affiliation:(1) School of Information Engineering, Shenzhen University, Guangdong 518060, China
Corresponding author:Li, L.-Q.
        (linkqun29811@163.com)

Source title:International Conference on Signal Processing Proceedings, ICSP
Abbreviated source title:Int Conf Signal Process Proc
Monograph title:ICSP2010 - 2010 IEEE 10th International Conference on Signal Processing, Proceedings
Issue date:2010

Abstract:In this paper, a new algorithm for multiple maneuvering target tracking is proposed.The proposed algorithm which is based on separating the multiple maneuvering target tracking into three parts-the data association, the estimation of the single target dynamic model and the estimation of the single target tracking subproblems conditional on the data association and the target dynamic model.Where the data association subproblem can be solved by the fuzzy data assciation,the single target dynamic model by the Rao-Blackwellized particle filter (MMRBPF) and the single target tracking by Kalman filter or extend Kalman filter. Finally, the experiment results show that the proposed algorithm can effectively track multiple manuvering targets. © 2010 IEEE.
Number of references:7
Main heading:Target tracking
Controlled terms:Algorithms - Data handling - Dynamic models - Fuzzy filters - Kalman filters - Nonlinear filtering - Signal processing
Uncontrolled terms:Data association - Extend Kalman filter - Fuzzy data - Maneuvering target tracking - Rao-Blackwellized particle filter - Sub-problems - Target dynamics
Classification code:716.1 Information Theory and Signal Processing - 716.2 Radar Systems and Equipment - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 921 Mathematics
DOI:10.1109/ICOSP.2010.5655942
Database:Compendex

<RECORD 32>

Accession number:20111113740671Title:Sparse nonnegative matrix factorization with the elastic net
Authors:Liu, Weixiang (1); Zheng, Songfeng (2); Jia, Sen (3); Shen, Linlin (3); Fu, Xianghua (3)
Author affiliation:(1) Department of Biomedical Engineering, School of Medicine, Shenzhen University, Shenzhen, 518060, China; (2) Department of Mathematics, Missouri State University,

Springfield, MO 65897, United States; (3) School of Computer Science, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Liu, W.

Abstract:Nonnegative matrix factorization is used extensively for feature extraction and clustering analysis. Recently many sparsity/sparseness constraints, such as L_1 penalty, are introduced for sparse nonnegative matrix factorization. Inspired by sparsity measures from linear regression model, this paper proposes to integrate nonnegative matrix factorization with another sparsity constraint, the elastic net. The experimental results of clustering analysis on three gene expression datasets demonstrate the effectiveness of the proposed method. ©2010 IEEE.

Number of references:29
Main heading:Matrix algebra
Controlled terms:Bioinformatics - Cluster analysis - Factorization - Feature extraction - Gene expression - Linear regression
Uncontrolled terms:Clustering analysis - Elastic net - Gene expression data - Gene expression datasets - Linear regression models - Nonnegative matrix factorization - Sparse non-negative matrix factorizations - Sparsity constraints - Sparsity penalty
Classification code:922 Statistical Methods - 921.1 Algebra - 921 Mathematics - 922.2 Mathematical Statistics - 903 Information Science - 716 Telecommunication; Radar, Radio and Television - 461.8.1 Genetic Engineering - 723 Computer Software, Data Handling and Applications
DOI:10.1109/BIBM.2010.5706574
Database:Compendex

<RECORD 33>

Title:Research on the Flow characteristics of polymer injection molding under ultrasonic vibration and plastics' mechanical strength
Authors:Li, Jibin (1); Xu, Keke (1); Lin, Xinbo (1); Wu, Xiaoyu (1); Gao, Guoli (2)
Author affiliation:(1) Mechatronics and Control Engineering College, Shenzhen University, Shenzhen Guangdong 518060, China; (2) Shenzhen Silver Basis Technology Co., Shenzhen Guangdong 518108, China
Corresponding author:Li, J.
        (Lijb@szu.edu.cn)

Abstract:In this paper, ultrasonic vibration is adopted and exerted on injection molding in order to improve plastics' forming ability, and the impact testing is used to analyze different injection parts' mechanical properties. On the one hand, experiments prove that ultrasonic vibration can increase polymer's melt flow rate, decrease melt viscosity, and improve injection flowing in mould cavity. On the other hand, the mechanical tests prove that the ultrasonic vibration can improve plastics' tensile strength, elastic modulus and other mechanical properties. As a result, a weldless ultrasound-assisted injection molding method is recommended. © (2010) Trans Tech Publications.
Number of references:4
Main heading:Injection molding
Controlled terms:Ability testing - Elastomers - Impact testing - Mechanical properties - Molds - Optimization - Plastics - Plastics molding - Tensile strength - Ultrasonic effects - Ultrasonic waves - Ultrasonics - Vibration analysis
Uncontrolled terms:Flow characteristic - Forming ability - Mechanical strength - Mechanical tests - Melt flow rate - Melt viscosities - Mould cavity - Polymer injection molding - Ultrasonic

vibration - Weldless injection molding process
Classification code:951 Materials Science - 943.2 Mechanical Variables Measurements - 921.5 Optimization Techniques - 912.4 Personnel - 818.4 Rubber Factories and Machinery - 818.2 Elastomers - 817.1 Polymer Products - 816.2 Plants and Machinery for Plastics and Other Polymers - 816.1 Processing of Plastics and Other Polymers - 753.1 Ultrasonic Waves - 422.2 Strength of Building Materials : Test Methods - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties

<RECORD 34>

Title:Fuzzy geometric localization for triangular grid deployment in passive sensor networks

Authors:Wang, R. (1); Cao, W.M. (2); Wan, W.G. (1); Li, Y.P. (2)
Author affiliation:(1) School of Communication and Information Engineering, Shanghai University, Shanghai, 200072, China; (2) School of Information Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Wang, R.
        (rwang@shu.edu.cn)

Abstract:For bearings-only target localization in passive sensor networks, a novel analysis

approach based on fuzzy geometry is introduced to investigate the fuzzy measurability for a moving target in R^2 space. The fuzzy analytical bias expressions are derived. And the interplay between fuzzy localization geometry and the fuzzy estimation bias for the case of fuzzy triangular grid deployment is analyzed in detail in sensor networks, which can realize the 3-dimensional target localization including fuzzy estimate position and velocity by measuring the fuzzy azimuth angles at intervals of fixed time. The theoretical findings of the paper are backed up with simulation results. ©2010 IEEE.

Number of references:9

Main heading:Passive networks

Controlled terms:Geometry - Image processing - Imaging systems - Sensor networks

Uncontrolled terms:3-dimensional - Analysis approach - Azimuth angles - Bearings only - Fixed time - Fuzzy estimation - Moving targets - Simulation result - Target localization - Triangular grid

Classification code:703.1 Electric Networks - 732 Control Devices - 741 Light, Optics and Optical Devices - 746 Imaging Techniques - 921 Mathematics

DOI:10.1109/ICALIP.2010.5685209

Database:Compendex

<RECORD 35>

Title:Research on a platform for developing virtual prototype of automatic transmission

Authors:Xiao, Jiumei (1); Wang, Xiankun (1); Lei, Jiao (1); Lai, Qingnan (1); Sun, Jiajun (1); Lou, Yan (1)

Author affiliation:(1) CG and VR Laboratory, College of Mechatronics and Control Engineering, Shenzhen University, 518060, China

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Conference code:83170

Abstract:Based on analyzing the shortcomings of the current product development mode and methods of the automatic transmission, and on the principle of virtual prototype technology(VPT) and the thought of business process re-engineering (BPR), a concurrent development flow model suitable for virtual automatic transmission prototype(VATP) was established. The function model and the architecture of the platform for developing the VATP were also described in detail. Finally, the ideas for solving some key technological problems faced during implementing the platform were discussed in this paper. © (2010) Trans Tech Publications.

Number of references:8
Main heading:Manufacture
Controlled terms:Industrial engineering - Product development
Uncontrolled terms:Automatic transmission - BPR - CBD - Platform - Smar team - Virtual prototype
Classification code:537.1 Heat Treatment Processes - 912.1 Industrial Engineering - 913.1 Production Engineering
DOI:10.4028/www.scientific.net/AMR.139-141.1333
Database:Compendex

<RECORD 36>

Accession number:20110213573464Title:Space registration algorithm based on UKF using hybrid states

Authors:Li, Dong-Wei (1); Xie, Wei-Xin (2); Huang, Jian-Jun (2); Huang, Jing-Xiong (2); Jin, Kai-Chun (3)
Author affiliation:(1) School of Electronic Engineering, Xidian Univ., Xi'an 710071, China; (2) ATR Lab., Shenzhen University, Shenzhen 518060, China; (3) Air Defence Forces Command Academy, Zhengzhou 450052, China
Corresponding author:Li, D.-W.

Conference date:October 24, 2010 - October 28, 2010

Conference location:Beijing, China

Conference code:83255

Sponsor:IEEE Beijing Section; The Chinese Institute of Electronics (CIE); The Institution of Engineering and Technology (IET); Union Radio Scientifique Internationale (URSI); National Natural Science Foundation of China

Publisher:Institute of Electrical and Electronics Engineers Inc., 445 Hoes Lane / P.O. Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:A new UKF based for radar and infrared sensor registration method is provided .A so-called "hybrid states" concept is introduced to describe target's state, which consists of the target's range, bearing and elevation and its velocity in the Cartesian coordinate system. The dynamic function and the measurement function are deduced in hybrid states. Simulation results show that the proposed method has higher accuracy and stronger robustness in the estimation of system biases. © 2010 IEEE.

Number of references:5

Main heading:Nonlinear filtering

Controlled terms:Algorithms - Kalman filters - Signal processing

Uncontrolled terms:Cartesian coordinate system - Dynamic functions - Hybrid state - Infra-red sensor - Measurement function - Simulation result - Space registration - System bias - Unscented Kalman Filter

Classification code:716.1 Information Theory and Signal Processing - 723 Computer Software, Data Handling and Applications - 921 Mathematics

DOI:10.1109/ICOSP.2010.5654990

Database:Compendex

<RECORD 37>

Accession number:20110413613342Title:Feature analysis mechanical fault signals based on correlation dimension and complexity

Authors:Wang, Bingcheng (1); Ren, Zhaohui (2)

Author affiliation:(1) Shenzhen University, Shenzhen, China; (2) Northeastern University, Shenyang, China

Corresponding author:Wang, B.

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Source title:Proceedings - 2010 International Workshop on Chaos-Fractal Theories and Applications, IWCFTA 2010

Abbreviated source title:Proc. - Int. Workshop Chaos-Fractal Theor. Appl., IWCFTA

Monograph title:Proceedings - 2010 International Workshop on Chaos-Fractal Theories and Applications, IWCFTA 2010

Issue date:2010

Publication year:2010

Pages:445-448

Abstract:In connection with the nonlinear dynamic characteristics shown from the performance of fault rotating mechanical system, based on the research and analysis, correlation dimension and complexity can be used to characterize the system state of motion. The authors propose the analysis method of correlation dimension and complexity to the signal feature of mechanical fault. Using theory of phase space reconstruction, simulating fault signal of rotating machine is reconstructed. In order to reconstruct the phase space which can be adequately reflect the movement characteristics of the system, the time delay and embedding dimension are discussed emphatically, on this basis, the correlation dimension are calculated. From the analysis and calculation on simulation of different fault signals, it shows that under different rotating machinery fault conditions, its correlation dimension, and complexity are significantly different, which verifies that the these nonlinear feature quantities are effective parameters for fault information and they are excellent parameters in terms of extraction and recognition of fault feature. Studies have shown that, these nonlinear feature quantities can reflect the nonlinearity of the system. If combine these parameters, supplemented mutually, verifies mutually, it will be more conducive to recognize and analyze fault signal recognition, enhance the reliability, and thus to study the fault diagnosis of complexity rotating machinery in a more effective way. © 2010 IEEE.

<RECORD 38>

Accession number:20110213573584Title:A novel STAP method for the detection of fast dim air moving targets

Authors:Wu, Renbiao (1); Jia, Qiongqiong (1); Li, Hai (1)
Author affiliation:(1) Tianjin Key Lab. for Advanced Signal Processing, Civil Aviation University of China, Tianjin 300300, China; (2) Intelligent Information Institute of ATR Lab., Shenzhen University, Shenzhen 518060, China
Corresponding author:Wu, R.
        (rbwu@cauc.edu.cn)

Abstract:Space-time adaptive processing (STAP) is an effective method for moving target detection in airborne radar. In this paper, a novel STAP method for fast dim air moving target detection is proposed. The new method suppress clutter in the received data firstly, and then apply Keystone formatting (KF) to compensate the target's range walk. Finally, target is accumulated by the conventional space-time beamforming. Effectiveness of the new method is verified via simulation examples. © 2010 IEEE.

Number of references:9
Main heading:Target tracking
Controlled terms:Arches - Radar - Signal detection - Signal processing - Space time adaptive processing - Tracking radar

<RECORD 39>

Title:Image corner detection using topology learning
Authors:Sun, Wei (1); Yang, Xuan (1)
Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Sun, W.
        (sunweidemail@gmail.com)

Abstract:Image corner detection plays an important role in image analysis and recognition. This paper presents a novel corner detector based on the growing neural gas (GNG) network and this proposed detector is called GNG-C. With the GNG network, image topology information can be learned and used to implement corner detection. The GNG-C approach can be described as consisting of the following steps. First, a canny edge detector is used to acquire the contour information of the input image. This edge information is used to train a modified GNG network. A special stopping criterion is defined to terminate network learning. Second, vectors formed between network nodes and their neighbors are used to measure curvatures. Third, dynamic regions of support (ROS) are determined based on these curvatures. These ROS are used to suppress curvature noise. The curvature values of the nodes are then analyzed to estimate the candidate corners. Finally, the candidates are distilled by a non-maxima suppression process to obtain the final set of corners. Experiments on both artificial and real images show that the proposed corner detection method is feasible and effective. © 2010 The Journal of China Universities of Posts and Telecommunications.

Main heading:Detectors
Controlled terms:Conformal mapping - Topology
Uncontrolled terms:Canny edge detectors - Contour information - Corner detection - Corner detector - Dynamic region - Edge information - GNG topology learning - Growing neural gas networks - Input image - Network learning - Network node - Real images - Stopping criteria - Topology information - Topology learning
Classification code:914 Safety Engineering - 921 Mathematics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI:10.1016/S1005-8885(09)60532-X
Database:Compendex

<RECORD 40>

Accession number:20110313597567Title:Feature selection technique for hyperspectral imagery classification with noise reduction preprocessing

Authors:Jia, Sen (1); Ji, Zhen (1); Zhu, Zexuan (1); Qian, Yuntao (2)
Author affiliation:(1) Shenzhen City Key Laboratory of Embedded System Design, College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, 518060, China; (2) College of Computer Science, Zhejiang University, Hangzhou, 310027, China
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Source title:2010 Chinese Conference on Pattern Recognition, CCPR 2010 - Proceedings
Abbreviated source title:Chin. Conf. Pattern Recogn., CCPR - Proc.
Monograph title:2010 Chinese Conference on Pattern Recognition, CCPR 2010 - Proceedings
Issue date:2010
Publication year:2010
Pages:325-329
Article number:5659192
Language:English
ISBN-13:9781424472109
Document type:Conference article (CA)
Conference name:2010 Chinese Conference on Pattern Recognition, CCPR 2010
Conference date:October 21, 2010 - October 23, 2010
Conference location:Chongqing, China
Conference code:83403
Sponsor:Chinese Association of Automation (CAA); National Laboratory of Pattern Recognition (NLPR); China Society of Image and Graphics; Pattern Recognition and Machine Intelligence Committee of CAA; IEEE Beijing Section
Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:The rich information available in hyperspectral imagery has posed significant opportunities for material classification and identification. The main problem encountered with the

classification process is the high dimensionality of hyperspectral data and the low-sized training dataset. Hence, dimensionality reduction is often adopted to avoid the "curse of dimensionality" phenomenon. However, noise generated by various sources (primarily the sensor and the atmosphere) inevitably decrease the precision of the classifier. In this paper, two wavelet-based methods, wavelet shrinkage and discrete wavelet transform, are applied to preprocess the hyperspectral imagery in sequence, denoising the spatial images and spectral signatures, respectively. After that, affinity propagation, which is a recently proposed feature selection approach, is used to choose representative features from the noise-reduced data. Experimental results demonstrate that the features acquired by the new scheme make the classification results more accurate than those without noise reduction preprocessing. ©2010 IEEE.

Number of references:18

Main heading:Feature extraction

Controlled terms:Acoustic noise measurement - Classification (of information) - Discrete wavelet transforms - Remote sensing - Shrinkage

Uncontrolled terms:Affinity propagation - Discrete wavelets - Feature selection - Imagery classification - Wavelet shrinkage

Classification code:716 Telecommunication; Radar, Radio and Television - 716.1 Information Theory and Signal Processing - 731.1 Control Systems - 921.3 Mathematical Transformations - 941.2 Acoustic Variables Measurements - 951 Materials Science

DOI:10.1109/CCPR.2010.5659192

Database:Compendex

<RECORD 41>

Title:A non-linear model for evaluating professional manager's incentive effect

Authors:Niu, Wenxue (1); Wei, Zhenghong (2); Zhang, Quanju (1)

Author affiliation:(1) Management Department, City College, Dongguan University of Technology, Dongguan, Guangdong, China; (2) College of Mathematics and Computational Science, Shenzhen University, Shenzhen 518060, China

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ISBN-13:9780769542973
Document type:Conference article (CA)
Conference name:2010 International Conference on Computational Intelligence and Security, CIS 2010
Conference date:December 11, 2010 - December 14, 2010
Conference location:Nanning, China
Conference code:83848
Sponsor:Xidian University; Beijing Normal University; CPS of IEEE
Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:Professional Managers play a very important role in modern corporation management. The profits of the company mostly depend on the executives' performance. As we all know, these executives work behaviors are absolutely related to what they can get from the boss. This article gives a nonlinear model to research the factors of the effective incentive on these managers. Furthermore, on the basis of the model research, some advice is given to improve the incentive effect for the practice management. © 2010 IEEE.
Number of references:8
Main heading:Management
Controlled terms:Artificial intelligence - Managers - Mathematical models - Professional aspects - Profitability
Uncontrolled terms:Corporation management - Manager's incentives - Non-linear model - Work behavior
Classification code:723.4 Artificial Intelligence - 901.1 Engineering Professional Aspects - 911.2 Industrial Economics - 912.2 Management - 921 Mathematics
DOI:10.1109/CIS.2010.149
Database:Compendex
Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 42>

Accession number:20110313597696Title:An improved consensus clustering for nonnegative matrix factorization in molecular cancer class discovery
Authors:Liu, Weixiang (1); Yuan, Kehong (2); Wang, Tianfu (1); Chen, Siping (1)
Author affiliation:(1) Department of Biomedical Engineering, School of Medicine, Shenzhen University, Shenzhen, 518060, China; (2) Research Center of Biomedical Engineering, Graduate School at Shenzhen, Tsinghua University, Shenzhen, 518055, China
Corresponding author:Liu, W.
Source title:2010 Chinese Conference on Pattern Recognition, CCPR 2010 - Proceedings
Abbreviated source title:Chin. Conf. Pattern Recogn., CCPR - Proc.
Monograph title:2010 Chinese Conference on Pattern Recognition, CCPR 2010 - Proceedings
Issue date:2010
Publication year:2010
Pages:485-488
Article number:5659324

Abstract:Recently nonnegative matrix factorization (NMF) has been proven powerful for nonnegative data analysis, especially in analyzing gene expression data. We propose an modified consensus clustering mechanism with soft sample assignment to improve the clustering accuracy. The idea is to use normalized inner product or cosine similarity matrix for the connectivity matrix of the consensus clustering. The experimental results demonstrate the effectiveness of the proposed method. ©2010 IEEE.
Number of references:14
Main heading:Matrix algebra
Controlled terms:Cluster analysis - Factorization - Gene expression - Pattern recognition
Uncontrolled terms:Clustering accuracy - Clustering analysis - Connectivity matrix - Consensus clustering - Cosine similarity - Data analysis - Gene Expression Data - Inner product - Nonnegative matrix factorization - Soft assignment
Classification code:461.8.1 Genetic Engineering - 716 Telecommunication; Radar, Radio and Television - 723 Computer Software, Data Handling and Applications - 921 Mathematics - 921.1 Algebra - 922 Statistical Methods
DOI:10.1109/CCPR.2010.5659324
Database:Compendex

<RECORD 43>

Accession number:20110513636073Title:Effect of chloride content on bond behavior between FRP and concrete
Authors:Pan, Jinlong (1); Huang, Yifang (1); Xing, Feng (2)
Author affiliation:(1) Ministry of Education of China, College of Civil Engineering, Southeast University, Nanjing 210096, China; (2) College of Civil Engineering, Shenzhen Key Laboratory on Durability of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Pan, J.
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Source title:Transactions of Tianjin University
Abbreviated source title:Trans. Tianjin Univ.

Abstract:For reinforced concrete structures located along the seaside, the penetration of chloride ions into concrete may be a threat to the durability of the structures. Experimental investigations were carried out to study the effect of chloride content on the bond behavior between concrete and fiber reinforced polymer (FRP) plates. Direct shear tests were conducted on the FRP strengthened concrete members. Before testing, the specimens were immersed in NaCl solutions with concentrations ranging from 3%-15% for different time (0-120 d). Then, the specimens were dried and tested to obtain the initial and ultimate debonding loads, together with strain distributions along the FRP plates of different load values. The correlations between chloride content and debonding parameters are established. Test results show that the debonding parameters are closely related to the immersing time rather than the chloride content of the solution. © 2010 Tianjin University and Springer-Verlag Berlin Heidelberg.
Number of references:20
Main heading:Debonding
Controlled terms:Fiber reinforced plastics - Plates (structural components) - Polymers - Reinforced concrete - Reinforced plastics - Sodium chloride - Soil structure interactions - Strain
Uncontrolled terms:Bond behavior - Chloride contents - Chloride ions - Concrete members - debonding behavior - Debonding parameters - Direct shear test - Experimental investigations - fiber reinforced polymer (FRP) - Fiber reinforced polymers - FRP plates - NaCl solution - Reinforced concrete structures - Strain distributions - Test results
Classification code:817.2 Polymer Applications - 817.1 Polymer Products - 815.1 Polymeric Materials - 813 Coatings and Finishes - 951 Materials Science - 804.2 Inorganic Compounds - 421 Strength of Building Materials; Mechanical Properties - 412 Concrete - 408.2 Structural Members and Shapes - 483.2 Foundations
DOI:10.1007/s12209-010-1399-x
Database:Compendex

<RECORD 44>

Title:Invariant sets of hybrid autonomous systems with disturbance
Authors:Li, Jian-Qiang (1); Zhu, Zexuan (1); Ji, Zhen (1); Pei, Hai-Long (2)
Author affiliation:(1) Shenzhen City Key Laboratory of Embedded System Design, College of

Computer Science and Software Engineering, Shenzhen 518060, China; (2) Department of Automation, South China University of Technology, Guangzhou 510641, China
Corresponding author:Li, J.-Q.
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Abstract:The concept and model of hybrid systems are introduced. Invariant sets introduced by LaSalle are proposed, and the concept is extended to invariant sets in hybrid systems which include disturbance. It is shown that the existence of invariant sets by arbitrary transition in hybrid systems is determined by the existence of common Lyapunov function in the systems. Based on the Lyapunov function, an efficient transition method is proposed to ensure the existence of invariant sets. An algorithm is concluded to compute the transition mode, and the invariant set can also be computed as a convex problem. The efficiency and correctness of the transition algorithm are demonstrated by an example of hybrid systems. Copyright © 2010 Li Jian-Qiang, et al.
Number of references:20
Main heading:Hybrid computers
Controlled terms:Algorithms - Differential equations - Hybrid systems - Lyapunov functions
Uncontrolled terms:Autonomous systems - Common Lyapunov functions - Concept and model - Convex problems - Invariant set - Transition modes
Classification code:722.5 Analog and Hybrid Computers - 921 Mathematics - 921.2 Calculus
DOI:10.1155/2010/289678
Database:Compendex

<RECORD 45>

Accession number:20110113546166Title:Research on metro vehicle vibration with regard to route conditions

Authors:Zhang, Huachao (1); Zhang, Xiaodong (1); Cao, Guangzhong (2)
Author affiliation:(1) College of Power and Energy, Northwestern Polytechnical University, Xi'an 710072, China; (2) College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhang, H.

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Abstract:With the development of underground rail, the problem that vehicle vibration affects the vehicle's life-span and harms the health of the passenger has been concerned. In this paper, a vibration test system has been formed with data collecting instrument and acceleration sensors to collect the signals of the metro vehicle floor when it running at the ATO (Auto Train Operation) mode in the tunnel, Analyzing the regulation of vehicle vibration signal change that come with the change of the route condition, such as curve, slope, and so on. Obtain the relationship between the road condition and vehicle vibration. The analysis result shows that, the vehicle vibration not only be affected by the structure of the vehicle itself and the geological condition on which the track laid, but also has close relationship with the route condition. © (2010) Trans Tech Publications.

Number of references:6
Main heading:Vibration analysis
Controlled terms:Industrial engineering - Manufacture - Rail motor cars - Vehicles
Uncontrolled terms:Acceleration sensors - Analysis results - Curve - Data collecting - Geological conditions - Life span - Metro vehicle - Road condition - Slope - Train operations   - Urban rail vehicle - Vehicle vibrations - Vibration - Vibration test system
Classification code:432 Highway Transportation - 537.1 Heat Treatment Processes - 682.1.1 Railroad Cars - 912.1 Industrial Engineering - 943.2 Mechanical Variables Measurements
DOI:10.4028/www.scientific.net/AMR.139-141.2295
Database:Compendex

<RECORD 46>

Authors:Zhang, Ming (1); Ding, Zhu (2); Liu, Peng (1); Wang, Mingke (2); Xing, Feng (2)
Author affiliation:(1) School of Civil Engineering and Architecture, Central South University, Changsha 410075, China; (2) Shenzhen Durability Center for Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhang, M.
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Abstract:Phosphoaluminate cement (PAC) sets quickly and develops high early strength. As a novel cementitious material, its hydration mechanism and microstructure are more complex than ordinary cement. Based on nitrogen adsorption isotherm method, investigated characteristic of adsorption isotherm of PAC paste, adsorption loop and pore distribution at different hydration period with various W/C ratio, results show that adsorption and desorption isotherm are tight relate to pore structure and pore distribution. In addition, the study analyzed the scope of application of nitrogen adsorption isotherm method on investigating pore structure of cement paste. © (2010) Trans Tech Publications.

Number of references:7
Main heading:Gas adsorption
Controlled terms:Adsorption isotherms - Cements - Desorption - Hydration - Manufacture - Nitrogen - Pore structure
Uncontrolled terms:Cement paste - Cementitious materials - Desorption isotherms - High early strength - Nitrogen adsorption (B.E.T) - Nitrogen adsorption isotherm - Ordinary cements - Phosphoaluminate cements - Pore distribution - Scope of application
Classification code:412.1 Cement - 537.1 Heat Treatment Processes - 802.2 Chemical Reactions -

<RECORD 47>

Title:Feature analysis of mechanical fault signals based on the wavelet transform technique
Authors:Wang, Bingcheng (1); Ren, Zhaohui (2)
Author affiliation:(1) Shenzhen University, Shenzhen, China; (2) Northeast University, Shengyang, China
Corresponding author:Wang, B.
(wbc8636@sina.coml)

Abstract:Simulated four different fault signals in the lab, the authors then used wavelet scalogram and amplitude spectrum to make analysis on the above four fault signals and abstract each spectrum characteristics. Wavelet scalogram was able to extract the characteristic's frequency, show the impact components caused by rub-impact, show the beat phenomenon caused by oil whip and show the irreducible high frequency components as well as the complex low-frequency components. Amplitude spectrum was able to show the energy size distribution at various frequency bands and able to analyze and calculate the relationship between various frequency components. Thus they express the relationship between various frequency banks from a quantitative manner. Therefore, combining the wavelet scalogram and amplitude spectrum when

making analysis, as they complement and verify each other, it will enhance the reliability when extract and analyze the characteristics of fault signal. © (2010) Trans Tech Publications.

Number of references:5

Main heading:Spectrum analysis

Controlled terms:Bearings (machine parts) - Comminution - Frequency bands - Industrial engineering - Manufacture - Reliability analysis - Wavelet transforms

Uncontrolled terms:Amplitude spectra - Beat phenomenons - Fault signal - Feature analysis - Frequency components - High frequency components - Impact components - Low-frequency components - Mechanical faults - Oil whips - Rub-impact - Spectrum characteristic - Wavelet scalogram

Classification code:943 Mechanical and Miscellaneous Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 941 Acoustical and Optical Measuring Instruments - 921.3 Mathematical Transformations - 921 Mathematics - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 913.4 Manufacturing - 912.1 Industrial Engineering - 716.4 Television Systems and Equipment - 601.2 Machine Components - 483 Soil Mechanics and Foundations - 913 Production Planning and Control; Manufacturing

DOI:10.4028/www.scientific.net/AMR.139-141.2502

Database:Compendex

Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 48>

Accession number:20110113550941Title:Phase compensation for eliminating black-matrix effect of phase-only spatial light modulator

Authors:Tian, Jindong (1); Li, Dong (1); Qi, Haiou (1); Zheng, Jianfeng (1)

Author affiliation:(1) Institute of Optoelectronics, Shenzhen University, Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Shenzhen 518060, China

Corresponding author:Tian, J.
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Source title:Proceedings of SPIE - The International Society for Optical Engineering

Abbreviated source title:Proc SPIE Int Soc Opt Eng

Volume:7848

Monograph title:Holography, Diffractive Optics, and Applications IV

Issue date:2010

Publication year:2010

Article number:78481E

Language:English

ISSN:0277786X

CODEN:PSISDG

ISBN-13:9780819483782

Document type:Conference article (CA)

Conference name:Holography, Diffractive Optics, and Applications IV

Abstract:A method for improving the performance of phase-only spatial light modulator (SLM) is proposed in this paper. For an electrical-addressed SLM, the pixelated structure just likes a 2D black-matrix. It will have an intrinsic effect on the incident light whether image is loaded into SLM. This inherent effect was called black-matrix effect characterized with zero-order diffraction of high brightness and high-order diffraction terms in the Fourier plane. This is strongly influenced the quality of phase modulation. In order to eliminate the black-matrix effect of SLM, a linear phase map or a digital Fresnel lens is compensated to the original phase map. The black-matrix effect will be separated with the reconstruction pattern in the perpendicular plane of the optical axis or along the optical axis. Therefore, the black-matrix effect will be eliminated through digital phase compensation. The theoretical analyze, computer simulations and experimental results are all presented to demonstrate the validity. Possible applications include almost all phase modulation applications. © 2010 Copyright SPIE - The International Society for Optical Engineering.
Number of references:20
Main heading:Light modulators
Controlled terms:Computer simulation - Diffraction - Holography - Light - Light modulation - Optical instrument lenses - Phase modulation
Uncontrolled terms:Fourier planes - Fresnel lens - High brightness - High-order - Incident light - Inherent effect - Intrinsic effects - Linear phase - matrix - Matrix effects - Optical axis - Perpendicular-plane - phase compensation - Phase maps - Phase-only - Reconstruction patterns - Spatial light modulators - Zero-order diffraction
Classification code:716 Telecommunication; Radar, Radio and Television - 723.5 Computer Applications - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 743 Holography - 746 Imaging Techniques
DOI:10.1117/12.869906
Database:Compendex

<RECORD 49>

Accession number:20110313597305Title:An improved simulated annealing algorithm and its application to minimizing the energy of protein tertiary structure
Authors:Liu, Yunling (1); Tao, Lan (2)
Author affiliation:(1) College of Information and Electrical Engineering, China Agricultural University, Beijing, 100083, China; (2) Faculty Information Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Liu, Y.
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Source title:2010 World Automation Congress, WAC 2010
Abbreviated source title:World Autom. Congr., WAC
Monograph title:2010 World Automation Congress, WAC 2010
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ISBN-13:9781424496730
Document type:Conference article (CA)
Conference name:2010 World Automation Congress, WAC 2010
Conference date:September 19, 2010 - September 23, 2010
Conference location:Kobe, Japan
Conference code:83391
Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:This paper provides an improved Simulated Annealing (SA) algorithm - Parallel Simulated Annealing Adaptive Neighborhood /Records Crossover (PSAAN/RX). In this algorithm there are several processes of SA working in parallel. During the processes, record operator and arithmetic crossover operator are performed. In addition, a neighborhood control rule is used. Numerical tests confirm the effectiveness of all these improvements. The proposed algorithm is then applied to energy minimization of protein energy function. Target proteins are Metenkephalin and C-peptide. Comparing PSAAN/RX to another two algorithms, it is found that PSAAN/RX can achieve conformations with lower energy values and PSAAN/RX has higher success rates. This algorithm can be used as an ad-initio method in small protein structure prediction.
Number of references:14
Main heading:Simulated annealing
Controlled terms:Algorithms - Mathematical operators - Peptides
Uncontrolled terms:Adaptive neighborhood - Arithmetic crossover operator - Control rules - Energy functions - Energy minimization - Improved simulated annealing algorithm - Initio methods - Lower energies - Numerical tests - Parallel simulated annealing - Protein structure prediction - Protein tertiary structures - Simulated annealing algorithms - Target proteins
Classification code:461.9 Biology - 921 Mathematics
Database:Compendex
Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 50>

Accession number:20111013715778Title:A new power control scheme for WCDMA systems using trellis-based prediction algorithm
Authors:Zeng, Jie (1); Wang, Hui (1)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen, 518060, China

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Abstract:In this paper, a trellis-based prediction algorithm was applied for the power control of WCDMA system for the first time. The principle of the algorithm was described. The power control events were modeled by a sequence of 0s and 1s by devising a trellis-based prediction method that adjusted the transmitting power strength based on the similarity of the power control states. The system capacity is increased and the simulation time is saved by using the algorithm. Numerical results indicate that the performance of the trellis-based prediction algorithm exceed that of conventional ones. © 2010 IEEE.

Number of references:9
Main heading:Algorithms
Controlled terms:Access control - Code division multiple access - Forecasting - Information technology - Power control
Uncontrolled terms:Control state - Numerical results - Power control schemes - Prediction algorithms - Prediction methods - Simulation time - System capacity - System simulation - Transmitting power - W-CDMA system - Wideband code division multiple access
Classification code:723 Computer Software, Data Handling and Applications - 731.3 Specific Variables Control - 903 Information Science - 921 Mathematics
DOI:10.1109/IFITA.2010.12
Database:Compendex

<RECORD 51>

Authors:Liu, Xingming (1); Peng, Xiang (1); Li, Ameng (1); Guan, Yingjian (2); Liu, Xiaoli (1)
Author affiliation:(1) Key Laboratory of Optoelectronics Devices and Systems, Shenzhen University, Education Ministry of China, 518060 Shenzhen, China; (2) College of Precision Instrument and Opto-electronics Engineering, State Key Laboratory of Precision Measurement Technology and Instruments, Tianjin University, 300072 Tianjin, China
Corresponding author:Peng, X.
        (xpeng@szu.edu.cn)

Abstract:Texture blending is an important technique for generating a photorealistic appearance of a physical model or scene. In this paper, we present an efficient texture blending algorithm that can be utilized to register and merge multiple texture-mapped range images of physical objects acquired from different view points, resulting in a 3-D photorealistic model. The technique details with respect to the proposed algorithm are described and verified by experiment results. © 2010 SPIE.
Number of references:9
Main heading:Three dimensional
Controlled terms:Algorithms - Blending - Imaging systems - Textures - Three dimensional computer graphics
Uncontrolled terms:3D imaging - 3D models - Photo-realistic - Texture blending - Texture mapping
Classification code:723 Computer Software, Data Handling and Applications - 741 Light, Optics and Optical Devices - 746 Imaging Techniques - 802.3 Chemical Operations - 921 Mathematics -

<RECORD 52>

Title:Runtime analysis of satisfactory solutions of particle swarm optimization
Authors:Feng, Jiqiang (1); Xie, Weixin (1); Xu, Chen (2)
Author affiliation:(1) Key Laboratory of Intelligent Information Processing, Shenzhen University, Shenzhen 518060, China; (2) Institute of Intelligent Computing Science, Shenzhen University, Shenzhen 518060, China
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Abstract:This paper proposes two models for the runtime analysis of satisfactory solutions of particle swarm optimization problems. Satisfactory solutions are important from a practical point of view because the precise optimum solutions of many optimization problems are difficult to obtain. The first model, called the satisfactory solutions model, employs fuzzy stochastic variables to denote fitness function of PSO and the second one, called the runtime analysis model, uses a counting process to reveal the runtime of different satisfactory solutions. The main idea of the latter model is to transform the runtime problem into a number counting problem with observable statistical results. More precisely, the interval time sequence between successive iterations is exponentially distributed with probability 1 and the satisfactory solutions runtime sequence is a Γ distribution with probability 1. © 2010 Binary Information Press.
Main heading:Particle swarm optimization (PSO)
Controlled terms:Function evaluation - Probability distributions - Random processes - Stochastic models - Stochastic systems
Uncontrolled terms:Counting problems - Counting process - Fitness functions - Interval time - Optimization problems - Optimum solution - Particle swarm - Run-time analysis - Runtimes - Satisfactory solutions   - Stochastic process - Stochastic variable - Successive iteration

<RECORD 53>

Title:Memetic ant colony optimization for band selection of hyperspectral imagery classification
Authors:Zhu, Zexuan (1); Ji, Zhen (1); Jia, Sen (1)
Author affiliation:(1) Shenzhen City Key Laboratory of Embedded System Design, College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Ji, Z.
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Abstract:This paper proposes a novel memetic ant colony optimization (MACO) algorithm for band selection on hyperspectral imagery classification. The method incorporates filter method based local search and ant colony optimization (ACO) based global search to take advantage of both. Particularly, the local search fine-tunes the paths explored by the ants by adding the relevant bands and eliminating irrelevant/redundant ones. A comparison study to the filters methods (including Gain Ratio, ReliefF, AP based method, and FCBF) and the counterpart wrapper ACO feature selection on four hyperspectral imagery datasets demonstrates that MACO is capable of attaining competitive or better classification accuracy with fewer selected bands. The empirical results suggest that MACO is effective and efficient in identifying relevant bands while eliminating irrelevant/redundant ones. ©2010 IEEE.

Number of references:19
Main heading:Algorithms
Controlled terms:Artificial intelligence - Classification (of information) - Feature extraction - Optimization - Remote sensing
Uncontrolled terms:Ant-colony optimization - Band selection - Classification accuracy - Comparison study - Data sets - Empirical results - Feature selection - Filter method - Gain Ratio - Global search   - Hyperspectral imagery - Local search - Memetic - Memetic algorithms - ReliefF
Classification code:921.5 Optimization Techniques - 921 Mathematics - 731.1 Control Systems - 723.4 Artificial Intelligence - 723 Computer Software, Data Handling and Applications - 716.1 Information Theory and Signal Processing - 716 Telecommunication; Radar, Radio and Television

<RECORD 54>

Title:Apply the ant feature of sensation to calculate the minimum value of function
Authors:Pang, Chao-Yang (1); Zhang, Yan (3); Yang, Qiong (4); Hu, Ben-Qiong (5)
Author affiliation:(1) Group of Gene Computation, Key Lab. of Visual Computation and Virtual Reality of Sichuan Province, Chengdu 610066, China; (2) College of Mathematics and Software Science, Sichuan Normal University, Chengdu 610066, China; (3) College of Computer and Software, Shenzhen University, Shenzhen, Shenzheng, 518060, China; (4) Information and E-Education Department, Sichuan Tourism School, Chengdu 610041, China; (5) College of Information Management, Chengdu University of Technology, Chengdu 610059, China
Corresponding author:Hu, B.-Q.
        (hbq402@126.com)

Conference code:84151

Abstract:Calculating the minimum (or maximum) value of functions is an important problem in optimization field. Applying the method of ant colony optimization (ACO) to solve the problem is an interesting research topic currently, and the main disadvantage is that solution is local optimal. To evade this disadvantage in some degree, in this paper, the ant feature of sensation is used. Experiment shows that the method presented in this paper generates high quality of solution. © 2010 IEEE.

Number of references:15
Main heading:Optimization
Controlled terms:Algorithms - Artificial intelligence
Uncontrolled terms:ACO - Ant-colony optimization - Feature of ant sensation - High quality - Local optimal - Minimum value - Research topics
Classification code:723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 921 Mathematics - 921.5 Optimization Techniques
DOI:10.1109/ICGEC.2010.96
Database:Compendex

<RECORD 55>

Accession number:20110213557618Title:General fractal dimension calculation of vibration signal based on correlation integral

Authors:Wang, Bingcheng (1); Ren, Zhaohui (2)
Author affiliation:(1) Shenzhen University, Shenzhen, China; (2) Northeast University, Shenzhen, China
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Conference location:Xiangtan, China

Conference code:83187

Abstract:Four different fault signals are simulated and collected which are oil whip fault signal, rub-impact fault signal, rub- oil whip coupling fault signal and rub - loose coupling fault signal in the lab. According to the Restructuring the theory of phase space, in foundation of the optimal delay time τ and the embedding dimension d, phase space is restructured to the time sequence of different fault. Simultaneously in connection with the general fractal theory and its algorithm, author has conducted the analysis and study, and the correlation integral is used to the concrete calculation of general fractal dimension, fractal dimensions of four kind of fault are calculated separately by this calculation method. The research goal is attempting to explore one new calculation method of general fractal dimension to improve accuracy and increase the degree of differentiation, to provide the basis for the analysis of the fault signal. © (2010) Trans Tech Publications.

Number of references:6

Main heading:Fractal dimension

Controlled terms:Initiators (chemical) - Manufacture - Mechanical engineering - Partial discharges - Phase space methods

Uncontrolled terms:Calculation methods - Correlation Integral - Coupling faults - Embedding dimensions - Fault diagnosis - Fault signal - Fractal theory - General fractal dimension - Loose couplings - Oil whips - Optimal delay - Phase spaces - Research goals - Rub-impact - Time sequences - Vibration signal

Classification code:537.1 Heat Treatment Processes - 608 Mechanical Engineering, General - 701.1 Electricity: Basic Concepts and Phenomena - 803 Chemical Agents and Basic Industrial Chemicals - 921 Mathematics

DOI:10.4028/www.scientific.net/AMM.34-35.1269

Database:Compendex

<RECORD 56>

Accession number:20110213560399Title:Effect of solvents on the performance of P3HT:PCBM solar cells

Authors:Li, Weimin (1); Guo, Jinchuan (3); Sun, Xiuquan (4); Zhou, Bin (3)

Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems, Ministry of Education and Guangdong Province, Shenzhen University, Shenzhen 518060, China; (2) School of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, China; (3) Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China; (4) School of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China

Corresponding author:Li, W.

Source title:Proceedings of SPIE - The International Society for Optical Engineering

Abstract:Investigating the effects of solvents on the performance of poly(3-hexylthiophene-2,5-diy1) (P3HT):C61-butyric acid methyl ester (PCBM) bulk heterojunction solar cells, we found the short current density (Jsc), fill factor(FF),and power conversion efficiency (η) of a cell with a photo-active layer made using materials dissolved in a higher boiling point solvent to be higher than those of a cell made using the same materials dissolved in a low boiling point solvent. Evaluating the surface morphology, charge mobility, and current-voltage curve of cells made using different solvents, we concluded that the polymer films using a higher boiling point solvent had longtime to self-organize, got a higher degree of crystalline, led to lower device series resistance, thereby increased the short current density (Jsc), fill factor(FF),and power conversion efficiency (η) of the photovoltaic devices. © 2010 Copyright SPIE - The International Society for Optical Engineering.

<RECORD 57>

Title:Precisely locating multi-QR code based on straight line fitting

Authors:Huang, Qiang (1); Li, Ming (2); Ji, Zhen (1)
Author affiliation:(1) Shenzhen City Key Laboratory of Embedded System Design, College of Computer Science and Software Engineering, Shenzhen University, 518060, China; (2) College of Computer Science and Software Engineering, Shenzhen University, 518060, China
Corresponding author:Huang, Q.
       (jamehqs@szu.edu.cn)

Abstract:QR code as a code which can be recognized quickly and in all directions, has been widely used in every walk of life. This paper proposed an approach to exactly locate the QR code, which based on the frame points of the QR code finder pattern to fit line in order to get the four frame lines of the QR code. Compared with commonly used HOUGH transform, our approach reduces a lot of memory and time consumption. Experiment validates that the proposed method can precisely locate multi-QR codes in complicate background. ©2010 IEEE.

<RECORD 58>

Authors:Huang, Kai-Jin (1); Yan, Li (1); Xie, Chang-Sheng (1)
Author affiliation:(1) State Key Laboratory of Materials Processing and Die and Mould Technology, Huazhong University of Science and Technology, Wuhan 430074, China; (2) State Key Laboratory of Crystal Material, Shandong University, Jinan, 250100, China; (3) Shenzhen Key Laboratory of Special Functional Material, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Huang, K.-J.
        (huangkaijin@yahoo.com.cn)

Abstract:The nano γ-Fe<inf>2</inf>O<inf>3</inf>/ZnO double-layer film gas sensor was fabricated by the screen printing technology and the hydrothermal method. XRD and SEM techniques were used to characterize the phases and morphologies of the film. The gas sensing properties of the gas sensor to ethanol were investigated. The result shows that the gas sensitivity of the gas sensor is higher than that of the nano γ-Fe<inf>2</inf>O<inf>3</inf> single-layer film gas sensor and the nano ZnO single-layer film gas sensor. The high gas sensitivity of the nano γ-Fe<inf>2</inf>O<inf>3</inf>/ZnO double-layer film to ethanol was caused by the combined effect and nano effect. © (2010) Trans Tech Publications, Switzerland.

Number of references:8

Main heading:Gases

Controlled terms:Chemical detection - Chemical sensors - Ethanol - Gas detectors - Mechanical engineering - Mechanics - Zinc oxide

Uncontrolled terms:Combined effect - Double-layer films - Gas sensing mechanism - Gas sensing properties - Gas sensitivity - Gas sensors - Hydrothermal methods - Nano-ZnO - Screen printing technology - SEM   - Sensitivity - Single layer films - XRD - ZnO

Classification code:523 Liquid Fuels - 608 Mechanical Engineering, General - 801 Chemistry - 804.2 Inorganic Compounds - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids

<RECORD 59>

Title:An improved joint subspace projection method for InSAR interferogram filtering

Authors:Li, Hai (1); Wu, Renbiao (1)

Author affiliation:(1) Tianjin Key Laboratory for Advanced Signal Processing, Civil Aviation University of China, Tianjin 300300, China; (2) Intelligent Information Institute of ATR Lab., Shenzhen University, Shenzhen, 518060, China

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Abstract:In this paper, an improved joint subspace projection method for synthetic aperture radar interferometry (InSAR) interferogram filtering is proposed. Benefiting from the new formulation of joint data vector, the method does not need to calculate the noise subspace dimension before estimating the InSAR interferometric phase, thus avoiding the effect on the estimation of the InSAR interferometric phase due to the inaccuracy of the noise subspace dimension. The method can auto-coregister the SAR images and reduce the interferometric phase noise simultaneously. © 2010 IEEE.
Number of references:16
Main heading:Synthetic aperture radar
Controlled terms:Geodetic satellites - Imaging systems - Interference suppression - Radar - Signal processing - Synthetic apertures - Vectors
Uncontrolled terms:Autocoregister - Interferometric phase - Joint data vecto - Noise subspace - Synthetic aperture radar interferometry (InSAR)
Classification code:405.3 Surveying - 716.1 Information Theory and Signal Processing - 716.2 Radar Systems and Equipment - 741 Light, Optics and Optical Devices - 746 Imaging Techniques - 921.1 Algebra
DOI:10.1109/ICOSP.2010.5655731
Database:Compendex

<RECORD 60>

Accession number:20110113548979Title:Effect of admixture on mechanical behavior and micro-structure of sulphoaluminate composite material
Authors:Zhang, Ming (1); Xing, Feng (2); Zhang, Decheng (3); Zhang, Yunfei (3)
Author affiliation:(1) School of Civil Engineering and Architecture, Central South University, Changsha 410075, China; (2) Shenzhen Durability Center for Civil Engineering, Shenzhen University, Shenzhen 518060, China; (3) School of Material Science and Engineering, Jinan University, Jinan 250022, China
Corresponding author:Zhang, M.
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Document type:Conference article (CA)
Conference name:2010 International Conference of Environment Materials and Environment

Management, EMEM 2010

Abstract:Mechanical behavior of sulphoaluminate cement (SAC) mortar mixed slag (SL), fly ash (FA) and combined admixture were studied in the study, at the same time, hydration products and micro-structure were analyzed with XRD and SEM for making clear hydration mechanism. Test results show that early period strength of SAC mortar decreased, and strength contribution rate of admixture is combined admixture (slag + fly ash) > slag > fly ash on the same content due to the combined admixture is more beneficial to accelerate hydration. Yet strength increase of SAC mortar mixed admixture after cured 60d is not obvious, which was not large different with pure SAC mortar. A large amount of ettringite and gel produced during 1d period of SAC paste, but with the hydration carrying on, diffraction peak of hydration products (ettringite and gel) and unhydrated calcium sulphoaluminate change little, which means hydration degree at 1d is higher. Diffraction peak of ettringite and gel at different curing period is lower when mixed admixture in matrix, the amount of ettringite and gel increased and unhydrated calcium sulphoaluminate decreased with hydration carrying on, which means early hydration speed slow down when introduction of admixture into SAC matrix. © (2010) Trans Tech Publications, Switzerland.

Number of references:7
Main heading:Hydration
Controlled terms:Cements - Curing - Diffraction - Environmental management - Fly ash - Gels - Mechanical engineering - Mortar - Slags
Uncontrolled terms:Calcium sulphoaluminate - Contribution rate - Diffraction peaks - Ettringites - Hydration degree - Hydration products - matrix - Mechanical behavior - SEM - Sulphoaluminate - Sulphoaluminate cement - Test results - XRD
Classification code:802.2 Chemical Reactions - 711.1 Electromagnetic Waves in Different Media - 608 Mechanical Engineering, General - 454.1 Environmental Engineering, General - 804 Chemical Products Generally - 414.3 Mortar (Before 1993, use code 412) - 412.1 Cement - 412 Concrete - 406 Highway Engineering - 413 Insulating Materials
DOI:10.4028/www.scientific.net/AMR.113-116.2193
Database:Compendex
Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 61>

Title:The generation of nondiffracting beams array with arbitrary order by phase holograms

Authors:Hu, Mingxi (1); Tian, Jindong (1); Wang, Ruisong (1); Li, Dong (1)
Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems of Education Ministry, Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China; (2) State Key Laboratory of Precision Measurement Technology and Instruments, Tsinghua University, Beijing, China

Corresponding author:Hu, M.

Abstract:Nondiffracting beams are of interest for optical potential applications owing to their properties of smaller central spot, longer propagation distance and so on. A phase-holograms-based method of generation of nondiffracting beams array with arbitrary order is proposed in this paper. If a phase hologram is displayed on a phase-only spatial light modulator (SLM), when a collimated monochromatic plane wave illuminates it, an annulus with high concentration of energy is obtained in the Fourier plane. Then through the Fourier transform again, a nondiffracting beam will be generated. It is able to generate arbitrary order nondiffracting beams with high diffractive efficiency. More significantly, if a phasehologram- array that possesses the same eigenvalue is utilized, a unique bright annulus will be generated in the Fourier plane because of the shift-invariance of Fourier transform and the consistency of phase hologram design. Then through the Fourier transform again, a nondiffracting beams array will be generated. Furthermore, the location and the order of each individual nondiffracting beam can be customized according requirement. Experiment results are in good agreement with the numerical simulation and the theoretical analysis. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:17

Main heading:Fourier transforms

Controlled terms:Eigenvalues and eigenfunctions - Holograms - Light - Light modulation - Light modulators - Lithography - Optical data processing - Optical data storage

Uncontrolled terms:Arbitrary order - Diffractive efficiency - Eigen-value - Fourier planes - High concentration - Monochromatic plane waves - Nondiffracting beam - Numerical simulation - Optical potential - Phase holograms - Phase-only - Propagation distances - Shift-invariance - Spatial light modulators

Classification code:714.2 Semiconductor Devices and Integrated Circuits - 741.1 Light/Optics -

741.3 Optical Devices and Systems - 743 Holography - 921.1 Algebra - 921.3 Mathematical Transformations

<RECORD 62>

Title:Face recognition using gabor wavelet and self-adaptive intelligent single particle optimizer

Authors:Zhou, Jiarui (1); Ji, Zhen (2); Huang, Weigan (2); Tian, Tao (2)
Author affiliation:(1) College of Biomedical Engineering and Instrument Science, Zhejiang University, Hangzhou 310027, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China; (3) Shenzhen Key Laboratory of Embedded System Design, Shenzhen 518060, China
Corresponding author:Zhou, J.

Abstract:A Gabor wavelet based face recognition algorithm of PSOGabor is introduced in this paper. By using particular Gabor filters in feature extraction on important region of face image, PSOGabor can attain more representative feature information with less processing time. To overcome the drawback of overly dependence on the input parameters in intelligent single particle optimizer (ISPO), an improved algorithm of self-adaptive ISPO (AdpISPO) is proposed in this paper. With no critical parameter required, AdpISPO can achieve higher performance than original algorithms. Experimental results demonstrated that, by employing AdpISPO in Gabor filters' selection, PSOGabor can attain higher recognition rate with less computational time. ©2010 IEEE.

Number of references:10

Main heading:Face recognition

Controlled terms:Algorithms - Feature extraction - Parameter estimation - Particle swarm optimization (PSO) - Wavelet analysis

Uncontrolled terms:Computational time - Critical parameter - Face images - Face recognition algorithms - Feature information - Gabor filter - Gabor wavelets - Improved algorithm - Input parameter - Optimizers - Original algorithms - Particle swarm - Processing Time - Recognition rates - Self-adaptive - Single particle

Classification code:716 Telecommunication; Radar, Radio and Television - 723 Computer Software, Data Handling and Applications - 731.1 Control Systems - 921 Mathematics

DOI:10.1109/CCPR.2010.5659208

Database:Compendex

Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 63>

Authors:Zeng, Qiming (1); Ji, Zhen (1); You, Junmin (1); Li, Wei (1)

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Corresponding author:Zeng, Q.

Abstract:A Gabor wavelet based palmprint recognition algorithm is introduced in this paper. With high recognition rate and low computational complexity, the algorithm is suitable for portable

platform. TI TMS320VC5509A is a high performance digital signal processor (DSP) provided by Texas Instruments Corporation. By using the 5509A chip as the core processor, working with AVR microcontroller, CPLD device and CMOS image sensor, the hardware platform is constructed. By porting the recognition algorithm to the hardware platform, a portable palmprint recognition system is proposed in this paper. Experimental results on PolyU palmprint database and actual captured palmprint image database have demonstrated that, the implemented recognition system can indicate palmprints effectively with little computation time and chip resources required. ©2010 IEEE.

<RECORD 64>

Title:Impacts of keystone formatting on Space-Time Adpative Processing in airborne radar
Authors:Jia, Qiongqiong (1); Wu, Renbiao (1); Li, Hai (1)
Author affiliation:(1) Tianjin Key Lab for Advanced Signal Processing, Civil Aviation University of China, Tianjin 300300, China; (2) Intelligent Information Institute, ATR Lab., Shenzhen University, Shenzhen 518060, China
Corresponding author:Jia, Q.

Document type:Conference article (CA)
Conference name:2010 IEEE 10th International Conference on Signal Processing, ICSP2010
Conference date:October 24, 2010 - October 28, 2010
Conference location:Beijing, China
Conference code:83255
Sponsor:IEEE Beijing Section; The Chinese Institute of Electronics (CIE); The Institution of Engineering and Technology (IET); Union Radio Scientifique Internationale (URSI); National Natural Science Foundation of China
Publisher:Institute of Electrical and Electronics Engineers Inc., 445 Hoes Lane / P.O. Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:Keystone formatting (KF) has the capability of compensating multiple targets' (including ground clutter) range walk simultaneously without using any specific knowledge of the target motion. However, due to serious Doppler ambiguity of the fast moving targets, KF will affect the distribution of the clutter and degrade the Space-Time Adaptive Processing (STAP) performance. Based on the above reasons, the impacts of KF on the clutter distribution are analyzed firstly, and then the impacts of KF on STAP are analyzed. The conclusions obtained are helpful to figure out better methods for fast dim air moving target detection. © 2010 IEEE.
Number of references:13
Main heading:Target tracking
Controlled terms:Arches - Clutter (information theory) - Radar - Signal detection - Signal processing - Space time adaptive processing
Uncontrolled terms:Airborne radars - Clutter distributions - Degree of freedom (dof) - Doppler ambiguity - Ground clutter - Keystone formatting (KF) - Moving target detection - Moving targets - Multiple targets - Specific knowledge   - Target motions
Classification code:408.2 Structural Members and Shapes - 716.1 Information Theory and Signal Processing - 716.2 Radar Systems and Equipment
DOI:10.1109/ICOSP.2010.5655762
Database:Compendex
Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 65>

Accession number:20110213560649Title:Calibration target reconstruction for 3-D vision inspection system of large-scale engineering objects

Authors:Yin, Yongkai (1); Peng, Xiang (1); Guan, Yingjian (1); Liu, Xiaoli (2); Li, Ameng (2)
Author affiliation:(1) College of Precision Instrument and Opto-electronics Engineering, State Key Laboratory of Precision Measurement Technology and Instruments, Tianjin University, 300072 Tianjin, China; (2) College of Optoelectronic Engineering, Key Laboratory of Optoelectronics Devices and Systems, Shenzhen University, 518060 Shenzhen, China
Corresponding author:Peng, X.
        (xpeng@szu.edu.cn)

Source title:Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title:Proc SPIE Int Soc Opt Eng

Abstract:It is usually difficult to calibrate the 3-D vision inspection system that may be employed to measure the large-scale engineering objects. One of the challenges is how to in-situ build-up a large and precise calibration target. In this paper, we present a calibration target reconstruction strategy to solve such a problem. First, we choose one of the engineering objects to be inspected as a calibration target, on which we paste coded marks on the object surface. Next, we locate and decode marks to get homologous points. From multiple camera images, the fundamental matrix between adjacent images can be estimated, and then the essential matrix can be derived with priori known camera intrinsic parameters and decomposed to obtain camera extrinsic parameters. Finally, we are able to obtain the initial 3D coordinates with binocular stereo vision reconstruction, and then optimize them with the bundle adjustment by considering the lens distortions, leading to a high-precision calibration target. This reconstruction strategy has been applied to the inspection of an industrial project, from which the proposed method is successfully validated. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:12

Main heading:Stereo vision

Controlled terms:Calibration - Cameras - Computer vision - Industrial applications - Industry - Inspection - Inspection equipment - Optimization - Pixels - Three dimensional

Uncontrolled terms:3-D vision - 3D calibration - 3D coordinates - Binocular stereo vision - Bundle adjustments - Calibration targets - Engineering objects - Essential matrix - Extrinsic parameter - Fundamental matrix - High-precision calibration - In-situ - Industrial projects - Intrinsic parameters - Large-scale engineering - Lens distortion - Multiple camera images - Object surface - Sub pixels

Classification code:943 Mechanical and Miscellaneous Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 941 Acoustical and Optical Measuring Instruments - 921.5 Optimization Techniques - 913.3.1 Inspection - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 913 Production Planning and Control; Manufacturing - 911 Cost and Value Engineering; Industrial Economics - 902.1 Engineering Graphics - 742.2

<RECORD 66>

Authors:Jia, Binghui (1); Zhang, Xiaodong (1)
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Corresponding author:Jia, B.
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Abstract:The tip clearance flow of axial turbomachines is important for their aerodynamic and maneuver performance. And the tip clearance gap leakage flow is of continuing concern in reducing efficiency losses that occur within turbines. In order to gain significant reductions in emissions and specific fuel consumption as well as dramatic improvements in operating efficiency and increased service life of aero-engine, variation mechanism of blade tip clearance was analyzed and the equation of dynamic clearance was shown firstly, then the effect of rotor vibration in clearance variation which include flight loads and engine loads was studied in this paper; based on the dynamic measurements of blade tip clearance, a method that ensure tip clearance at optimal

state in given mission profile through active rotor vibration control and active tip clearance control was presented. Besides, fuzzy control theory was used to solve the high nonlinear variation of tip clearance. The analysis result shows that this technique is useful. © (2010) Trans Tech Publications.

Number of references:7

Main heading:Vibration analysis

Controlled terms:Fuzzy control - Industrial engineering - Leakage (fluid) - Manufacture - Turbines

Uncontrolled terms:Active control - Active rotor - Aero-engine - Analysis results - Axial turbomachines - Blade tip clearance - Clearance variation - Dynamic measurement - Efficiency loss - Engine load - Flight loads - Flight maneuver - Leakage flow - Mission profile - Non-linear variation - Operating efficiency - Optimal state - Rotor vibrations - Specific fuel consumption - Tip clearance - Tip clearance flow - Variation mechanisms

Classification code:943.2 Mechanical Variables Measurements - 921 Mathematics - 912.1 Industrial Engineering - 731 Automatic Control Principles and Applications - 612.3 Gas Turbines and Engines - 537.1 Heat Treatment Processes - 452.3 Industrial Wastes

DOI:10.4028/www.scientific.net/AMR.139-141.2469

Database:Compendex

<RECORD 67>

Title:Study on properties of fresh and hardened slag cement paste

Authors:Zhang, Ming (1); Lu, Han (2); Xing, Feng (2); Wang, Shuping (3)

Author affiliation:(1) School of Civil Engineering and Architecture, Central South University, 410075, China; (2) Shenzhen Durability Center for Civil Engineering, Shenzhen University, 518060, China; (3) Gansu Electric Power Design Institute, Lanzhou 730050, China

Corresponding author:Zhang, M.

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Abstract:The paper studied effect of blast-furnace slag on rheology and hydration properties of blended cement paste. Rheology of blended cement paste with polycarboxylic series (PCS) and sulphamate series (SMS) superplasticizer is tested, appraised effect degree of the dosage and fineness of slag in blended cement by saturation dosage of superplasticizer, fluidity and gradual loss of fluidity. For hardened paste, the study tested development of strength and hydration products, activation effects of gypsum and sodium sulfate, analyzed macro mechanical behavior and micro structure of blend cement made from slag. © (2010) Trans Tech Publications, Switzerland.

Number of references:8
Main heading:Environmental management
Controlled terms:Chemical activation - Elasticity - Fluidity - Gypsum - Hardening - Hydration - Rheology - Slag cement - Slags - Sodium   - Sodium sulfate - Viscosity
Uncontrolled terms:Activation effect - Alkali activators - Blast furnace slags - Blend cement - Blended cement - Blended cement pastes - Cement paste - Hardened paste - Hydration products - Hydration properties   - Mechanical behavior - Saturation dosages - Superplasticizers
Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 931.1 Mechanics - 813 Coatings and Finishes - 804.2 Inorganic Compounds - 802.2 Chemical Reactions - 549.1 Alkali Metals - 537.1 Heat Treatment Processes - 454.1 Environmental Engineering, General - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties - 414 Masonry Materials - 412.1 Cement - 412 Concrete
DOI:10.4028/www.scientific.net/AMR.113-116.2283
Database:Compendex

<RECORD 68>

Accession number:20110213560638Title:High-resolution dynamic three-dimensional profilomety based on a combination of stereovision and color-encoded digital fringe projection
Authors:Li, Dong (1); Tian, Jindong (1)
Author affiliation:(1) Institute of Optoelectronics, Shenzhen University, Key Laboratory of Optoelectronic Devices and Systems of Education Ministry and Guangdong Province, 518060 Shenzhen, China
Corresponding author:Tian, J.
Source title:Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title:Proc SPIE Int Soc Opt Eng
Volume:7855
Monograph title:Optical Metrology and Inspection for Industrial Applications
Issue date:2010
Publication year:2010
Article number:78550J

Abstract:A high-resolution, dynamic Three-dimensional (3-D) profilometry based on the combined stereovision and color-encoded digital fringe projection is proposed. In this technique, a sinusoidal fringe pattern is encoded with spatial neighborhood strategy based on De Bruijn sequences. A decoding algorithm for the color pattern is presented. The absolute phase value is retrieved by space method based on locally intensity variety, and unwrapped by dividing the periods based on the intensity peak and the corresponding color information. Therefore, only a single color image is needed to realize the unique code in pixel dimension, which meets the demand of high-resolution, real-time 3D shape measurement. That means this technique could realize pixel-level resolution and measure disconnected objects. Since the phase value at each pixel is only used to assist stereo matching, the 3-D reconstruction could be realtime, and the accuracy is also enhanced. A measurement system consisted of one projector and two cameras is developed. Experimental results are presented to show the feasibility of the proposed method. © 2010 Copyright SPIE - The International Society for Optical Engineering.
Number of references:16
Main heading:Three dimensional
Controlled terms:Birefringence - Color - Color image processing - Image matching - Industrial applications - Pixels - Projection systems
Uncontrolled terms:3-d shape measurement - color-encoded - Digital fringe projection - High resolution - Real time
Classification code:723.5 Computer Applications - 741 Light, Optics and Optical Devices - 902.1 Engineering Graphics - 913 Production Planning and Control; Manufacturing
DOI:10.1117/12.869988
Database:Compendex

<RECORD 69>

Accession number:20110213573959Title:Secure data aggregation for sensor networks
Authors:Zhang, Peng (1); Yu, Jian-Ping (1)
Author affiliation:(1) ATR Key Laboratory of National Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhang, P.

(zhangpeng_aza@126.com)

Source title:International Conference on Signal Processing Proceedings, ICSP
Abbreviated source title:Int Conf Signal Process Proc
Monograph title:ICSP2010 - 2010 IEEE 10th International Conference on Signal Processing, Proceedings
Issue date:2010
Publication year:2010
Pages:1853-1856
Article number:5656896
Language:English
ISBN-13:9781424458981
Document type:Conference article (CA)
Conference name:2010 IEEE 10th International Conference on Signal Processing, ICSP2010
Conference date:October 24, 2010 - October 28, 2010
Conference location:Beijing, China
Conference code:83255
Sponsor:IEEE Beijing Section; The Chinese Institute of Electronics (CIE); The Institution of Engineering and Technology (IET); Union Radio Scientifique Internationale (URSI); National Natural Science Foundation of China
Publisher:Institute of Electrical and Electronics Engineers Inc., 445 Hoes Lane / P.O. Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:Researchers show that data aggregation could save energy and bandwidth of the networks. But the unreliability of wireless links will weaken the performance of network aggregation deeply. Based on homomorphic encryption technology and the non-repudiation transmission protocol, a novel approach to protect sensor data secure is proposed. Because of fully using symmetric encryption algorithm, the protocol is efficient. Security analysis shows that the proposed protocol can guarantee data end-to-end confidentiality and authentication. © 2010 IEEE.
Number of references:13
Main heading:Network protocols
Controlled terms:Cryptography - Image quality - Network security - Sensor networks - Signal processing
Uncontrolled terms:Data aggregation - Homomorphic-encryptions - Network aggregation - Non-repudiation - Save energy - Secure data - Security analysis - Sensor data - Symmetric encryption - Transmission protocols   - Wireless link
Classification code:716.1 Information Theory and Signal Processing - 723 Computer Software, Data Handling and Applications - 732 Control Devices - 741 Light, Optics and Optical Devices
DOI:10.1109/ICOSP.2010.5656896
Database:Compendex

<RECORD 70>

Accession number:20104413343162Title:Annealing temperature influence on electrical properties of ion beam sputtered Bi_2Te_3 thin films

Authors:Zheng, Zhuang-Hao (1); Fan, Ping (1); Liang, Guang-Xing (1); Zhang, Dong-Ping (1); Cai, Xing-Min (1); Chen, Tian-Bao (1)
Author affiliation:(1) Shenzhen Key Laboratory of Sensor Technology, College of Physical Science and Technology, Shenzhen University, 518060, China
Corresponding author:Fan, P.
          (fanping@szu.edu.cn)

Abstract:Ion beam sputtering process was used to deposit n-type fine-grained Bi_2Te_3 thin films on BK7 glass substrates at room temperature. In order to enhance the thermoelectric properties, thin films are annealed at the temperatures ranging from 100 to 400 °C. X-ray diffraction (XRD) shows that the films have preferred orientations in the c-axis direction. It is confirmed that grain growth and crystallization along the c-axis are enhanced as the annealing temperature increased. However, broad impurity peaks related to some oxygen traces increase when the annealing temperature reached 400 °C. Thermoelectric properties of Bi_2Te_3 thin films were investigated at room temperature. The Bi_2Te_3 thin films, including as-deposited, exhibit the Seebeck coefficients of -90 to -168 μV K^{-1} and the electrical conductivities of 3.92×10^2 7.20×10^2 S cm^{-1} after annealing. The Bi_2Te_3 film with a maximum power factor of 1.10×10^{-3} Wm^{-1} K^{-2} is achieved when annealed at 300 °C. As a result, both structural and transport properties have been found to be strongly affected by annealing treatment. It was considered that the annealing conditions reduce the number of potential scattering sites at grain boundaries and defects, thus improving the thermoelectric properties. © 2010 Elsevier Ltd.

Number of references:24
Main heading:Annealing
Controlled terms:Crystal impurities - Crystal structure - Electric conductivity - Electric power factor - Grain boundaries - Grain growth - Grain size and shape - Ion beams - Oxygen - Sputtering - Substrates - Tellurium compounds - Thermoelectric equipment - Thermoelectricity - Thin films - Transport properties - Vapor deposition - X ray diffraction

Uncontrolled terms:A. Thin films - Annealing condition - Annealing temperatures - Annealing treatments - BK7 glass - C-axis direction - D. Crystal structure - Electrical conductivity - Electrical property - Impurity peaks - Ion-beam sputtering - Maximum power factor - Potential scattering - Preferred orientations - Room temperature - Thermoelectric properties

Classification code:932.1 High Energy Physics - 931.3 Atomic and Molecular Physics - 931.2 Physical Properties of Gases, Liquids and Solids - 804 Chemical Products Generally - 933 Solid State Physics - 802.2 Chemical Reactions - 701.1 Electricity: Basic Concepts and Phenomena - 615.4 Thermoelectric Energy - 537.1 Heat Treatment Processes - 714.2 Semiconductor Devices and Integrated Circuits

DOI:10.1016/j.jpcs.2010.09.012

Database:Compendex

<RECORD 71>

Title:An embedded three-dimensional profilometry based on a combination of gray-code and phase shifting method

Authors:Li, Dong (1); Tian, Jindong (1)
Author affiliation:(1) Institute of Optoelectronics, Shenzhen University, Key Laboratory of Optoelectronic Devices and Systems of Education Ministry and Guangdong Province, 518060 Shenzhen, China
Corresponding author:Tian, J.

Abstract:An embedded three-dimensional (3-D) profilometry system based on a combination of gray-code and phase shifting (GCPS) method is proposed. This system consists of a digital-micromirror-device (DMD) based video projector, a high-speed CCD camera and an

embedded digital signal processing hardware system based on DSP. In this technique, seven gray-code patterns and three sinusoidal fringe patterns with 120-deg phase shift are integrated in red, green and blue channels to form four color fringe patterns. When the four color fringe patterns are sent to the DMD based projector without color filter, the previous gray-code patterns and three sinusoidal fringe patterns are repeatedly projected to an object surface in gray-scale sequentially. These fringe patterns deformed by the object surface are captured by a high-speed CCD camera synchronized with the projector. An embedded hardware system is developed for synchronization between the camera and the projector and taking full advantage of DSP parallel processing capability for real-time phase retrieve and 3-D reconstruction. Since the number of projected images of GCPS is reduced from 11 to 4, the measurement speed is enhanced dramatically. Experimental results demonstrated the feasibility of the proposed technique for high-speed 3-D shape measurement. © 2010 SPIE.

Number of references:13

Main heading:Three dimensional

Controlled terms:Cameras - CCD cameras - Color - Computer graphics - Embedded systems - Phase shift - Profilometry - Signal processing

Uncontrolled terms:3-D profilometry - 3-d shape measurement - 3D reconstruction - Code-patterns - Color filters - Color fringes - Digital signals - Embedded hardware - Fringe pattern - Gray scale   - Gray-code - High-speed - High-speed CCD - Measurement speed - Micro mirror - Object surface - Parallel processing - Phase shifting methods - Phase-shifting - Processing hardware   - Red , green and blues - System-based - Video projectors

Classification code:942.2 Electric Variables Measurements - 742.2 Photographic Equipment - 741.1 Light/Optics - 943.3 Special Purpose Instruments - 723.5 Computer Applications - 722 Computer Systems and Equipment - 716.1 Information Theory and Signal Processing - 723 Computer Software, Data Handling and Applications

DOI:10.1117/12.869981

Database:Compendex

<RECORD 72>

Authors:Qiu, Qi (1); Heckler, Tracy (2); Wang, Jun (2); Mei, Bing C. (2); Mountziaris, T.J. (2)
Author affiliation:(1) Shenzhen University, Shenzhen, Guangdong 518060, China; (2) University of Massachusetts-Amherst, Amherst, MA 01003, United States
Corresponding author:Qiu, Q.
        (chwchi@gmail.com)

<RECORD 73>

Title:Nonnegative tensor factorization for clustering genes with time series microarrays from different conditions: A case study
Authors:Liu, Weixiang (1); Wang, Tianfu (1); Chen, Siping (1)
Author affiliation:(1) Department of Biomedical Engineering, School of Medicine, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Liu, W.
Abstract:Gene clustering analysis with microarray data plays an important role in understanding gene function and biological process. This paper considers clustering genes with time series microarrays from multiple and different studies in which data lies in tensor space of genes x time-points x studies. Traditional clustering methods deal the data in matrix space of genes x

time-points where time-points are combined from different studies. We compare nonnegative matrix factorization (NMF) and nonnegative tensor factorization (NTF) for clustering genes. The experimental results show that NTF outperforms NMF in determining the number of clusters and achieving high clustering accuracy. ©2010 IEEE.

<RECORD 74>

Title:Flow stress correction of AZ80 magnesium alloy for deformation heating at high strain rates during hot compression

Authors:Lou, Yan (1); Li, Luoxing (2); Luan, Na (2)

Author affiliation:(1) College of Mechantronics and Control Engineering, Shenzhen University, Shenzhen 518060, China; (2) College of Materials Science and Engineering, Hunan University, Changsha 410082, China

Corresponding author:Lou, Y.

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Conference location:Chongqing, China
Conference code:83156
Sponsor:Int. Assoc. Comput. Sci. Inf. Technol. (IACSIT)
Publisher:Trans Tech Publications, P.O. Box 1254, Clausthal-Zellerfeld, D-38670, Germany

Abstract:Accurate description of the material flow stress behaviour is an essential requirement for FEM simulation of metal forming processes. In the present hot compression tests of AZ80 magnesium alloy were performed on Gleeble 3500 at strain rates between 0.01-50s-1 and deformation temperatures between 300-450°C to determine the flow stress data of the AZ80 magnesium alloy. It was noticed that with increasing strain rate, deformation heating become more pronounced since there is no time for heat escaping during hot compression tests. Thus, a flow stress correction for deformation heating at high strain rates was carried out for the calculation of the constants of constitutive equation. Validation tests were then performed. Good agreements between the predicted and measured values in extrusion pressure were achieved. © (2010) Trans Tech Publications.

Number of references:4
Main heading:Strain rate
Controlled terms:Alloys - Compression testing - Deformation - Finite element method - Flow simulation - Heating - Magnesium - Magnesium alloys - Manufacture - Metal forming - Plastic flow
Uncontrolled terms:AZ80 alloy - AZ80 magnesium alloy - Correction - Deformation temperatures - Extrusion pressure - FEM simulations - Flow stress - Flow stress data - Gleeble - High strain rates - Hot compression - Hot compression tests - Material Flow - Metal-forming process - Validation test
Classification code:943 Mechanical and Miscellaneous Measuring Instruments - 933 Solid State Physics - 921.6 Numerical Methods - 723.5 Computer Applications - 643.1 Space Heating - 542.2 Magnesium and Alloys - 537.1 Heat Treatment Processes - 535.2 Metal Forming - 531.1 Metallurgy - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties
DOI:10.4028/www.scientific.net/AMR.129-131.1326
Database:Compendex

<RECORD 75>

Accession number:20104813421462Title:Thermal design and analysis of uncooled infrared senor in standard CMOS
Authors:Chen, Rong (1); Yu, Ting (1); Feng, Yuchun (2); Peng, Dasong (1); Yu, Fengqi (1)
Author affiliation:(1) Department of Integrated Electronics, Shenzhen Institute of Advanced Technology, CAS, Shenzhen, 518067, China; (2) Institute of Optoelectronics, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Chen, R.
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Source title:2010 IEEE 5th International Conference on Nano/Micro Engineered and Molecular

Systems, NEMS 2010

Abbreviated source title:IEEE Int. Conf. Nano/Micro Eng. Mol. Syst., NEMS

Monograph title:2010 IEEE 5th International Conference on Nano/Micro Engineered and Molecular Systems, NEMS 2010

Issue date:2010

Publication year:2010

Pages:475-478

Article number:5592438

Language:English

ISBN-13:9781424465439

Document type:Conference article (CA)

Conference name:5th IEEE International Conference on Nano/Micro Engineered and Molecular Systems, NEMS 2010

Conference date:January 20, 2010 - January 23, 2010

Conference location:Xiamen, China

Conference code:82329

Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:This paper presents the thermal design and analysis of uncooled infrared sensor fabricated in SMIC standard 0.18μm CMOS technology. The steady-state and transient thermal simulations have been done by finite-element methods (FEM). The effects of membrane parameters on the thermal performance of the infrared sensor are investigated. The simulation results show that the thermal time constant and temperature rise of pixel are increasing with the size of absorbing layer increment, and the increment of width of polysilicon leads to the decrement of thermal time constant and temperature rise. In addition, to counterpoise these two thermal parameters, a group of the optimized thermally isolated membrane parameters is given. ©2010 IEEE.

Number of references:7

Main heading:Design

Controlled terms:CMOS integrated circuits - Infrared detectors - Polysilicon - Sensors

Uncontrolled terms:Absorbing layers - ANSYS simulation - CMOS - CMOS technology - Infra-red sensor - Membrane parameters - Simulation result - Standard CMOS - Temperature rise - Thermal design   - Thermal designs - Thermal parameters - Thermal Performance - Thermal time constants - Transient thermal simulation - Uncooled Infrared

Classification code:408 Structural Design - 712.1.1 Single Element Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 741.3 Optical Devices and Systems - 801 Chemistry

DOI:10.1109/NEMS.2010.5592438

Database:Compendex

<RECORD 76>

Accession number:20104813428346Title:STAP compensation technique based on homomorphic

filtering in GPS

Authors:Wu, Renbiao (1); Xu, Rulan (2); Rulan, Dan (2); Yu, Jianpin (1)
Author affiliation:(1) ATR Lab, Intelligent Information Institute, Shenzhen University, Shenzhen 518060, China; (2) Tianjin Key Laboratory for Advanced Signal Processing, Civil Aviation University of China, Tianjin 300300, China
Corresponding author:Wu, R.
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Abstract:Space time adaptive processing (STAP) can be used to remove hostile jammers interfering for Global Positioning System (GPS) receivers, especially in the presence of jammer multipath. However, the STAP filter can bring in distortion to the GPS signal because it does not have a uniform frequency response across the operating band, which would dramatically reduce the accuracy of the users' position. Based on the homomorphic filtering a new method is proposed to compensate the distortion caused by the STAP filter. Finally, simulation results show the proposed method is effective. © 2010 IEEE.

<RECORD 77>

Accession number:20104813428466Title:Parameter estimation of moving target based on linearly constrained space-time adaptive monopulse technique

Authors:Wu, Renbiao (1); Wang, Lu (1); Su, Zhigang (1); Huang, Jingxiong (2)
Author affiliation:(1) Tianjin Key Laboratory for Advanced Signal Processing, Civil Aviation University of China, Tianjin 300300, China; (2) ATR Lab, Intelligent Information Institute, ShenZhen University, Shenzhen 518060, China
Corresponding author:Wu, R.
        (rbwu@cauc.edu.cn)

Abstract:Technique of space-time adaptive processing (STAP), which is usually employed by airborne radar to reject the ground clutter and jamming and at the same time, detect the ground moving targets, can not estimate the spatial-temporal parameters of the corresponding targets. Monopulse technique, as a mature method for parameter estimation can be used on airborne radar, however, the estimation performance of this method is dramatically effected by the ground clutter and jamming components present, even when these components falls into the mainbeam interval. By combining the STAP technique with the monopulse technique, a new method for estimating the spatial-temporal parameters of moving targets is proposed and referred as to LC-STAM in this paper. Additionally, the proposed method utilizes the beam null, monopulse slope, and decoupling constraints to remove the worse influence on the beam shape from the mainbeam clutter, maintain the characteristic of the monopulse ratio, and increase the veracity of parameter estimation. Simulation results illustrated that the LC-STAM method possesses the excellent estimation performance of the spatail-temporal parameters by comparing with the other similar methods.

<RECORD 78>

Title:Creative practice based on freescale processor smart car with photoelectric sensor
Authors:Huang, Junhua (1); Li, Li (1); Liang, Xianlin (1); Zhang, Hongbing (2)
Author affiliation:(1) College of Mechatronics and Control Engineering, Shenzhen University, 518060, China; (2) Laboratory and Facility Management Division, Shenzhen University, 518060, China
Corresponding author:Huang, J.

Abstract:This paper presents the design of a smart car system based on the Freescale MC9S12SX128 processor. Infrared photoelectric sensor was used to percept the path information. The motor driving system was designed with the MOSFET circuit and controlled by the PID algorithm. With the speed feedback module and steering gear module, the smart car can run along the track steadily and rapidly. ©2010 IEEE.
Number of references:5
Main heading:Algorithms
Controlled terms:Communication systems - Photoelectricity - Phototubes - Sensors
Uncontrolled terms:Freescale - Infrared phototubes sensor - MOSFET circuits - Motor driving system - PD algorithm - Photoelectric sensors - PID Algorithm - Smart car - Speed feedback - Steering gear   - System-based
Classification code:716 Telecommunication; Radar, Radio and Television - 723 Computer Software, Data Handling and Applications - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 801 Chemistry - 921 Mathematics
DOI:10.1109/ICCSNA.2010.5588822
Database:Compendex

<RECORD 79>

Authors:Hu, Qiang (1); Zeng, Xie-Rong (2); Fu, Ming-Wang (4)
Author affiliation:(1) School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an, Shannxi 710072, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (3) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen 518060, China; (4) Department of Mechanical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong
Corresponding author:Hu, Q.

Abstract:This paper reports the observation of the clear Invar effects of (Fe71.2 B24 Y4.8) 96 Nb$_4$ bulk metallic glass. The Invar effects of (Fe71.2 B24 Y4.8) 96 Nb$_4$ alloys in different structural states are also investigated in situ through cyclic thermal dilation tests at different cyclic temperatures. The results show that these Invar effects are strengthened in the relaxation amorphous state, weakened in the nanocrystalline state, and absent in the complete crystalline state. X-ray diffraction and Mö¨ssbauer spectroscopy demonstrate that the structural influences on Invar effects can be explained by the different local atomic arrangements around Fe atoms in different structural states. © 2010 American Institute of Physics.

Number of references:17
Main heading:Niobium
Controlled terms:Atomic spectroscopy - Crystalline materials - Metallic glass - Molybdenum - X ray diffraction
Uncontrolled terms:Amorphous state - Bulk metallic glass - Crystalline state - Cyclic temperatures - Fe atoms - In-situ - Invar effect - Local atomic arrangements - Nanocrystalline state - Ssbauer spectroscopies   - Structural influences - Structural state - Thermal dilation
Classification code:531 Metallurgy and Metallography - 531.2 Metallography - 543.3 Molybdenum and Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 801 Chemistry - 931.3 Atomic and Molecular Physics
DOI:10.1063/1.3524199
Database:Compendex

<RECORD 80>

Accession number:20104713410054Title:Improving the humidity resistance of electronic packaging materials by micro-nano hierarchical structured silica
Authors:Zeng, Guangfu (1); Gui, Dayong (1); Miao, Xin (1); Hao, Jingfeng (1); Liu, Jianhong (1)
Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zeng, G.
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Source title:Proceedings - 2010 11th International Conference on Electronic Packaging Technology and High Density Packaging, ICEPT-HDP 2010
Abbreviated source title:Proc. - Int. Conf. Electron. Packag. Technol. High Density Packag., ICEPT-HDP
Monograph title:Proceedings - 2010 11th International Conference on Electronic Packaging Technology and High Density Packaging, ICEPT-HDP 2010
Issue date:2010
Publication year:2010
Pages:170-175
Article number:5582455
Language:English

Abstract:Micro-nano structured silica particles were synthesized successfully by grafted 4, 4′-diphenylmethane diisocyanate (MDI). We report a robust procedure for preparing superhydrophobic materials with the advancing water contact angle (WCA) of about 155°. Micro-nano structured surface roughness, which mimics the surface topology of self-cleaning plant leaves, originates from well-defined micro-nano structured silica particles that are covalently bonded to an epoxy-based polymer matrix. The roughened surface is chemically modified with a layer of n-octyltriethoxysilane. The morphology of the silica with micro-nano hierarchical structure was observed by SEM. Hierarchical structure of silica filled epoxy resin composite exhibits better humidity resistance than the neat epoxy resin. The results show that the hierarchical structure of silica filled epoxy resin composite is suitable for electronic packaging in humid environment. © 2010 IEEE.

Number of references:11

Main heading:Epoxy resins

Controlled terms:Contact angle - Electronics packaging - Packaging - Packaging materials - Silica - Surface roughness - Surfaces - Synthetic resins

Uncontrolled terms:Chemically modified - Cleaning plants - Covalently bonded - Diphenylmethane diisocyanate - Electronic Packaging - Electronic packaging material - Filled epoxy resins - Hierarchical structures - Humid environment - Humidity resistance - Micro-nano - Robust procedures - Roughened surfaces - SEM - Silica particles - Superhydrophobic - Surface topology - Water contact angles (wca)

Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 931 Classical Physics; Quantum Theory; Relativity - 815.1.1 Organic Polymers - 812 Ceramics, Refractories and Glass - 951 Materials Science - 716 Telecommunication; Radar, Radio and Television - 714 Electronic Components and Tubes - 694.2 Packaging Materials - 694.1 Packaging, General - 715 Electronic Equipment, General Purpose and Industrial

DOI:10.1109/ICEPT.2010.5582455

Database:Compendex

<RECORD 81>

Accession number:20104713410034Title:Study on the surface modification of silica particle and its filled epoxy resin

Authors:Gui, Dayong (1); Chen, Bo (1); Zeng, Wentao (1); Miao, Xin (1); Zeng, Guangfu (1); Liu, Jianhong (1)

Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Nanhai Ave. 3688, Shenzhen, Guangdong 518060, China

Corresponding author:Gui, D.

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Abstract:Silica particle-filled epoxy resin is widely used in electronic packaging. In this research, the isocyanateterminated polydimethylsiloxane (ITPDMS) was synthesized by terminal-hydroxyl polydimethylsiloxane (HTPDMS) and 2, 4-toluene diisocyanate (TDI) firstly. Then the ITPDMS was used for the surface graft modification of micro-level silica. The ITPDMS modified silica (P-SiO$_2$) was filled into epoxy resin for enhancing the interfacial bonding between silica and ER matrix. For comparison, the modification of silica particle with other compounds such as silane coupling agent (KH-560) and 2, 4-toluene diisocyanate and their performances of particle-filled epoxy resins were also investigated. The various modified and unmodified SiO$_2$ were characterized by FTIR and TG. The mechanical properties of silica filled ER were measured by universal testing machine and Dynamic mechanical analysis (DMA). The morphology of silica particle filled epoxy resin was also evaluated by scanning electron microscopy (SEM) investigation of fracture surface. The results show that SiO$_2$ can be grafted with ITPDMS, TDI, and KH-560 effectively and the tensile strength and bending strength of the series modified SiO$_2$ filled ER systems are improved obviously. Especially, the tensile strength and bending strength of P-SiO$_2$ filled ER systems increase by 11.68%

and 11.55% than those of the original SiO₂ filled ER respectively. The glass transition temperature of P-SiO₂-filled ER system was also increased, compared with those of the original SiO₂-filled ER. © 2010 IEEE.

Number of references:6

Main heading:Tensile strength

Controlled terms:Bending strength - Coupling agents - Dynamic analysis - Dynamic mechanical analysis - Electronics packaging - Epoxy resins - Glass transition - Grafting (chemical) - Mechanical properties - Packaging - Scanning electron microscopy - Silica - Silicones - Synthetic resins - Toluene

Uncontrolled terms:2 ,4-toluene diisocyanate - Electronic Packaging - Filled epoxy resins - Fracture surfaces - FTIR - Glass transition temperature - Interfacial bonding - matrix - Modified silica - SEM   - Silane coupling agent - Silica particles - Surface graft - Surface modification - Universal testing machines

Classification code:951 Materials Science - 815.1.1 Organic Polymers - 815.1 Polymeric Materials - 812 Ceramics, Refractories and Glass - 804.1 Organic Compounds - 803 Chemical Agents and Basic Industrial Chemicals - 741.1 Light/Optics - 716 Telecommunication; Radar, Radio and Television - 715 Electronic Equipment, General Purpose and Industrial - 714 Electronic Components and Tubes - 694.1 Packaging, General - 422.2 Strength of Building Materials : Test Methods - 421 Strength of Building Materials; Mechanical Properties

DOI:10.1109/ICEPT.2010.5582425

Database:Compendex

<RECORD 82>

Title:Study on preparation and properties of epoxy resin modified by amine-terminated polyimide as electronic packaging materials

Authors:Miao, Xin (1); Gui, Dayong (1); Zeng, Guangfu (1); Liu, Jianhong (1)

Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China

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Abbreviated source title:Proc. - Int. Conf. Electron. Packag. Technol. High Density Packag., ICEPT-HDP

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Abstract:In this research, epoxy resin was modified by amineterminated polyimide (ATPI) prepolymer for improving both thermal and mechanical properties of electronic packaging materials. The ATPI was synthesized with polyester and pyromellitic dianhydride (PMDA), p-toluene sulphonic acid (PTSA) as catalyst and characterized by FT-IR spectrum and DSC. The ATPI modified epoxy resin (AME) was cured by 4, 4-diaminodiphenyl ether (DDE). The cure behaviors of the modified resins were investigated with Rheometer analyzer (RA). The thermal stability of the cured materials (AMEe) were studied with thermogravimetric analysis (TGA) and thermo-mechanical analyzer (TMA). The results show that ATPI is fusible at about 135 °C and has good curing activity as prepolymer for epoxy resin. The decomposition temperature of AMEe materials is above 390 °C in nitrogen atmosphere, which is increased by 40 °C compared with that of unmodified epoxy resin and the coefficient of thermal expansion (CTE) of the AMEe materials are lower than that of unmodified resin apparently. The morphology of AMEe materials was also evaluated by scanning electron microscopy (SEM) investigation of fracture surface. The results show that AMEe materials exhibit better heat resistance and toughness than unmodified epoxy resin, which are suitable for electronic packaging materials. © 2010 IEEE.

<RECORD 83>

Title:An online collaborative learning mode in management information system experimental teaching
Authors:Luo, Hanyang (1)
Author affiliation:(1) College of Management, Shenzhen University, 518060, China; (2) Shenzhen Graduate School, Harbin Institute of Technology, 518055, China
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Abstract:Nowadays, the teaching reformation based on network is one of the new trends of higher educational research. Taking the experimental teaching reformation practice of Management Information System, which is the common fundamental subject of managerial specialties, as an example, this paper reviews the constructivism learning theory, which is the theoretical basis of online collaborative learning, and then expound the implementation process of the action research of online collaborative learning under the network environment. At last, the author presents an operable online collaborative learning mode, and analyzes some limitations of this research. © 2010 Springer-Verlag Berlin Heidelberg.

Controlled terms:Distributed computer systems - Knowledge management - Management information systems - Research - Wireless networks

Uncontrolled terms:Action research - Collaborative learning - Educational research - Experimental teachings - Implementation process - Learning Theory - Management information - Network environments - Theoretical basis

Classification code:722.4 Digital Computers and Systems - 723.2 Data Processing and Image Processing - 723.5 Computer Applications - 901.3 Engineering Research - 903.2 Information Dissemination

<RECORD 84>

Title:Dynamical properties and simulation of a new Lorenz-like chaotic system

Authors:Li, Xianyi (1); Ou, Qianjun (1)
Author affiliation:(1) College of Mathematics and Computational Science, Shenzhen University, Shenzhen, Guangdong, 518060, China
Corresponding author:Li, X.
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Abstract:This paper formulates a new three-dimensional chaotic system that originates from the Lorenz system, which is different from the known Lorenz system, Ro¨ssler system, Chen system, and includes Lu¨ systems as its special case. By using the center manifold theorem, the stability character of its non-hyperbolic equilibria is obtained. The Hopf bifurcation and the degenerate pitchfork bifurcation, the local character of stable manifold and unstable manifold, are also in detail shown when the parameters of this system vary in the space of parameters. Corresponding bifurcation cases are illustrated by numerical simulations, too. The existence or non-existence of homoclinic and heteroclinic orbits of this system is also studied by both rigorous theoretical analysis and numerical simulation. © 2010 Springer Science+Business Media B.V.
Number of references:31
Main heading:Chaotic systems

<RECORD 85>

Title:Optimum capacity additive and multiplicative image watermarking and performance comparisons

Authors:Zhang, Li (1); Tang, Liang (1); Zhang, Kun-Hua (1); Lian, De-Liang (1)

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Abstract:Image watermarking can be distinguished between methods that hide information by adding and multiplying. In some applications, not the more information embedding is, the more performance is especially for multi copyright protection .In this paper, robustness performance of these two watermarking methods are compared with the same conditions, including original image,

watermark signal, fidelity, detection requirement such as detection probability or/and false alarm probability. Watermark capacity is computed according to the requirements of watermarking real applications with the same conditions. How to compute capacity is described in detail. Independent Component Analysis (ICA) is utilized to extract the watermark blindly. Experimental results have demonstrated that the proposed watermarking technique with optimum capacity can meet requirements of different real watermarking applications. It is indicated that this new watermarking technique has superior advantages over the existing ones in many aspects according to the real watermarking applications requirements. Experimental results also show that for many Stirmark attacks multiplicative watermarking has a better robustness than additive watermarking. © 2010 IEEE.

Number of references:8

Main heading:Watermarking

Controlled terms:Copyrights - Cybernetics - Independent component analysis - Learning systems

Uncontrolled terms:Copyright protections - Detection probabilities - False alarm probability - Image Watermarking - Information embedding - Multiple watermarking - Multiplicative watermarking - Optimum capacity - Original images - Performance comparison - Real applications - Stirmark - Stirmark attacks - Watermark signals - Watermarking techniques

Classification code:723.4 Artificial Intelligence - 811.1.1 Papermaking Processes - 903 Information Science

DOI:10.1109/ICMLC.2010.5580579

Database:Compendex

<RECORD 86>

Title:Modified bacterial foraging optimizer for liquidity risk portfolio optimization

Authors:Niu, Ben (1); Xiao, Han (2); Tan, Lijing (3); Li, Li (2); Rao, Junjun (2)

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Abstract:Recently, bacterial foraging optimizer (BFO) is gaining popularity in the community of researchers because of its efficiency in solving some real-world optimization problems. But very little research work has been undertaken to deal with portfolio optimization problem using BFO approach. This article comes up with a novel approach by involving a linear variation of chemotaxis step in the basic BFO for finding the optimal portfolios. Our proposed approach is evaluated on application on an improved portfolio optimization model considering both the market and liquidity risk. The experimental results demonstrate the positive effects of the strategy. © 2010 Springer-Verlag.

<RECORD 87>

Title:OpinionSeer: Interactive visualization of hotel customer feedback
Authors:Wu, Yingcai (1); Wei, Furu (2); Liu, Shixia (2); Au, Norman (3); Cui, Weiwei (1); Zhou, Hong (4); Qu, Huamin (1)
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Abstract:The rapid development of Web technology has resulted in an increasing number of hotel customers sharing their opinionson the hotel services. Effective visual analysis of online customer opinions is needed, as it has a significant impact on buildinga successful business. In this paper, we present OpinionSeer, an interactive visualization system that could visually analyze alarge collection of online hotel customer reviews. The system is built on a new visualization-centric opinion mining technique thatconsiders uncertainty for faithfully modeling and analyzing customer opinions. A new visual representation is developed to conveycustomer opinions by augmenting well-established scatterplots and radial visualization. To provide multiple-level exploration, weintroduce subjective logic to handle and organize subjective opinions with degrees of uncertainty. Several case studies illustrate theeffectiveness and usefulness of OpinionSeer on analyzing relationships among multiple data dimensions and comparing opinionsof different groups. Aside from data on hotel customer feedback, OpinionSeer could also be applied to visually analyze customeropinions on other products or services. © 2006 IEEE.

<RECORD 88>

Authors:He, Zhi-Min (1); Xing, Feng (2); Ding, Zhu (2)
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Abstract:Water absorption is closely related to the durability of concrete. To determine the effect of steam curing on water absorption of concrete at early ages, this paper investigated the water absorption of concrete which had different compositions of cementitious materials under three types of technological measures condition (technology A, B and C), and performed water absorption comparisons of various types of concrete by cutting the specimens into three slices: top-level, internal, and bottom. Results indicate that the water absorption of all specimens appears to be gradient distribution from top-level to bottom, and top-level specimens have the highest water absorption. However, in terms of water absorption, there is no significant difference among the other layers. The highest water absorption value is achieved by the top-level of concrete with technology A, which is 42 higher than that of its mid-level. However, the water absorption of

top-level, mid-level, and bottom layer of various concretes with technology B and C are all decreased, especially the concretes incorporating admixture A with technology C.The differential value of water absorption between the top-level and mid-level is 3∼18 commonly. By use of suitable technological measures and admixtures, the harm of steam curing on the surface structure of concrete will be alleviated, and the inhomogeneity of the internal concrete can be improved. © 2010 ASCE.

<RECORD 89>

Title:Implementation strategies of TOD in rail transit line 3 of Shenzhen

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Conference date:August 4, 2010 - August 8, 2010

Conference location:Beijing, China

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Sponsor:North Am. Chin. Overs. Transp. Assoc. (NACOTA); Beijing University of Technology; Transportation and Development Institute of ASCE; Transp. Res. Board Comm. Transp. Dev. Ctries.; National Natural Science Foundation of China

Publisher:American Society of Civil Engineers, 1801 Alexander Graham Bell Drive, Reston, VA 20191-4400, United States

Abstract:This paper studies the development strategies of rail transit-oriented development (RTOD) with the case study of rail transit line 3 in Shenzhen. The land use situation, land ownership and land-use potentiality are analyzed. Land development strategies along rail transit are studied. The zoning system is established from two levels (station type and layer). A set of exploitation intensity index values for various type areas is formulated as the land development control guidelines. The implementation strategies and control requirements for land development are proposed. The development strategies for important areas are discussed. The research results provide support for the development of Shenzhen's rail transit line 3 and land planning and management. They may be useful for reference in other cities in China. Transit-oriented development (TOD) (Wang Jingyuan, 2007) is generally accepted as an effective strategy to realize sustainable urban development. Rail transit is the transport mode with the greatest degree of realization of TOD. Rail transit construction has entered a peak period with the launching of the second phase in Shenzhen. This provides a good opportunity for the implementation of urban development strategies of TOD. As a link connecting the city center and Longgang sub-center, Rail transit line 3 was planned as a model line for implementing TOD. The construction of rail transit line 3 has a significant positive effect on the development of the areas along this line (e.g., old city reconstruction, industrial development, Shenhui Road reconstruction, development of the functional areas and high intensity development). The coordinated and integrated development of the urban rail transit (URT) and land use will be promoted. Simultaneous optimization of economic structure and spatial structure will be realized ultimately. The correct development strategies and effective measures of implementation are the key to the success of TOD (Wang, 2009). This study is based on the detailed plan of rail transit line 3 in Shenzhen. The successful experiences of RTOD are summarized at home and abroad. The land use situation, land ownership and land-use potentiality are analyzed. and then, the land development strategies along rail transit are studied. The zoning system is established. A set of exploitation intensity index values for various type areas is formulated as land development control guidelines. The development strategies of important areas which would be developed recently are discussed. © 2010 ASCE.

Number of references:3

Main heading:Research and development management

Controlled terms:Economics - Forestry - Land use - Portland cement - Railroads - Strategic planning - Structural optimization - Zoning

Uncontrolled terms:China - Control requirements - Development strategies - Economic structure - Effective measures - Functional areas - High intensity - Implementation strategies - Index values - Industrial development   - Integrated development - Land development - Land ownership - Land planning - Peak period - Positive effects - Rail transit - Rail transportation - Research results -

Road reconstruction   - Second phase - Simultaneous optimization - Spatial structure - Sustainable urban development - Transit oriented development - Transport modes - Urban development - Urban rail transit

Classification code:921.5 Optimization Techniques - 912.2 Management - 821.0 Woodlands and Forestry - 971 Social Sciences - 682 Railroad Rolling Stock - 412.1 Cement - 403 Urban and Regional Planning and Development - 681 Railway Plant and Structures

<RECORD 90>

Title:Error analysis of two methods for range-images registration

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Abstract:With the improvements in range image registration techniques, this paper focuses on

error analysis of two registration methods being generally applied in industry metrology including the algorithm comparison, matching error, computing complexity and different application areas. One method is iterative closest points, by which beautiful matching results with little error can be achieved. However some limitations influence its application in automatic and fast metrology. The other method is based on landmarks. We also present a algorithm for registering multiple range-images with non-coding landmarks, including the landmarks' auto-identification and sub-pixel location, 3D rigid motion, point pattern matching, global iterative optimization techniques et al. The registering results by the two methods are illustrated and a thorough error analysis is performed. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:15

Main heading:Iterative methods

Controlled terms:Algorithms - Cryptography - Error analysis - Image coding - Pattern matching - Three dimensional

Uncontrolled terms:3D rigid motion - Algorithm comparison - Application area - Computing complexity - ICP algorithms - Images registration - Iterative Closest Points - Iterative Optimization - landmark - Matching error   - Point pattern matching - Range image registration - range-images - registration - Registration methods - Sub pixels

Classification code:921.6 Numerical Methods - 921 Mathematics - 741.1 Light/Optics - 741 Light, Optics and Optical Devices - 723.5 Computer Applications - 723 Computer Software, Data Handling and Applications - 718 Telephone Systems and Related Technologies; Line Communications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television

DOI:10.1117/12.860005

Database:Compendex

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<RECORD 91>

Accession number:20104413349812Title:Concurrent dithered signed-error constant modulus algorithm (DSE-CMA) with soft decision directed (SDD) scheme

Authors:Hu, Hengyun (1); Xie, Ning (1); Wang, Hui (1)

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Source title:Proceedings of the 2010 2nd International Conference on Future Computer and Communication, ICFCC 2010

Abbreviated source title:Proc. Int. Conf. Future Comput. Commun., ICFCC

Volume:1

Monograph title:Proceedings of the 2010 2nd International Conference on Future Computer and Communication, ICFCC 2010

Abstract:The constant modulus algorithm (CMA) has been a widely used in blind equalization because of its LMS-like complexity and robustness. In this paper we propose a new scheme through combining the virtues of two improvement versions of CMA which are the Dithered Signed-Error CMA (DSE-CMA) and the concurrent CMA with Soft Decision Directed scheme (CMA+SDD). The DSE-CMA aims to reduce the computational complexity of the CMA while retaining its robustness and the CMA+SDD is an approach to improve the convergence performance of CMA. The proposed scheme is computationally simpler than the CMA+SDD and provides faster convergence rate than the DSE-CMA. ©2010 IEEE.

<RECORD 92>

Authors:Liu, Zhaorong (1); Xie, Ning (1); Wang, Hui (1)

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Abstract:To combat the effect of multi-path fading, Rake receivers are used in conjunction with code division multiple access (CDMA) systems. In this paper, we main introduce the finger assignment method for Rake receivers. First, we will simply review the Rake receiver. Then we will investigate several kinds of finger assignment method in single cell and multi-cell conditions, respectively. By mathematical methods and Monte Carlo simulation, we will compare the performance and complexity of some schemes. ©2010 IEEE.

<RECORD 93>

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Abstract:In the broadband signal processing, in order to receiving broadband signals without distortion resulting from the different relative aperture, it is valuable to study the Frequency-invariant beam patterns (FIBPs). Based on the array structure, this paper will summarize some new methods to design a broadband beamformer with an FIBP. There will be two categories: One-dimensional arrays and Multi-dimensional arrays. For one-dimensional array, there are substitutions method, minimax frequency invariant beamforming method, etc. For multi-dimensional array, there are methods based on Bessel function method, and so on. Finally, we will discuss the pros and cons of every method. ©2010 IEEE.
Number of references:6

Main heading:Directional patterns (antenna)
Controlled terms:Antennas - Beamforming - Harmonic analysis - Mobile telecommunication systems - One dimensional - Signal processing - Smart antennas
Uncontrolled terms:Array structures - Beam formers - Broadband frequency - Broadband signal - Frequency invariant - Frequency invariant beamforming - Minimax - Multidimensional arrays - One-dimensional arrays - Pros and cons
Classification code:921.6 Numerical Methods - 921 Mathematics - 732 Control Devices - 731 Automatic Control Principles and Applications - 716.1 Information Theory and Signal Processing - 716 Telecommunication; Radar, Radio and Television - 713 Electronic Circuits
DOI:10.1109/ICFCC.2010.5497722
Database:Compendex

<RECORD 94>

Title:Generalized switch-and-examine combining with an output threshold

Authors:Liu, Zhaorong (1); Xie, Ning (1); Wang, Hui (1)
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Source title:Proceedings of the 2010 2nd International Conference on Future Computer and Communication, ICFCC 2010
Abbreviated source title:Proc. Int. Conf. Future Comput. Commun., ICFCC
Volume:1
Monograph title:Proceedings of the 2010 2nd International Conference on Future Computer and Communication, ICFCC 2010
Issue date:2010
Publication year:2010
Pages:V1575-V1579
Article number:5497723
Language:English
ISBN-13:9781424458226
Document type:Conference article (CA)
Conference name:2010 2nd International Conference on Future Computer and Communication, ICFCC 2010
Conference date:May 21, 2010 - May 24, 2010
Conference location:Wuhan, China
Conference code:81983
Sponsor:Huazhong University; IACSIT; IEEE; ICFCC; Communication Engineering Society (CES)

Abstract:In this paper, we investigate a finger combining scheme to save the power consumption of mobile rake receiver without the performance loss. The proposed scheme is called as GSEC(Generalized Switch-and-Examine Combining) with an output threshold which selects any branches whose SNR is above an input-threshold until the combined SNR is larger than an output-threshold or all the fingers are examined. The input-threshold and output-threshold are fixed predetermined values based on the practical condition. We also compared the proposed technique with the GSEC. Simulation results show that the proposed technique leads to less complexity than conventional GSC and GSEC while providing nearly the same performance. ©2010 IEEE.

Number of references:5
Main heading:Signal receivers
Uncontrolled terms:GSC - GSEC - Input-threshold - Output-threshold - RAKE receiver
Classification code:716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications
DOI:10.1109/ICFCC.2010.5497723
Database:Compendex

<RECORD 95>

Accession number:20105113499138Title:Control of magnetic ground state and sharp metamagnetic transition by impurity size in A site substituted $Pr_{1-x}Ca_xMnO_3$

Authors:Zhu, D.L. (1); Tan, X.A. (1); Cao, P.J. (1); Ma, X.C. (1); Lu, Y.M. (1)
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Kingdom

Abstract:Similar to the substitution of Ba or Sr for calcium, the substitution of La for praseodymium in $Pr_{1-x}Ca_xMnO_3$ (x=0•5 and 0•4) can also induce ferromagnetism and sharp magnetisation multisteps at low temperature. The La substitution is more efficient to facilitate these magnetic phenomena in $Pr_{0•6}Ca_{0•4}MnO_3$ than in charge exchange type manganite $Pr_{0•5}Ca_{0•5}MnO_3$ due to the fact that the pseudo-charge exchange type orbital charge ordered structure in the former system is easier to be collapsed. More importantly, by comparing the magnetic properties of $Pr_{0•6-x}La_xCa_{0•4}MnO_3$ with those of $Pr_{0•6}Ca_{0•4-x}A_xMnO_3$ (A=Ba, Sr), the crucial role of the A site impurity size on the magnetic phenomena is emphasised. The Ba substitution exhibits a greater ability to induce such magnetic phenomena than the Sr substitution, and the ability of the latter is greater than that of the La substitution. This sequence is in agreement with that of their ionic size, i.e. $Ba^{2+}>Sr^{2+}>La^{3+}$. Combining the 'counterdistortion' effect due to the introduction of larger size impurities on A sites with the martensitic-like model, the experimental results have been systematically discussed. © 2010 W. S. Maney & Son Ltd.

Number of references:23

Main heading:Manganese oxide

Controlled terms:Barium - Calcium - Charge transfer - Ferromagnetism - Impurities - Magnetic properties - Martensite - Phase separation - Praseodymium

Uncontrolled terms:Charge exchanges - Ionic sizes - Low temperatures - Magnetic ground state - Magnetic phenomena - Magnetisation - Martensitic-like model - Metamagnetic transitions - Orbital charges - Ordered structures

Classification code:804 Chemical Products Generally - 802.3 Chemical Operations - 802.2 Chemical Reactions - 951 Materials Science - 701.2 Magnetism: Basic Concepts and Phenomena - 547.2 Rare Earth Metals - 545.3 Steel - 549.2 Alkaline Earth Metals

DOI:10.1179/175355510X12692596613684

Database:Compendex

<RECORD 96>

Title:Zernike apodized photon sieves for high-resolution phase-contrast x-ray microscopy

Authors:Cheng, Guanxiao (1); Hu, Chao (1); Xu, Ping (3); Xing, Tingwen (4)

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Abstract:We present a type of diffractive lens, Zernike apodized photon sieves (ZAPS), used as the objective for high spatial resolution and high phase-contrast imaging of weakly absorbing materials in x rays. The structure of ZAPS is based on the combination of two concepts: apodized photon sieves and Zernike phase contrast. The ZAPS is a single optic that integrates the appropriate plusmn;π/2 rad phase shift through selective zone placement shifts in an apodized photon sieve. Analysis of the focusing properties of the apodized photon sieve in terms of point-spread function show that the sidelobes have been significantly suppressed at the expense of slightly widening the width of the main lobe. In combination with synchrotron light sources, ZAPS offers new opportunities for high-resolution phase-contrast x-ray microscopy in the physical and life sciences. © 2010 Optical Society of America.
Number of references:13
Main heading:Photons
Controlled terms:Light sources - Sieves - Synchrotron radiation - X ray microscopes - X rays
Uncontrolled terms:Diffractive lens - Focusing properties - High resolution - High spatial resolution - Life-sciences - New opportunities - Phase-contrast - Phase-contrast imaging - Photon sieves - Point-Spread function - Side lobes - Synchrotron light source - Weakly absorbing materials - X ray microscopy - Zernike - Zernike phase contrast
Classification code:605 Small Tools and Hardware - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 932.1 High Energy Physics - 932.1.1 Particle Accelerators
DOI:10.1364/OL.35.003610
Database:Compendex

<RECORD 97>

Accession number:20104513371188Title:Light-Harvesting in n-ZnO/p-Silicon Heterojunctions
Authors:Li, L. (1); Shan, C.X. (1); Li, B.H. (1); Yao, B. (1); Shen, D.Z. (1); Chu, B. (1); Lu, Y.M. (3)
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Abstract:Zinc oxide (ZnO) films were deposited onto Si to form n-ZnO/p-Si heterojunctions. Under the illumination of by both ultraviolet (UV) light and sunlight, obvious photovoltaic behavior was observed. It was found that the conversion efficiency of the heterojunctions increased significantly with increasing thickness of the ZnO film, and the mechanism for light-harvesting in the heterojunctions is discussed. The results suggest that ZnO films may be helpful to increasing the harvesting of UV photons, thus decreasing the thermalization loss of UV energy in Si-based solar cells. © 2010 TMS.
Number of references:27
Main heading:Heterojunctions
Controlled terms:Conversion efficiency - Energy harvesting - Metallic films - Oxide films - Silicon - Solar energy - Ultraviolet radiation - Zinc - Zinc oxide
Uncontrolled terms:Light-harvesting - Photovoltaic - Si-based solar cells - Silicon heterojunctions - Thermalization - Ultra-violet light - Ultraviolet lights - UV energy - UV photons - ZnO   - ZnO films - ZnO/p-Si
Classification code:741.1 Light/Optics - 712 Electronic and Thermionic Materials - 615.2 Solar Power - 804.2 Inorganic Compounds - 546.3 Zinc and Alloys - 531 Metallurgy and Metallography - 525.5 Energy Conversion Issues - 539 Metals Corrosion and Protection; Metal Plating
DOI:10.1007/s11664-010-1363-5
Database:Compendex

<RECORD 98>

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Abstract:Image rectification is a method to apply projective transformation to image pair which can ensure the epipolar lines in one horizontal line. There is only horizontal disparity in two images and the matching speed can be improved in this situation. A simple rectification method is described in this paper. It takes the element in the fundamental matrix and epipole as initial value and uses PSO to calculate eight optimal points according with rectification rule by RANSAC robust estimation method. Then, the practical and optimal projective transformation matrixes are confirmed. Epipolar line rectification experiments based on synthetical image and real image show the validity of the algorithm. © 2010 Springer-Verlag Berlin Heidelberg.
Number of references:6
Main heading:Intelligent computing
Controlled terms:Computation theory - Particle swarm optimization (PSO)
Uncontrolled terms:Epipolar line - Epipole - Fundamental matrix - Horizontal disparity - Image pairs - Image rectification - Initial values - Matching speed - Optimal points - Projective transformation - Projective transformation matrix - PSO - Real images - Robust estimation method
Classification code:723 Computer Software, Data Handling and Applications - 723.4 Artificial

<RECORD 99>

Authors:Li, Li (1); Xue, Bing (1); Tan, Lijing (2); Niu, Ben (1)
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Abstract:Inertia weight is one of the most important adjustable parameters of particle swarm optimization (PSO). The proper selection of inertia weight can prove a right balance between global search and local search. In this paper, a novel PSOs with non-linear inertia weight based on the arc tangent function is provided. The performance of the proposed PSO models are compared with standard PSO with linearly-decrease inertia weight using four benchmark functions. The experimental results demonstrate that our proposed PSO models are better than standard PSO in

terms of convergence rate and solution precision. The proposed novel PSOs are also used to solve an improved portfolio optimization model with complex constraints and the primary results demonstrate their effectiveness. © 2010 Springer-Verlag Berlin Heidelberg.

Number of references:17

Main heading:Particle swarm optimization (PSO)

Controlled terms:Computation theory - Financial data processing - Intelligent computing - Weighing

Uncontrolled terms:Adjustable parameters - Arc-Tangents - Benchmark functions - Constrained portfolios - Convergence rates - Global search - Inertia weight - Local search - Non-linear - Particle swarm - Particle swarm optimizers - Portfolio optimization - Portfolio optimization models - Solution precision - Standard PSO

Classification code:723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 911.1 Cost Accounting - 921 Mathematics - 943.3 Special Purpose Instruments

DOI:10.1007/978-3-642-14922-1_72

Database:Compendex

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<RECORD 100>

Authors:Zhao, Zhi-Gang (1); Niu, Han-Ben (1); Lei, Yao-Hu (1); Guo, Jin-Chuan (1)

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Abstract:To deal with the problem of non-uniformity in photoelectrochemical etching of large-area high-aspect-ratio silicon deep trenches, a novel large-area photoelectrochemical etching setup was designed and manufactured, based on analysis of the defaults in traditional photoelectrochemical etching setups. With the specially designed shower-like solution circulation module and water cooling system, the problems of solution's temperature rising and gathering of hydrogen bubbles

in long-time photoelectrochemical etching process of large-area silicon wafers were solved. Uniform deep etching can be performed on large-area silicon wafers of 127 mm (5 inch) or more, with this novel large-area photoelectrochemical etching setup. Meanwhile, morphology consistency of silicon deep trenches was well kept in the whole etching process by increasing the etching current at the speed of 0.01 A/min to compensate the influences of lateral etching on the current density on bottom of the trenches. Uniform silicon deep trenches with good morphology consistency were eventually fabricated on full 127 mm silicon wafers, whose depth was up to 60 μm and aspect-ratio was larger than 20.

Number of references:21

Main heading:Silicon wafers

Controlled terms:Aspect ratio - Etching - Morphology - Semiconducting silicon compounds

Uncontrolled terms:Deep etching - Deep trench - Etching process - High aspect ratio - Hydrogen bubbles - Large-area - Lateral etching - Nonuniformity - Photo-electrochemical etching - Temperature rising   - Uniformity

Classification code:531 Metallurgy and Metallography - 712.1.1 Single Element Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 943 Mechanical and Miscellaneous Measuring Instruments - 951 Materials Science

Database:Compendex

<RECORD 101>

Title:Compact and tunable mid-infrared source based on a 2 μm dual-wavelength KTiOPO intracavity optical parametric oscillator

Authors:Geng, You-Fu (1); Tan, Xiao-Ling (2); Li, Xue-Jin (1); Yao, Jian-Quan (3)

Author affiliation:(1) College of Physics Science and Technology, Shenzhen Key Laboratory of Sensor Technology, Shenzhen University, Shenzhen 518060, China; (2) Faculty of Science, Ningbo University, Ningbo 315211, China; (3) College of Precision Instrument and Optoelectronics Engineering, Institute of Laser and Optoelectronics, Tianjin University, Tianjin 300072, China

Corresponding author:Li, X.-J.
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Abstract:Using a double resonant KTiOPO$_4$ (KTP) intracavity optical parametric oscillator operating at degenerated point of 2 μm, we demonstrate a unique mid-infrared source based on difference frequency generation in GaSe crystal. The output tuning range is 8.42-19.52 μm, and a peak power of 834 W for type-I phase matching scheme and 730 W for type-II phase matching scheme are achieved. Experimental results show that this oscillator is a good alternative to the generator of a compact and tabletop mid-infrared radiation with a widely tunable range. © 2010 Chinese Physical Society and IOP Publishing Ltd.
Number of references:18
Main heading:Parametric oscillators
Controlled terms:Infrared devices - Infrared radiation - Light sources - Optical frequency conversion - Optical parametric oscillators - Phase matching - Radiometers
Uncontrolled terms:Difference-frequency generation - Dual-wavelength - GaSe crystals - Intracavities - Matching scheme - Mid-infrared radiation - Midinfrared - Peak power - Phase matching scheme - Tuning ranges   - Widely tunable
Classification code:713 Electronic Circuits - 713.2 Oscillators - 741 Light, Optics and Optical Devices - 944.7 Radiation Measuring Instruments
DOI:10.1088/1674-1056/19/11/114209
Database:Compendex

<RECORD 102>

Title:Loss properties of all-solid photonic band gap fibers with an array of rings
Authors:Geng, You-Fu (1); Li, Xue-Jin (1); Tan, Xiao-Ling (2); Yao, Jian-Quan (3)
Author affiliation:(1) Shenzhen Key Laboratory of Sensor Technology, College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) Faculty of Science, Ningbo University, Ningbo 315211, China; (3) Institute of Laser and Optoelectronics, College of Precision Instrument and Optoelectronics Engineering, Tianjin University, Tianjin 300072, China
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Abstract:The confinement loss and bend loss properties of all-solid photonic band gap fibers with

an array of rings doped with high-index material are investigated. The calculated results show that for a specific structure, the confinement loss and the critical bend radius are reduced simultaneously in some band gaps by increasing the inner diameter of ring, which provides a useful guide and a theoretical basis for designing large mode area fibers with low loss. © 2010 Tianjin University of Technology and Springer-Verlag Berlin Heidelberg.

<RECORD 103>

Title:Properties of self-compacting lightweight concrete
Authors:Cui, H.Z. (1); Lo, T.Y. (2); Xing, F. (1)
Author affiliation:(1) Shenzhen University, Shenzhen, Guangdong, China; (2) Department of Building and Construction, City University of Hong Kong, Hong Kong, Hong Kong
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     (bctommyl@cityu.edu.hk)

Abstract:This paper compares the fresh and hardened properties of self-compacting lightweight concretes (SCLCs). The effects of different dosages of binder materials, sand ratios and types of fine aggregate (i.e.river sand and crushed stone fine) on the performance of fresh SCLC and the properties of hardened SCLC were examined. Results indicated that air dry bulk density of SCLC ranged from 1760 to 1800 kg m^{-3}, oven dry density ranged from 1630 to 1660 kg m^{-3} and elastic moduli ranged from 22 to 28 GPa. For fresh SCLC, the T_{50} values decrease irrespective of the types of fine aggregate used and there is an optimal binder content >550 kg m^{-3}. The bulk density of the concretes decreases

slightly with increasing binder content. © 2010 W. S. Maney & Son Ltd.

Number of references:17

Main heading:Light weight concrete

Controlled terms:Binders - Concretes - Elastic moduli - Hardening

Uncontrolled terms:Binder content - Binder material - Bulk density - Concrete properties - Crushed stones - Dry density - Fine aggregates - Fresh and hardened properties - Self-compacting lightweight concretes - Slump flow

Classification code:412 Concrete - 421 Strength of Building Materials; Mechanical Properties - 537.1 Heat Treatment Processes - 803 Chemical Agents and Basic Industrial Chemicals - 951 Materials Science

<RECORD 104>

Title:Microwave pyrolysis chemical vapour infiltration of carbon: Experimental results

Authors:Zou, J.Z. (1); Zeng, X.R. (1); Niu, B. (3)

Author affiliation:(1) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen 518060, China; (3) School of Management, Shenzhen University, Shenzhen 518060, China

Corresponding author:Zeng, X. R.
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Abstract:Carbon/carbon composites were fabricated by Microwave pyrolysis chemical vapour infiltration. The carbon fibre felts (the bulk density ∼ 0&bull2 g cm⁻³) were infiltrated from methane at temperatures of 1075, 1100, 1125 and 1150°C, methane partial pressure ranging from 5 to 15 kPa, and various flowrates of the gas corresponding to residence times of 0&bull05, 0&bull1, 0&bull15 and 0&bull2 s, and the deposition gradients from the

surface layer to the centre fibre regions of samples prepared by corresponding to process parameters were studied. The results show that the density gradients are improved by increasing residence time, decreasing deposition temperature and increasing methane pressure. The pore choking in the surface layer of preforms can be avoided, and the preforms can be densified from the inside out. After optimisation of densification process, the highest density of carbon/carbon composites prepared by microwave pyrolysis reaches 1&bull84 g cm⁻³ after infiltration time of 30 h. © 2010 W. S. Maney & Son Ltd.

Number of references:21

Main heading:Cracking (chemical)

Controlled terms:Carbon carbon composites - Carbon fibers - Chemical vapor deposition - Methane - Microwaves - Preforming - Seepage - Soil mechanics

Uncontrolled terms:Bulk density - Carbon fibres - Chemical vapour infiltration - Densification process - Density gradients - Deposition temperatures - Infiltration time - Microwave pyrolysis - Optimisations - Process parameters   - Residence time - Surface layers

Classification code:804 Chemical Products Generally - 802.2 Chemical Reactions - 711 Electromagnetic Waves - 535.2.2 Metal Forming Practice - 522 Gas Fuels - 483.1 Soils and Soil Mechanics - 441 Dams and Reservoirs; Hydro Development - 415.4 Structural Materials Other Than Metal, Plastics or Wood - 407 Maritime and Port Structures; Rivers and Other Waterways

DOI:10.1179/106678509X12519033857950

Database:Compendex

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<RECORD 105>

Title:Invasion of CdSe/CdS/ZnS quantum dots for oocytes in vitro maturation

Authors:Wang, Xiaomei (1); Yong, Ken-Tye (2); Xu, Gaixia (3); Lin, Xiaotan (1); Zhou, Xiaoqing (1); Qu, Junle (3); Chen, Siping (1); Niu, Hanben (3)

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Corresponding author:Xu, G.
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Abstract:The Kunming mice immatured oocytes in vitro maturation culture system are established to investigate the reproductive toxicity of CdSe/CdS/ZnS quantum dots (QDs). QDs stock solution is added into oocyte culture medium at a final concentration of 28.90 nmol/L. Then, QDs and oocytes are co-cultured at 37 °C, 5% CO_2 for 4, 8 and 20 h, respectively. The morphological information of oocytes are observed and analyzed under phase-contrast fluorescence microscope. The results demonstrate that QDs enter cumulus cells and accumulate with co-culture time. QDs can not penetrate oocytes zona pellucida, which is confirmed by laser scanning confocal microscope with high spatial resolution. After being treated for 20 h and being rejected by oocytes, QDs decrease the ratio of oocyte in vitro maturation dramatically.

<RECORD 106>

Authors:Su, S.C. (1); Lu, Y.M. (2); Xing, G.Z. (4); Wu, T. (4)
Author affiliation:(1) Department of Education of Guangdong Province, Institute of Opto-electronic Materials and Technology, South China Normal University, Guangzhou 510631, China; (2) Key Laboratory of Excited State Processes, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences, Changchun 130033, China; (3) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (4) Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore
Corresponding author:Lu, Y. M.
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Abstract:ZnOZn$_{0.85}$Mg$_{0.15}$O asymmetric double quantum wells (ADQWs) were fabricated on an m-plane Al$_2$O$_3$ substrate by plasma-assisted molecular beam epitaxy (P-MBE). The ADQW structures were confirmed by comparing the photoluminescence (PL) spectra of the ZnOZn$_{0.85}$Mg$_{0.15}$O MQWs and ZnOZn$_{0.85}$Mg$_{0.15}$O ADQWs. The exciton tunnelling properties of the ADQWs were studied by means of temperature-dependent PL spectra. The carrier tunneling through the thin barrier is conducive to stimulated emission in the wide wells (WWs) of the ADQWs. The origin of the stimulated emission is excitonexciton scattering in the WWs of ADQWs. © 2010 Elsevier Ltd. All rights reserved.

<RECORD 107>

Authors:Zhang, Peng (1); Yu, Jian-Ping (1); Liu, Hong-Wei (1)
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Corresponding author:Zhang, P.

Abstract:For the source security need, a digital signature scheme with aggregate signatures, data fusion and batch verification was proposed. Based on the proposed signature scheme and the homomorphic encryption technology, a data fusion protocol with secure sources was advanced. Security analyses show that the proposed signature scheme is secure based on the CDH assumption, and the proposed protocol can provide the collected data end-to-end confidentiality and authentication.

Number of references:11

Main heading:Network security

Controlled terms:Authentication - Cryptography - Electronic document identification systems - Information fusion - Network protocols - Sensor data fusion - Sensor networks

Uncontrolled terms:Aggregate signature - Batch verification - Digital signature schemes - End-to-end authentication - End-to-end confidentiality - Fusion protocol - Homomorphic-encryptions - Security analysis - Signature Scheme - Source security

Classification code:723 Computer Software, Data Handling and Applications - 732 Control Devices - 732.2 Control Instrumentation - 903.1 Information Sources and Analysis

Database:Compendex

<RECORD 108>

Accession number:20104113286488Title:Hydrogen-free diamond-like carbon films prepared by microwave electron cyclotron resonance plasma-enhanced direct current magnetron sputtering

Authors:Ru, Lili (1); Huang, Jianjun (1); Gao, Liang (1); Qi, Bing (1)
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CODEN:THSFAP
Document type:Journal article (JA)

Abstract:Hydrogen-free diamond-like carbon (DLC) films were prepared by means of microwave electron cyclotron resonance plasma enhanced direct current magnetron sputtering. To study the influence of enhanced plasma on film fabrication and properties, the structures as well as mechanical and electrical properties of these films were studied as a function of applied microwave power. Results showed that higher microwave power could induce higher plasma density and electron temperature. The hardness increased from 3.5 GPa to 13 GPa with a variation of microwave power from 0 W to 1000 W. The resistivity showed a drastic increase from 4.5 $\times$ 10^4 Ωcm at 0 W to 1.3 $\times$ 10^{10} Ωcm at 1000 W. The variation of the intensity ratio I(D)/I(G) and the position of the G-peak of the DLC films with respect to changes in microwave power were also investigated by Raman spectroscopy. $\copyright$ 2010 Elsevier B.V. All rights reserved.

Number of references:31
Main heading:Carbon films
Controlled terms:Cyclotrons - Diamond like carbon films - Diamonds - Electric properties - Electron cyclotron resonance - Electron temperature - Film preparation - Hydrogen - Magnetron sputtering - Mechanical properties - Microwave generation - Microwave power transmission - Plasma density - Raman spectroscopy - Resonance
Uncontrolled terms:Direct current magnetron sputtering - DLC film - Film fabrication - Intensity ratio - Mechanical and electrical properties - Microwave electron cyclotron resonance - Microwave electron cyclotron resonance Plasma - Microwave power
Classification code:932 High Energy Physics; Nuclear Physics; Plasma Physics - 804.2 Inorganic Compounds - 804 Chemical Products Generally - 741.1 Light/Optics - 714.2 Semiconductor Devices and Integrated Circuits - 951 Materials Science - 712.1 Semiconducting Materials - 706.1.1 Electric Power Transmission - 701.1 Electricity: Basic Concepts and Phenomena - 701 Electricity and Magnetism - 482.2.1 Gems - 712 Electronic and Thermionic Materials
DOI:10.1016/j.tsf.2010.07.067
Database:Compendex

<RECORD 109>

Accession number:20104313328287Title:Kernel subspace LDA with convolution kernel function for face recognition

Authors:Chen, Wen-Sheng (1); Yuen, Pong C. (2); Ji, Zhen (3)
Author affiliation:(1) Shenzhen City Key Laboratory of Embedded System Design, College of Mathematics and Computational Science, Shenzhen University, 518060, China; (2) Department of Computer Science, Hong Kong Baptist University, Hong Kong, Hong Kong; (3) Shenzhen City Key Laboratory of Embedded System Design, College of Computer Science and Software Engineering, Shenzhen University, 518060, China
Corresponding author:Chen, W.-S.
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Abstract:It is well-known that most wavelet functions are unsymmetrical and thus fail to satisfy Fourier criterion. These kinds of wavelets cannot be utilized to construct Mercer kernel directly. Based on convolution technique, this paper proposes a novel framework on Mercer kernel construction. The proposed methodology indicates that any of wavelets can generate a wavelet-like kernel basis function, which has zero vanishing moment. An example on convolution Mercer kernel construction is given by using Haar wavelet. The self-constructed Haar wavelet convolution kernel (HWCK) function is then applied to kernel subspace linear discriminant analysis (SLDA) approach for face classification. The eMU PIE human face dataset is selected for evaluation. Comparing with the RBF kernel based SLDA method and existing LDA-based kernel methods such as KDDA and GDA, the proposed Haar wavelet convolution kernel based method gives superior results. ©2010 IEEE.

<RECORD 110>

Accession number:20104313325200Title:An improved SOM-based approach to dynamic task assignment of multi-robots

Authors:Zhu, Anmin (1); Yang, Simon X. (2)
Author affiliation:(1) School of Computer and Software, Shenzhen University, Shenzhen, Guangdong, 518060, China; (2) ARIS Lab., School of Engineering, University of Guelph, Guelph, ON N1G 2W1, Canada
Corresponding author:Zhu, A.

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Abstract:In this paper, an improved self organizing map (SOM)-based approach is proposed for multi-robot systems to tackle the task assignment problem which focuses on the self-organization issue with a large number of robots and a large number of task locations in dynamic environments subject to uncertainties. It is capable of dynamically controlling a group of mobile robots to achieve different task locations from arbitrary initial locations and directions. In the proposed approach, the robot motion planning is integrated with the task assignment, thus the robots start to move once the overall task is given. The group of mobile robots can automatically arrange the total task, and dynamically adjust their motion whenever the environment is changed, such as when some robots break down, some robots and/or some tasks are added, or the situation accruing when some tasks are changed. Different from our early study [1], the current direction of every robot is considered during the robot motion planning. The effectiveness and efficiency of the proposed approach are demonstrated by simulation studies. © 2010 IEEE.
Number of references:14
Main heading:Robot programming
Controlled terms:Conformal mapping - Industrial robots - Intelligent control - Mobile robots - Motion planning - Multipurpose robots - Self organizing maps
Uncontrolled terms:Break down - Current direction - Dynamic environments - Dynamic tasks - Improved SOM - Multi-robot systems - Multirobots - Robot motion planning - Self-organizations

- Simulation studies   - Task assignment

<RECORD 111>

Title:Seismic response of retaining wall with anisotropic backfills

Authors:Li, Bo (1); Zeng, Xiangwu (1); Ming, Haiyan (2)
Author affiliation:(1) Dept. of Civil Engineering, Case Western Reserve University, Cleveland, OH, 44106-7201, United States; (2) Dept. of Civil Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Li, B.
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Abstract:In this study, eight earthquake centrifuge tests were performed on a model of a cantilever retaining wall to study the seismic response of a retaining wall with anisotropic backfills. A special rigid container was designed and used to prepare models with different directions of soil deposition. The eight centrifuge models had 0, ±45 and 90 degrees of sand deposition angles and with dry or saturated backfills. It was shown that the fabric anisotropy had a strong

effect on the settlement of backfill and the response of the retaining wall. It was also clear that the acceleration in the soil was sensitive to the fabric anisotropy of granular materials. © ASCE 2010.

Number of references:15

Main heading:Geologic models

Controlled terms:Anisotropy - Centrifugation - Centrifuges - Retaining walls - Seismic response - Soils

Uncontrolled terms:Cantilever retaining walls - Centrifuge models - Centrifuge tests - Fabric anisotropy - Sand deposition

Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 802.3 Chemical Operations - 802.1 Chemical Plants and Equipment - 483.1 Soils and Soil Mechanics - 481.1 Geology - 408 Structural Design - 407 Maritime and Port Structures; Rivers and Other Waterways - 406 Highway Engineering - 405 Construction Equipment and Methods; Surveying

DOI:10.1061/41128(384)68

Database:Compendex

<RECORD 112>

Title:One approximate and simple method for signal timing of overlap phasing

Authors:Wang, Jingyuan (1); Liu, Wencai (1)
Author affiliation:(1) Civil Engineering College, Shenzhen University, Nanhai Ave. 3688, Shenzhen, Guangdong, 518060, China; (2) MVA Transport Consultants (Shenzhen) Co. Ltd., Shenzhen, Guangdong, 518033, China
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Abstract:The control program design of overlap phasing was studied for the non-equilibrium traffic flow at a signalized intersection. One approximate and simple method for signal timing of overlap phasing was presented. The application principles and conditions of overlap phasing were discussed starting from its concept. The design and timing methods of overlap phasing were constructed on the basis of the timing method of conventional signal phases. The application of the method was illustrated. The result showed that overlap phasing reduced total flow ratio, cycle, delay, and increased capacity. The research provided a theoretical basis for the design of overlap phasing. The effectiveness of time-space resources utilization and service level can be improved at intersections using the research approach. © 2010 ASCE.
Number of references:6
Main heading:Traffic signals
Controlled terms:Design - Time measurement - Timing circuits - Traffic control - Traffic surveys
Uncontrolled terms:Control program - Flow ratios - Non equilibrium - Overlap phasing - Research approach - Service levels - Signal timing - Signalized intersection - SIMPLE method - Theoretical basis   - Time-space - Traffic flow
Classification code:406 Highway Engineering - 408 Structural Design - 432.4 Highway Traffic Control - 713.4 Pulse Circuits - 943.3 Special Purpose Instruments
DOI:10.1061/41123(383)29
Database:Compendex

<RECORD 113>

Title:Chaos-based multi-objective immune algorithm with a fine-grained selection mechanism
Authors:Chen, Jianyong (1); Lin, Qiuzhen (1); Ji, Zhen (1)
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Document type:Article in Press

Abstract:In this paper, we propose a chaos-based multi-objective immune algorithm (CMIA) with a fine-grained selection mechanism based on the clonal selection principle. Taking advantage of the ergodic and stochastic properties of chaotic sequence, a novel mutation operator, named as chaos-based mutation (CM) operator, is proposed. Moreover, the information of diversity estimation is also adopted in the CM operator for nondominated solutions to adjust mutation steps adaptively, which encourages searching less-crowded regions with relative large step sizes. When comparing with polynomial mutation operator that is used in many state-of-the-art multi-objective optimization evolutionary algorithms, simulations show that it is effective to enhance the search performance. On the other hand, in order to increase the population diversity, a fine-grained selection mechanism is proposed in this paper, which seems to be remarkably effective in two-objective benchmark functions. When comparing with two state-of-the-art multi-objective evolutionary algorithms (NSGA-II and SPEA-2) and a new multi-objective immune algorithm (NNIA), simulation results of CMIA indicate the effectiveness of the fine-grained selection mechanism and the remarkable performance in finding the true Pareto-optimal front, especially on some benchmark functions with many local Pareto-optimal fronts. © 2010 Springer-Verlag.

Number of references:33

Main heading:Evolutionary algorithms

Controlled terms:Chaos theory - Hierarchical systems - Mathematical operators - Multiobjective optimization

Uncontrolled terms:Benchmark functions - Chaotic sequence - Clonal selection principle - Diversity estimation - Ergodics - Immune Algorithm - Multi objective - Multi objective evolutionary algorithms - Multi-objective optimization evolutionary algorithms - Mutation operators - Nondominated solutions - NSGA-II - Pareto-optimal front - Polynomial mutation - Population diversity - Search performance - Selection mechanism - Simulation result - Step size - Stochastic properties - Two-state

Classification code:921 Mathematics - 921.5 Optimization Techniques - 961 Systems Science

DOI:10.1007/s00500-010-0661-4

Database:Compendex

<RECORD 114>

Accession number:IP51123167 Article in PressTitle:Preparation and properties of FR-PP with phosphorus-containing intumescent flame retardant

Authors:Zuo, Jiandong (1); Su, Yikun (1); Liu, Shumei (2); Sheng, Qi (2)

Author affiliation:(1) College of Materials Science and Engineering, Shenzhen Key Laboratory of Special Functional Material, Shenzhen University, Shenzhen, 518060, China; (2) College of Materials Science and Engineering, South China University of Technology, Guangzhou, 510640, China

Corresponding author:Zuo, J.
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Source title:Journal of Polymer Research

Abstract:A novel phosphorus-containing intumescent flame retardant, triazine oligomer poly (2-morpholinyl-4- pentaerythritol phosphate-1,3,5-triazine) (PMPT), was used to improve the flame retardancy of PP. Effects of PMPT content on the thermal stability, mechanical properties and flammability of PP were discussed, respectively. The morphology of the char residue was observed by SEM. The thermogravimetric (TGA) curves showed that adding PMPT reduced the initial thermolysis temperature of flame retarded PP (FR-PP) while enhanced the thermal stability at high temperature. The slight decline on the mechanical properties of FR-PP suggested that the compatibility of PMPT and PP was good. PP/30% PMPT composite can achieve UL-94 V-0 rating, which revealed that PMPT was an efficient monocomponent intumescent flame retardant. There were many cavities on the compact char layer of FR-PP and the gases generated from PMPT was a critical factor for the flammability properties of FR-PP. © 2010 Springer Science+Business Media B.V.
Number of references:11
Main heading:Mechanical properties
Controlled terms:Fire fighting equipment - Flame retardants - Phosphorus - Polypropylenes - Thermodynamic stability
Uncontrolled terms:Char residues - Critical factors - Flame retardancy - Flame-retarded - Flammability properties - High temperature - Intumescent flame retardant - Mono-component - Pentaerythritol phosphate - Preparation and properties   - SEM - Thermal stability
Classification code:641.1 Thermodynamics - 804 Chemical Products Generally - 815.1.1 Organic Polymers - 914.2 Fires and Fire Protection - 951 Materials Science
DOI:10.1007/s10965-010-9515-0
Database:Compendex

<RECORD 115>

Title:Broadband terahertz generation through intracavity nonlinear optical rectification
Authors:Xu, Shixiang (1); Liu, Jin (1); Zheng, Guoliang (1); Li, Jingzhen (1)
Author affiliation:(1) Shenzhen Key Lab of Micro-Nano Photonic Information Technology, Shenzhen University, Shenzhen, Guangdong 518060, China
Corresponding author:Xu, S.
       (shxxu@szu.edu.cn)

Abstract:This paper presents a novel design for getting high signal-noise ratio broadband terahertz signal through intracavity optical rectification together with terahertz EO sampling. A nonlinear crystal as terahertz emitter is positioned inside a femtosecond laser oscillator under Brewster angle pumping configuration in order to scale up the pumping pulse power but to keep high pulse repetition rate. Our experiments show that the compact and cost-effective design improves the signal-noise ratio by about 29 times compared with the counterpart based on extracavity nonlinear optical rectification. This work opens a new way to improve the signal-noise ratio of the free-space terahertz time-domain spectroscopy through nonlinear optical rectification pumped by a femtosecond laser oscillator. © 2010 Optical Society of America.

Number of references:14
Main heading:Terahertz spectroscopy
Controlled terms:Optical pumping - Pulse repetition rate - Pulsed laser applications - Pumps - Ultrashort pulses
Uncontrolled terms:Brewster angle - Broadband terahertz - Cost effective design - Femtosecond laser oscillators - Free space - High pulse repetition rate - Intracavities - Nonlinear crystals - Nonlinear optical rectification - Novel design   - Optical rectifications - Pumping configurations - Pumping pulse - Scale-up - Signal-noise ratio - Tera Hertz - Terahertz emitters - Terahertz time domain spectroscopy
Classification code:618.2 Pumps - 741.1 Light/Optics - 744.1 Lasers, General - 744.9 Laser Applications - 931.1 Mechanics
DOI:10.1364/OE.18.022625
Database:Compendex

<RECORD 116>

Accession number:20104213311601Title:Main chain liquid crystalline polytriazoles with aggregation-induced emission characteristics: Click polymerization, mesomorphic packing, and solid state emission

Authors:Yuan, Wang Zhang (1); Yu, Zhen Qiang (2); Lam, Jacky Wing Yip (1); Jim, Cathy K.W. (1); Tang, Ben Zhong (1)
Author affiliation:(1) Department of Chemistry, Hong Kong University of Science and Technology,

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Abstract:Biphenyl-containing diazides and diynes carrying tetraphenylethylene units are designed and synthesized. Their "click" polymerizations are initiated by Cu(PPh3)3Br in THF or DMF, affording soluble, regioregular polytriazoles in high yields (up to 94.8%) with narrow molecular weight distributions. The structures and properties of the polymers are evaluated and characterized by IR, NMR, UV, PL, TGA, DSC, POM and XRD measurements. All the polymers are almost nonluminescent when dissolved in solutions but become highly emissive when aggregated in poor solvents or fabricated as thin films in the solid state, displaying a novel phenomenon of aggregation-induced emission. The photophysical properties of the polymers are sensitive to their molecular structures and their solid-state quantum yields decrease with an increase in the spacer length. All the polymers enjoy high thermal stability, with 5% weight loss occurring at temperatures up to 406 °C. They are mesomorphic. While polymers with rigid main chains exhibit nematicity, those with longer spacer lengths show better mesogenic packing and hence form sematic phases at higher temperatures. © 2010 SPIE.

Number of references:37

Main heading:Polymers

Controlled terms:Anionic polymerization - Crystals - Liquid crystals - Molecular weight distribution - Quantum theory - Quantum yield

Uncontrolled terms:Aggregation-induced emissions - Click polymerization - High thermal stability - High yield - Higher temperatures - Liquid crystalline polymers - Liquid-crystalline - Main chains - Mesogenics - Narrow molecular weight distributions   - Photophysical properties -

Polytriazoles - Poor solvents - Regio-regular - Solid state emission - Spacer lengths - Tetraphenylethylene - Weight loss - XRD measurements

<RECORD 117>

Title:Trend prediction in velocity distribution among microchannels based on the analysis of frictional resistances
Authors:Pan, Minqiang (1); Wei, XiaoLing (1); Zeng, Dehuai (2); Tang, Yong (1)
Author affiliation:(1) Key Lab. of Surface Functional Structure Manufacturing of Guangdong Higher Education Institutes, South China University of Technology, Guangzhou 510640, China; (2) School of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Pan, M.
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Abstract:Velocity distribution among microchannel plays an important role in the performances of microchannel reactors. The optimization of structural parameters by enabling narrow uniform velocity distribution among microchannels is regarded as one of the effective design methods. On the basis of the previously developed model, the effects of structural parameters on the velocity distribution are studied and the relationship between frictional resistances and pressure drop are investigated in this work. It is found that the variation of pressure drop distribution among microchannels due to the variation of frictional resistances is the underlying reason for the variation of velocity distribution among microchannels. Compared with the manifold structural parameters, the microchannel structural parameters show more influence on the velocity distribution. High-aspect-ratio microchannels are in favor of obtaining relatively uniform velocity distribution. By the combination of the calculation of frictional resistances with descriptive geometry, it can predict the trend of velocity distribution among microchannels with the variation

of structural parameters without applying complicated theoretical model or numerical simulation. © 2010 Elsevier B.V.

Number of references:8

Main heading:Velocity distribution

Controlled terms:Aspect ratio - Computer simulation - Friction - Hydrodynamics - Microchannels - Pressure drop - Structural optimization - Velocity - Velocity control

Uncontrolled terms:Descriptive geometry - Design method - Developed model - Drop distribution - Frictional resistance - High aspect ratio - Micro channel reactors - Microchannel array - Numerical simulation - Resistance network - Structural parameter - Theoretical models - Trend prediction

Classification code:943.2 Mechanical Variables Measurements - 943 Mechanical and Miscellaneous Measuring Instruments - 931.3 Atomic and Molecular Physics - 931.1 Mechanics - 921.5 Optimization Techniques - 731.3 Specific Variables Control - 723.5 Computer Applications - 631 Fluid Flow - 604 Metal Cutting and Machining

DOI:10.1016/j.cej.2010.08.024

Database:Compendex

<RECORD 118>

Title:An improved image denoising model based on the directed diffusion equation

Authors:Sun, Xiaoli (1); Li, Min (1); Zhang, Weiqiang (1)
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      (xlsun@szu.edu.cn)

Abstract:By substituting an anisotropic diffusion operator for the isotropic Laplace operator in the directed diffusion equation, adding two different coefficients in the two diffusion terms, and choosing the image denoised by soft wavelet shrinkage as the initial approximate image, an improved directed diffusion equation model is proposed. Experiments show that the new model can solve the problem that edges and details will be rapidly blurred during the diffusion process in the directed diffusion equation. © 2010 Elsevier Ltd. All rights reserved.

Main heading:Diffusion

Controlled terms:Image processing - Laplace equation - Mathematical operators

Uncontrolled terms:Anisotropic Diffusion - Diffusion process - Directed diffusion - Image

de-noising - Laplace operator - Model-based - New model - Soft wavelet shrinkage

<RECORD 119>

Title:Toda system and cluster phase transition layers in an inhomogeneous phase transition model

Authors:Wei, Juncheng (1); Yang, Jun (2)
Author affiliation:(1) Department of Mathematics, Chinese University of Hong Kong, Shatin, Hong Kong; (2) College of Mathematics and Computational Sciences, Shenzhen University, Nanhai Ave 3688, Shenzhen, 518060, China
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Abstract:We consider the following singularly perturbed elliptic problem $\Epsilon^2\Delta+(-a(\tilde{y}))(1-{}^2)=0$ in Ω, $\partial/\partial\nu=0$ on $\partial\Omega$, where Ω is a bounded domain in R^2 with smooth boundary, $-1<a(\tilde{y})<1$, $\Epsilon$ is a small parameter, ν denotes the outward normal of $\partial\Omega$. Assume that $\Gamma=\{\tilde{y}\in\Omega:a(\tilde{y})=0\}$ is a simple closed and smooth curve contained in Ω in such a way that Γ separates Ω into two disjoint components $\Omega_+=\{\tilde{y}\in\Omega:a(\tilde{y})<0\}$ and $\Omega_-=\{\tilde{y}\in\Omega:a(\tilde{y})>0\}$ and $\partial a/\partial\nu_0>0$ on Γ, where ν_0 is the outer normal of Ω_+, pointing to the interior of Ω_-. For any fixed integer $N=2m+1\ge3$, we will show the existence of a clustered solution $u_\Epsilon$ with N-transition layers near Γ with mutual distance $O(\Epsilon|\log\Epsilon|)$,

provided that Ε stays away from a discrete set of values at which resonance occurs. Moreover, u<inf>Ε</inf> approaches 1 in Ω<inf>-</inf> and -1 in Ω<inf>+</inf>. Central to our analysis is the solvability of a Toda system. © 2010-IOS Press and the authors. All rights reserved.

<RECORD 120>

Title:Scenario model and algorithm for the reconfiguration of distribution network with wind power generators

Authors:He, Yuqing (1); Peng, Jianchun (2); Wen, Ming (1); Mao, Lilin (1)
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Abstract:The reconfiguration of distribution network with wind power generations (WPGs) could not be described by traditional methods because of the random output of the WPG. Aiming at this problem, a novel scenario distribution network reconfiguration model is presented. In this model, the scenario analysis method was applied to describe the random output of the WPG and its

influence through the scenario selection and scenario voltage. Multiple WPGs and wind farms connected with a network was also considered in this model. And then, an efficient genetic algorithm was presented for the scenario distribution network reconfiguration model. Through the no unfeasible coding rule in the initial population strategy, cross strategy and eugenic strategy, individuals in the evolution always form the feasible solutions which can meet the requirement of the actual distribution network. Physical optimization based on scenario voltage in the process of evolution reduces the optimization time and the dependence of the initial population. The calculation results verify the feasibility of the proposed model and algorithm. © 2010 Chin. Soc. for Elec. Eng.

Number of references:20
Main heading:Mathematical models
Controlled terms:Distributed parameter networks - Electric utilities - Genetic algorithms - Optimization - Power generation - Wind power
Uncontrolled terms:Distributed Generation - Distribution network - Network re-configuration - Scenario analysis - Wind power generator (WPG)
Classification code:615.8 Wind Power (Before 1993, use code 611) - 703.1 Electric Networks - 706 Electric Transmission and Distribution - 921 Mathematics - 921.5 Optimization Techniques
Database:Compendex

<RECORD 121>

Title:Transmission spectrum and potential applications of periodic structure composed of single-negative material and anisotropic material

Authors:Fang, Yun-Tuan (1); Ouyang, Zheng-Biao (2)
Author affiliation:(1) Department of Physics, Zhenjiang Watercraft College, Zhenjiang 212003, China; (2) THz-Technology Research Center of Shenzhen University, Shenzhen 518060, China; (3) Shenzhen Key Laboratory of Micro-Nano-Photonic Information Technology, Shenzhen 518060, China; (4) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China
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Abstract:We propose a multi-channel filtering and polarization splitter based on periodic structure of the single-negative material and anisotropic material. With a small volume (only two periods), this structure has multi-transmission peaks with high Q value and perfect transmission. The s-polarization wave and p-polarization wave have different transmission spectra at normal incidence. The extinction ratios of the polarization splitter for s-polarization wave or p-polarization wave can overpass 1000 at normal incidence. The effect of incident direction on the transmittance and the extinction ratio are also discussed. © 2010 Elsevier Ltd.
Number of references:19
Main heading:Periodic structures
Controlled terms:Light extinction - Materials - Optical anisotropy - Polarization - Wave transmission
Uncontrolled terms:Anisotropic material - Extinction ratios - Multi-channel filtering - Normal incidence - One-dimensional periodic structure - P-polarization - Polarization splitters - Polarization waves - Potential applications - Q-values - Single-negative materials - Transmission peaks - Transmission spectrums
Classification code:951 Materials Science - 933.1 Crystalline Solids - 933 Solid State Physics - 931.3 Atomic and Molecular Physics - 931.2 Physical Properties of Gases, Liquids and Solids - 751.1 Acoustic Waves - 741.1 Light/Optics - 712.1 Semiconducting Materials - 711.1 Electromagnetic Waves in Different Media - 711 Electromagnetic Waves - 701.1 Electricity: Basic Concepts and Phenomena
DOI:10.1016/j.optlaseng.2010.04.012
Database:Compendex

<RECORD 122>

Title:Optimization of job shop scheduling based on shuffled frog leaping algorithm
Authors:Cai, Liang-Wei (1); Li, Xia (1)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Cai, L.-W.

Document type:Journal article (JA)

Abstract:An improved shuffled frog-leaping algorithm is proposed for job shop scheduling problem. In this algorithm, the structure of frog is dependent on job operations. The similarity and distance between frogs are defined. A new displacement strategy is constructed, so that the constraint of machine sequence is overcome and the feasibility of frog's new position is assured. Simulation results on benchmark problems show that this algorithm can effectively solve large job shop scheduling problems.

Number of references:16
Main heading:Algorithms
Controlled terms:Artificial intelligence - Machine shops - Optimization
Uncontrolled terms:Bench-mark problems - Intelligence computing - Job shop scheduling problems - Job-Shop scheduling - New position - NP-hand optimization - Shuffled frog-leaping algorithms - Simulation result
Classification code:402.1 Industrial and Agricultural Buildings - 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 921 Mathematics - 921.5 Optimization Techniques
Database:Compendex

<RECORD 123>

Title:Development of bulk AlN single-crystal growth technology

Authors:Zheng, Rui-Sheng (1); Wu, Hong-Lei (1)
Author affiliation:(1) College of Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zheng, R.-S.
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Document type:Journal article (JA)

518060, China

Abstract:The research on bulk AlN single-crystal growth was reviewed. Attention was paid to four AlN crystal growth methods, which were direct nitridation of aluminum, solution growth, hydride vapor phase epitaxy (HVPE) growth, and physical vapor transport (PVT) growth. The technological process of each method is summarized and discussed, with a conclusion that the HVPE and PVT methods may be the most promising methods. Some improvements in the PVT growth technology made by our research team were presented. It is believed that, in order to grow large-size AlN single-crystal, further research should focus on precisely controlling the growth conditions, finding suitable inert crucible materials, finding best technical approach and process sequence, and preparing high-quality native AlN seed.

Number of references:37
Main heading:Single crystals
Controlled terms:Aluminum - Aluminum coatings - Aluminum nitride - Crystallization - Energy gap - Epitaxial growth - Nitrides - Physical vapor deposition - Research - Semiconductor growth - Semiconductor materials - Vapors
Uncontrolled terms:AlN - Bulk AlN - Crucible materials - Growth conditions - Growth technologies - High quality - Hydride vapor phase epitaxy - Large sizes - Physical vapor transport growths - Research teams - Solution growth - Technological process - Wide-band-gap semiconductor
Classification code:901.3 Engineering Research - 813.2 Coating Materials - 813.1 Coating Techniques - 933.1 Crystalline Solids - 804.2 Inorganic Compounds - 712.1 Semiconducting Materials - 541.1 Aluminum - 804 Chemical Products Generally
Database:Compendex

<RECORD 124>

Authors:Guo, Jiping (1); Peng, Xiang (1); Liu, Xiaoli (1); Li, Ameng (1); Yin, Yongkai (1)
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Corresponding author:Guo, J.
        (puyegjp@gmail.com)

CODEN:GUXUDC
Document type:Journal article (JA)
Publisher:Chinese Optical Society, P.O. Box 80, Xi'an, 710068, China

Abstract:An approach for dynamic 3D shape acquisition of moving object and pipelined 3D modeling is proposed. Based on a brief review of previously reported methods a modified sensor prototype to realize the proposed approach is designed, which relies on color stripe boundary encoding. By locating the ghost boundary and removing its influence on boundary tracking, it is possible to reduce the erroneous range data and improve the scanning efficiency. Moreover, an efficient method for pipelined 3D modeling based on the registration using markers is proposed. An interactive view planning method in the modeling is also presented, leading to an improved accuracy and efficiency for registration and resulting in a modeling process with minimum range images. Experiment results show that the proposed approach can not only reconstruct the range image of single viewpoint accurately, but also automatically register the range images from different viewpoints, achieving 3D modeling in a pipeline mode.

Number of references:20
Main heading:Three dimensional
Controlled terms:Encoding (symbols) - Image processing - Imaging systems - Pipeline processing systems
Uncontrolled terms:3-D measurement - 3-d modeling - 3D reconstruction - Boundary tracking - Color stripe - Dynamic 3D shapes - Efficient method - Modeling process - Moving objects - Range data - Range images - Stripe boundary encoding - View-planning
Classification code:722.4 Digital Computers and Systems - 723.2 Data Processing and Image Processing - 723.5 Computer Applications
DOI:10.3788/AOS20103010.2884
Database:Compendex

<RECORD 125>

Accession number:20104913466234Title:Design of a 16-bit sigma-delta modulator for digital audio signal processing

Authors:Ma, Zhi (1); Li, Yan (2); Yu, Hang (2); Jiang, Lai (2); Ji, Zhen (2)
Author affiliation:(1) Shenzhen IC Design Industrial Administration Center, Shenzhen 518060, China; (2) Shenzhen City Key Laboratory of Embedded System Design, Shenzhen University, Shenzhen 518060, China; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Ji, Z.
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Issue date:October 2010
Publication year:2010
Pages:425-427
Language:English
ISSN:10002618
CODEN:SDXLEX
Document type:Journal article (JA)
Publisher:Editorial Office of Journal of Shenzhen University, Shenzhen University, Shenzhen, 518060, China

Abstract:With the design requirements of 16-bit resolution and 20 kHz bandwidth for digital audio field, a second-order single-loop 1 bit sigma-delta modulator with an oversampling rate of 256 and a sampling frequency of 10.24 MHz was implemented in a 0.18 μm CMOS process. The modulator is fully differential. It consists of a switch capacitor based integrator, a clock generator and a comparator. Simulation results show that the signal to noise distortion ratio (SNDR) and the dynamic range (DR) of the implemented modulator reach 94 dB and 99 dB, respectively. The sigma-delta modulator operates with a supply voltage of 1.8 V, and consumes 7.6 mW of power.
Number of references:7
Main heading:Modulators
Controlled terms:Audio acoustics - Audio signal processing - Capacitors - CMOS integrated circuits - Delta modulation - Digital signal processing - Signal processing - Signal to noise ratio
Uncontrolled terms:Digital audio - Dynamic range - IC technology - Sigma Delta modulator - Signal-to-noise distortion ratio - Switched capacitor
Classification code:704.1 Electric Components - 713.3 Modulators, Demodulators, Limiters, Discriminators, Mixers - 714.2 Semiconductor Devices and Integrated Circuits - 716.1 Information Theory and Signal Processing - 751.1 Acoustic Waves
Database:Compendex

<RECORD 126>

Accession number:20104913466238Title:Deflection and crack calculation of corroded reinforced concrete beams

Authors:Chen, Ju (1); Xing, Feng (2); Zhao, Yu-Xi (1); Jin, Wei-Liang (1)
Author affiliation:(1) College of Civil Engineering and Architecture, Zhejiang University, Hangzhou 310058, China; (2) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhao, Y.-X.
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Source title:Shenzhen Daxue Xuebao (Ligong Ban)/Journal of Shenzhen University Science and Engineering
Abbreviated source title:Shenzhen Daxue Xuebao (Ligong Ban)
Volume:27
Issue:4

Abstract:A non-linear model of reinforced concrete beams was developed for calculating the deflection and crack of corroded reinforced concrete beams. The effects of initial crack and bond-slip behavior between rebar and concrete were considered in the model. The effects of corrosion in reduction of rebar cross section area and bond-slip behavior on the deflection and crack of corroded reinforced concrete beams were analyzed. The concrete deterioration has less effect on the deflection and crack, and it has significant influence on corroded rebar material properties and bond-slip constitutive relation. The deflection and crack increases as the increase of rebar corrosion rates when the rebar corrosion rate exceeds 1.5%. A modified design equation which considers the bond-slip behavior between corroded rebar and concrete is proposed.
Number of references:12
Main heading:Concrete beams and girders
Controlled terms:Atmospheric corrosion - Concrete buildings - Corrosion rate - Cracks - Deflection (structures) - Durability - Mechanics - Reinforced concrete
Uncontrolled terms:Bond slips - Concrete deterioration - Constitutive relations - Cross-section area - Engineering mechanics - Material property - Modified designs - Non-linear model - Rebar corrosion - Reinforced concrete beams
Classification code:412 Concrete - 421 Strength of Building Materials; Mechanical Properties - 423 Non Mechanical Properties and Tests of Building Materials - 539.1 Metals Corrosion - 813 Coatings and Finishes - 931.1 Mechanics
Database:Compendex

<RECORD 127>

Accession number:20103313148900Title:Diode-end-pumped composite Nd:YVO$_4$ yellow laser based on intracavity frequency-doubled self-Raman laser
Authors:Zhang, Li (1); Yu, Yongqin (2); Guo, Yayin (1); Du, Chenlin (1); Ruan, Shuangchen (1)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Du, C.
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Source title:Optics Communications
Abbreviated source title:Opt Commun

Abstract:We report an intracavity frequency-doubled Q-switched self-Raman yellow laser at 587 nm. A composite Nd:YVO$_4$ crystal was utilized as self-Raman gain medium. The maximum average output power of yellow light obtained was 1.5 W at the incident pump power of 30 W and at a repetition rate of 50 kHz, corresponding to the optical conversion efficiency of 5%. The shortest pulse width, the maximum pulse energy and the highest peak power were measured to be 5.8 ns, 46.7 μJ and 5.9 kW, respectively. © 2010 Elsevier B.V. All rights reserved.

Number of references:10

Main heading:Frequency doublers

Controlled terms:Conversion efficiency - Neodymium

Uncontrolled terms:Composite crystal - Diode end-pumped - Frequency-doubling - Incident pump power - Intracavities - Optical conversion efficiency - Output power - Peak power - Pulse energies - Pulse width   - Q-switched - Raman gain - Repetition rate - Self-Raman laser - Yellow lasers - Yellow light

Classification code:525.5 Energy Conversion Issues - 547.2 Rare Earth Metals - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers

DOI:10.1016/j.optcom.2010.05.064

Database:Compendex

<RECORD 128>

Accession number:20104913466246Title:Interaction analysis of ATF1 and CDK3

Authors:Liu, Xiao-Ping (1); Gong, Li-Yun (2); Wang, Liang (2); Tan, Zhi-Ping (1); Zheng, Duo (2)

Author affiliation:(1) Xiangya Second Hospital, Central South University, Changsha 410011, China; (2) College of Medicine, Shenzhen University, Shenzhen 518060, China

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Abstract:To study the interaction mechanism between activating transcription factor 1(ATF1)and cyclin-dependent kinase 3 (CDK3), the plasmids for expression of VP16-tagged ATF1 and the VP16-ATF1 deletions(residues 1~57, 1~214, or 215~271) were constructed.HEK293 cells were transfected and proteins overexpressed were detected by Western blotting. Mammalian two-hybrid assay was conducted and luciferase activity was measured. Results show that an 11-fold increase in interacting activity between pACT-ATF1 and pBIND-CDK3 compared with the basal level (value of 1) of pG5-luc/pBIND-CDK3/pACT control. Neither of ATF1 deletion mutants show strong interaction with CDK3, suggesting that the full length of ATF1 is required for the interaction with CDK3.
Number of references:16
Main heading:Transcription
Controlled terms:Mammals - Tissue culture - Transcription factors
Uncontrolled terms:Activating transcription factor - Cell transformation - Cyclin-dependent kinase 3 - HEK293 cells - Structure and function of biomacromolecules - Two-hybrid assays
Classification code:461.2 Biological Materials and Tissue Engineering - 461.8.1 Genetic Engineering - 821 Agricultural Equipment and Methods; Vegetation and Pest Control
Database:Compendex

<RECORD 129>

Accession number:20104613387843Title:Park and ride behaviors for non-local private car travelers in big events
Authors:Xiong, Ping (1)
Author affiliation:(1) Business School, Shenzhen University, Shenzhen 518060, Guangdong, China
Corresponding author:Xiong, P.
　　　(xiongp@126.com)

Abstract:During big events, non-local private car travelers can be divided into two types which were returning in one day and in a few days. Focusing on the travelers returning in a few days, the paper analyzed the traveling attributes and requirements for P & R. A P & R choice behavior disaggregated model was developed and calibrated based on random utility theory. The model concludes three variables, which were in-vehicle time of P & R transit, diversity of parking fee, and comprehensive attractiveness index for suburban satellite towns comparing to inner city. The results revealed that the planning and policy of P & R for travelers returning in a few days should take more consideration on the requirements of the whole trip chain. The key point is increasing the attractiveness of suburban satellite towns. The suggestion of establishing P & R system combining hotels at suburb has been put forward. © 2010 China Association for Science and Technology.

<RECORD 130>

Title:Design of 50 G nonpolarizing dense wavelength division multiplexer angle-tuning bandpass filter
Authors:Chen, Xianming (1); Ma, Junxian (1); Yang, Yatao (2)
Author affiliation:(1) Advanced Technology Research Center, College of Information Engineering, Shenzhen University, 3688 Nanhai Avenue, Shenzhen, Guangdong, 518060, China; (2) JDS Uniphase (Shenzhen) Corporation, Futian Free Trade Zone, 3 Hongmian Road, Shenzhen, Guangdong, 518060, China
Corresponding author:Ma, J.
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Abstract:Transmission characteristic differences of a narrow bandpass filter between p- and s-polarized light, especially the central wavelength separation, will corrupt the performance of the filter when the incidence is oblique. In this paper, by adding high-index materials asymmetrically to both sides of a low-index spacer, which tunes the equivalent index of the spacer, the central wavelengths of the two polarizations coincide perfectly when in 20° incidence; with different reflected layers on the two sides of the spacers and replacing some reflected layers with equivalent layers, the 0:5 dB normalized passband width is kept at 0:2 nm, which meets the requirement of the 50 G dense wavelength division multiplexer filter. © 2010 Optical Society of America.

<RECORD 131>

Title:The development of shear bands and the structure change in bulk metallic glasses under quasi-static uniaxial compression
Authors:Xie, Sheng-Hui (1); Zheng, Zi-Yue (2); Zeng, Xie-Rong (2); Hu, Qiang (1); Fu, Dong-Ju (1)
Author affiliation:(1) School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an 710072, China; (2) Shenzhen Key Laboratory of Special Functional Materials, College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zeng, X.-R.
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Abstract:The development of shear bands in Zr-based bulk metallic glasses with different plastic strain after undergoing quasi-static uniaxial compression was investigated. The structural changes in the samples were evaluated through the thermodilatometric analysis.The shear bands are separated and randomly distributed at the initial plastic deformation stage ($\Epsilon_p < 2\%$).Then they begin to branch and intersect with each other ($\Epsilon_p \ge 6.49\%$).The formation and propagation of the secondary shear bands gradually incline to 45° to the loading direction. This indicates that the branching and intersection of the shear bands are much affected by the shear stress. The initial formation of shear bands induces the production of free volume, corresponding to the increase in the relaxed excess free volume (REFV) and the maximum viscosity in the supercooled liquid regime. When the plastic deformation continues, the shear bands intersect with each other, corresponding to the rapid decrease in REFV and the viscosity. The mechanics for the variation of REFV and the viscosity with the plastic strains is discussed.

Number of references:26

Main heading:Metallic glass

Controlled terms:Free volume - Glass - Plastic deformation - Plastics - Shear bands - Strain - Supercooling - Viscosity - Zirconium

Uncontrolled terms:Bulk metallic glass - Nano-void - Plastic strain - Relaxed excess free volume - Special alloy

Classification code:817.1 Polymer Products - 815 Polymers and Polymer Science - 812.3 Glass - 641.2 Heat Transfer - 951 Materials Science - 631.1 Fluid Flow, General - 531 Metallurgy and Metallography - 423 Non Mechanical Properties and Tests of Building Materials - 421 Strength of Building Materials; Mechanical Properties - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals

Database:Compendex

<RECORD 132>

Accession number:20104913466227Title:Analysis on the dispersion properties of photonic crystal fiber with an air-hole defect core

Authors:Guo, Yuan (1); Ruan, Shuang-Chen (1)
Author affiliation:(1) Shenzhen Key Laboratory of Laser Engineering, Shenzhen University, Shenzhen 518060, China; (2) Department of Physics, Taiyuan University of Technology, Taiyuan 030024, China
Corresponding author:Ruan, S.-C.
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Abstract:Dispersion properties of photonic crystal fiber with an air-hole defect core have been investigated by using the finite element method. The numerical simulation results indicate that the appearance of the air-hole defect has enhanced the waveguide dispersion, and changed the slope of dispersion to achieve a flat dispersion. It is also revealed that the dispersion curve downshifts with continuously increasing the diameter of air-hole defect, and there exists an optimal value with which a flat dispersion could be achieved. The zero-dispersion wavelength of photonic crystal fiber could be tailored through either changing the air-filling fraction in cladding or moving the air-hole defect away from the origin. These strategies of engineering the dispersion are particularly useful for the supercontinuum generation application.
Number of references:12
Main heading:Holey fibers
Controlled terms:Computer simulation - Crystal whiskers - Defects - Dispersions - Fibers - Finite element method - Laser pulses - Nonlinear optics - Photonic crystals
Uncontrolled terms:Dispersion engineering - Finite Element - Hole defect - Optoelectronics and laser - Zero-dispersion wavelength
Classification code:921.6 Numerical Methods - 817 Plastics and Other Polymers: Products and Applications - 812 Ceramics, Refractories and Glass - 801.4 Physical Chemistry - 951 Materials Science - 744.1 Lasers, General - 741.1.1 Nonlinear Optics - 723.5 Computer Applications - 423 Non Mechanical Properties and Tests of Building Materials - 741.3 Optical Devices and Systems
Database:Compendex

<RECORD 133>

Accession number:20104913466242Title:The characteristic of stay-cable damping system in consideration of bridge deck vibration

Authors:Luo, Shuai (1); Liu, Hong-Jun (1); Wang, Gang (2)
Author affiliation:(1) Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen 518055, China; (2) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Liu, H.-J.
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Abstract:The coupled vibration impact of the bridge deck-cable-damper is not reasonably considered in existing vibration models. In this study, a new analytical model is developed in order to investigate the coupling effects among deck-cable-damper. To investigate the affects of modal damping of the cable-damper system subjected to the coupling motion with the deck, the normalized damping ratio is calculated by a numerical process of the normalized damper coefficient for different support conditions. The result shows that the external damping should be greatly increased to provide the same non-dimensional modal damping with the decrease of the stay angle, and that existing models overestimated the value of the non-dimensional modal damping. The new model matches well with the actual occurrence in bridge engineering.

Number of references:13
Main heading:Damping
Controlled terms:Bridge decks - Cable stayed bridges - Cables - Mathematical models - Railroad bridges
Uncontrolled terms:Analytical model - Bridge engineering - Coupled vibrations - Coupling effect - Damper systems - Damping ratio - Damping system - Modal damping - New model - Numerical process - Stay cable - Support conditions - Vibration model
Classification code:401.1 Bridges - 535 Rolling, Forging and Forming - 921 Mathematics - 931.1 Mechanics
Database:Compendex

<RECORD 134>

Title:Influence of microwave power on the properties of hydrogenated diamond-like carbon films prepared by ECR plasma enhanced DC magnetron sputtering

Authors:Ru, Lili (1); Huang, Jianjun (1); Gao, Liang (1); Qi, Bing (1)
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Abstract:Electron cyclotron resonance (ECR) plasma was applied to enhance the direct current magnetron sputtering to prepare hydrogenated diamond-like carbon (H-DLC) films. For different microwave powers, both argon and hydrogen gas are introduced separately as the ECR working gas to investigate the influence of microwave power on the microstructure and electrical property of the H-DLC films deposited on P-type silicon substrates. A series of characterization methods including the Raman spectrum and atomic force microscopy are used. Results show that, within a certain range, the increase in microwave power affects the properties of the thin films, namely the sp^3 ratio, the hardness, the nanoparticle size and the resistivity all increase while the roughness decreases with the increase in microwave power. The maximum of resistivity amounts to 1.1×10^9 $\Omega \cdot cm$. At the same time it is found that the influence of microwave power on the properties of H-DLC films is more pronounced when argon gas is applied as the ECR working gas, compared to hydrogen gas.

Number of references:18
Main heading:Carbon films
Controlled terms:Argon - Atomic force microscopy - Atomic spectroscopy - Cyclotrons - DC power transmission - Diamond like carbon films - Diamonds - Electric properties - Electron cyclotron resonance - Gases - Hydrogen - Hydrogenation - Magnetron sputtering - Microwave generation - Microwave power transmission - Plasmas - Polymer blends - Raman spectroscopy
Uncontrolled terms:Argon gas - Characterization methods - Dc magnetron sputtering - Direct current magnetron sputtering - DLC film - ECR plasma - Electrical property - Electron cyclotron resonance plasma - Hydrogen gas - Hydrogenated diamond   - Hydrogenated diamond-like carbon films - Microwave power - Nanoparticle sizes - P-type silicon - Raman Spectrum - Working gas

Classification code:802.2 Chemical Reactions - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 816.1 Processing of Plastics and Other Polymers - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 932 High Energy Physics; Nuclear Physics; Plasma Physics - 801 Chemistry - 482.2.1 Gems - 701 Electricity and Magnetism - 706.1.1 Electric Power Transmission - 712 Electronic and Thermionic Materials - 714.2 Semiconductor Devices and Integrated Circuits - 741.1 Light/Optics - 741.3 Optical Devices and Systems

<RECORD 135>

Title:Confocal imaging of Bim translocation to endoplasmic reticulum during DHA-induced ASTC-a-1 cell apoptosis

Authors:Chen, Min (1); Lu, Yingying (1); Chen, Tongsheng (1); Qu, Junle (2)
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Abstract:Bim, a proapoptotic member of Bcl-2 family, plays an important role in cell apoptosis. It is generally thought that Bim translocates to mitochondria in response to apoptotic stimuli. We use confocal mi-croscopy to image the temporal-spatial dynamics of Bim during dihydroartemisinin (DHA) induced human lung adenocarcinoma (ASTC-a-1) cell apoptosis. Interestingly, we find that DHA induces Bim transloca- tion to endoplasmic reticulum (ER) rather than mitochondria, implying that Bim-ER pathway might be involved in the DHA-induced ASTC-a-1 cell apoptosis. © 2010 Chinese Optics Letters.
Number of references:16
Main heading:Cell death
Controlled terms:Mitochondria

Uncontrolled terms:Apoptotic stimuli - Bcl-2 family - Cell apoptosis - Confocal imaging - Dihydroartemisinin - Endoplasmic reticulum - Human lung - In-cell - Spatial dynamics

Classification code:461.2 Biological Materials and Tissue Engineering - 461.9 Biology

Database:Compendex

<RECORD 136>

Title:Structural and property characterization of ZnO:Al films grown by ion beam sputtering

Authors:Liang, Guangxing (1); Fan, Ping (1); Zhang, Dongping (1); Cai, Xingmin (1); Zheng, Zhuanghao (1)

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Abstract:The ZnO:Al (AZO) films were deposited by ion beam sputtering of the ceramic target of ZnO doped with 2%(wt.) Al_2O_3 on BK7 glass substrates. The impacts of the deposition conditions on the film growth were experimentally studied. The microstructures and properties of the AZO films were characterized with X-ray diffraction, atomic force microscopy and conventional surface probes. The results show that the plasma power, substrate temperature and film thickness affect the AZO growth to a varying degree. For instance, as the thickness increases, the Zn(002) peak goes higher, coinciding with growth of ZnO grains, surface roughening and defects formation. The optimized AZO film growth conditions are found to be: a plasma power of 1.3 keV, a substrate temperature of 200° C and a thickness of 420 nm.

Number of references:17

Main heading:Film growth

Controlled terms:Aluminum - Atomic force microscopy - Beam plasma interactions - Deposition - Electric properties - Ion beams - Ion bombardment - Ions - Microstructure - Optical films - Sputtering - Substrates - Surface defects - Thin films - X ray diffraction - Zinc oxide

<RECORD 137>

Title:A study of AlGaN epitaxial film by spectroscopic ellipsometry
Authors:Li, Qiu-Jun (1); Feng, Shi-Juan (1); Liu, Yi (2); Zhao, Hong (3); Zhao, Wen-Bo (3)
Author affiliation:(1) Key Lab. of Optical Fiber Communication Technology, Chongqing University of Posts and Telecommunication, Chongqing 400065, China; (2) College of Physics and Technology, Shenzhen University, Shenzhen 518060, China; (3) Chongqing Opto-Electronics Research Institute, Chongqing 400060, China
Corresponding author:Feng, S.-J.
Abstract:A series of $Al_xGa_{1-x}N$ films grown on sapphire were measured applying spectroscopic ellipsometry. The films thickness and optical constants in 245-1000 nm range are obtained by fitting. And Al composition is calculated by effective-medium-approximation (EMA) model. With Al composition increasing, the refractive index n decreases, absorption edge shifts to shorter wavelength. The results are in good agreement with that of transmission spectrum.
Main heading:Optical films

Controlled terms:Aluminum - Epitaxial films - Gallium - Optical constants - Refractive index - Spectroscopic ellipsometry

Uncontrolled terms:Absorption edges - Al composition - AlGaN - AlGaN film - Films thickness - Shorter wavelength - Transmission spectrums

Classification code:541.1 Aluminum - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 933 Solid State Physics - 941.4 Optical Variables Measurements

Database:Compendex

<RECORD 138>

Title:A miniature laser speckle fluorescence sectioning microscope for cell imaging

Authors:Shao, Yonghong (1); Li, Heng (1); Wen, Qiao (1); Wang, Yan (1); Qu, Junle (1); Niu, Hanben (1)

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Abstract:We present a miniature fluorescence sectioning microscope which uses a diode-pumped solid-state (DPSS) laser as the light source and a fast translating diffuser to produce dynamically changing speckle patterns onto the back aperture of the objective to illuminate the sample. Optical sectioning, which originates from the statistical characteristics of laser speckles, is obtained by calculating the contrast of a series of fluorescence images. High contrast fluorescence sectioning images of bovine pulmonary artery endothelial (BPAE) cells are obtained. The image quality is similar to that of the images acquired by standard laser scanning confocal microscope (LSCM). Compared with LSCM, the laser speckle fluorescence microscope (LSFM) presented in this letter has many advantages, such as simple configurations, low cost, compact, and easy to operate, which makes it possible to have wide spread applications in biomedicine. © 2010 Chinese Optics Letters.

Number of references:18
Main heading:Speckle
Controlled terms:Endothelial cells - Fluorescence - Image quality - Light sources - Microscopes - Pumping (laser)
Uncontrolled terms:Cell imaging - Diode-pumped solid-state laser - Fluorescence image - Fluorescence microscopes - High contrast - Laser scanning confocal microscopes - Laser speckle - Low costs - Miniature lasers - Optical sectioning - Pulmonary artery - Speckle patterns - Statistical characteristics - Wide spreads
Classification code:461.9 Biology - 741 Light, Optics and Optical Devices - 744.1 Lasers, General
DOI:10.3788/COL20100810.0944
Database:Compendex

<RECORD 139>

Title:Synthesis and properties of starburst amorphous molecules: 1,3,5-Tris(1,8-naphthalimide-4-yl)benzenes

Authors:Liu, Yawei (1); Niu, Fangfang (1); Lian, Jiarong (1); Zeng, Pengju (1); Niu, Hanben (1)
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Abstract:A series of starburst amorphous molecules derived from 1,3,5-tris(1- naphthyl)benzene are synthesized by a palladium-catalyzed Miyaura borylation and palladium-catalyzed Suzuki coupling reactions. These starburst compounds have the abilities to form uniform amorphous thin films and possess glass transition temperatures as high up to 254 °C. The high current density and luminance of organic light emitting diodes fabricated indicate that these compounds own good electron-transporting properties. These compounds hence have the potential to be used as electron-transporting materials in organic semiconducting devices. © 2010 Elsevier B.V. All rights reserved.
Number of references:24

Main heading:Synthesis (chemical)

Controlled terms:Amorphous films - Benzene - Catalysis - Electrons - Glass transition - Light emitting diodes - Molecules - Organic light emitting diodes (OLED) - Palladium - Semiconducting organic compounds

Uncontrolled terms:Amorphous molecules - Electron-transporting - Naphthalimide - Starbursts - Suzuki coupling reaction

Classification code:931.3 Atomic and Molecular Physics - 804.1 Organic Compounds - 802.3 Chemical Operations - 933.2 Amorphous Solids - 802.2 Chemical Reactions - 712.1.2 Compound Semiconducting Materials - 547.1 Precious Metals - 741.1 Light/Optics

DOI:10.1016/j.synthmet.2010.07.020

Database:Compendex

<RECORD 140>

Title:Greedy approximation algorithm of minimum cover set in wireless sensor networks

Authors:Lu, Ke-Zhong (1); Sun, Hong-Yuan (3)

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Abstract:Network lifetime is a bottleneck that restricts the development of wireless sensor networks. One approach to save energy effectively and prolong network lifetime is to schedule some nodes to work and put other nodes into a low-powered sleep mode, while monitoring performance of network. The object of scheduling nodes is to obtain a minimum node set that can cover a monitored region. This is a NP-hard problem. Performances of present approximation algorithms have not been good. An approximation algorithm of a minimum cover set problem based on methodology is proposed. During the process of constructing a cover set, effective node

that extends to maximal areas are selected to join the cover set. Theoretical analyses show that the algorithm can construct a cover set that perform well and has a time complexity that is $O(n)$, where n is initial node number. Experimental results show that performance of this new algorithm outperform that of present algorithms. The size of a cover set is decreased by 14.2%. Also, execution time is less than that of present algorithms. When initial nodes are deployed densely, the average degree of coverage obtained by the algorithm is below 1.75 and has an approximation ratio below 1.45. © by Institute of Software, the Chinese Academy of Sciences.

<RECORD 141>

Authors:Lian, Jia-Rong (1); Liao, Qiao-Sheng (1); Yang, Rui-Bo (1); Zheng, Wei (1); Zeng, Peng-Ju (1)
Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education, Shenzhen University, Shenzhen 518060, China
Corresponding author:Lian, J.-R.
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Abstract:The dependence of opto-electronical characteristics in organic light-emitting devices on

the thickness of Alq_3 emitter layer was studied, where MoO_3, NPB, and Alq_3 were used as hole injector, hole transporter, and emitter/electron transporter, respectively. By increasing the thickness of Alq_3 layer from 20 to 100 nm, the device current decreased gradually, and the EL spectra of devices performed a little red shift with an obvious broadening in long wavelength range but a little decrease in intensity of short wavelength range. The authors simulated the EL spectra using the photoluminescence (PL) spectra of Alq_3 as Alq_3 intrinsic emission, which coincided with the experimental EL spectra well. The simulated results suggested that the effect of interference takes the major role in broadening the long wavelength range of EL spectra, and the distribution of emission zone largely affects the profile of EL spectra in short wavelength range.

<RECORD 142>

Title:Improving FRET efficiency measurement in confocal microscopy imaging
Authors:Yu, Huaina (1); Chen, Tongsheng (1); Qu, Junle (2)
Author affiliation:(1) MOE Key Laboratory of Laser Life Science and Institute of Laser Life Science, South China Normal University, Guangzhou 510631, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China
Corresponding author:Chen, T.
        (chentsh@scnu.edu.cn)

Abstract:Spectral bleedthrough (SBT) ratio is dependent on the level of fluorescence intensity in

confocal imaging. Precision Fo¨rster resonance energy transfer (FRET) algorithm corrects SBT ratio according to fluorescence intensity and avoids over-or under-estimation of SBT ratio. In this letter, we propose a new method to accurately measure the FRET efficiency of FRET plasmid in single living cells by combining the calculation of SBT in precision FRET algorithm with E-FRET formulae. We also use this method to measure the FRET efficiency of FRET-Bid, and find that in healthy A549 cells it is about 15%, which is verified by FRET acceptor photobleaching method. © 2010 Chinese Optics Letters.

<RECORD 143>

Title:Proteomics analysis on rats soleus muscle fibers following hindlimb suspension

Authors:Wang, Xiao-Dong (1); Jiang, Yong (1); Chen, Min-Sheng (1)
Author affiliation:(1) Normal College, Shenzhen University, Shenzhen 518060, China
Corresponding author:Wang, X.-D.
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Abstract:Effects of 16 days of hindlimb suspension on the characteristics of single soleus muscle fiber were compared between male Wistar and Wistar Hannover rats. The greater effects of unloading were noted in Wistar Hannover rats. The unloading-related reductions of muscle weight

and fiber cross-sectional area versus the pre-suspension levels were greater than Wistar rats. Total number of myonuclei in control situation was greater in Wistar Hannover rats, but the more numbers of myonuclei were decreased following unloading. Responses of myonuclear domain levels were similar. The numbers of both quiescent and mitotic active satellite cells in control situation were greater in Wistar rats. But the magnitude of the unloading-related decrease was identical for Wistar Hannover and Wistar rats. Although the level of heat shock protein 27 (HSP27) expression in Wistar rats was decreased by unloading, de novo appearance of HSP27 was noted in Wistar Hannover rats. It is suggested that greater responses of soleus muscle fibers of Wistar Hannover than Wistar rats may be related to the different expression of protein, although the precise mechanism is still unclear.

Number of references:9

Main heading:Rats

Controlled terms:Fibers - Molecular biology - Muscle - Neurons - Proteins - Unloading

Uncontrolled terms:Differential expressed protein - Hind limbs - Muscle atrophy - Proteomics - Soleus muscle

Classification code:461 Bioengineering and Biology - 674.1 Small Marine Craft - 804.1 Organic Compounds - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications

Database:Compendex

<RECORD 144>

Title:Piezoelectric micromachined ultrasonic transducer based on dome-shaped piezoelectric single layer

Authors:Peng, J. (1); Chao, C. (2); Tang, H. (1)

Author affiliation:(1) Department of Biomedical Engineering, School of Medicine, Shenzhen University, Shenzhen 518060, Guangdong, China; (2) Research Institute of Innovative Products and Technologies, Hong Kong Polytechnic University, Hong Kong, Hong Kong

Corresponding author:Peng, J.

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Abstract:In this paper, we proposed a dome-shaped model for piezoelectric micromachined

ultrasonic transducer structure. A finite element analysis was carried out to study the elecro-mechanical behaviour of the dome-shaped model as well as the conventional model. The result showed that a considerable improvement of electromechanical coupling performance was achieved with the dome-shaped model. © Springer-Verlag 2010.

Number of references:10

Main heading:Finite element method

Controlled terms:Domes - Electromechanical coupling - Electromechanical devices - Piezoelectric transducers - Piezoelectricity - Ultrasonic equipment - Ultrasonic measurement - Ultrasonic transducers - Ultrasonic waves - Ultrasonics

Uncontrolled terms:Conventional models - Finite element analysis - Mechanical behaviour - Micro-machined ultrasonic transducer - Single layer

Classification code:921.6 Numerical Methods - 753.2 Ultrasonic Devices - 753.1 Ultrasonic Waves - 704 Electric Components and Equipment - 701.1 Electricity: Basic Concepts and Phenomena - 601 Mechanical Design - 408.2 Structural Members and Shapes

DOI:10.1007/s00542-010-1114-9

Database:Compendex

<RECORD 145>

Title:Fabrication of new ultra-low frequency reference pulsed signal generator

Authors:Huang, Yi-Ben (1); Chen, Si-Yu (1); Xie, Xu-Peng (2); Zhao, Zhi-Chao (2); Zhang, Hui-Sheng (3)

Author affiliation:(1) College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, China; (2) College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China; (3) College of Medicine, Shenzhen University, Shenzhen 518060, China

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Abstract:An ultra-low frequency reference pulsed signal generator was fabricated by a sector pendulum and a corresponding circuit. The sector pendulum worked in the superimposed environment which could achieve flexibility damped adjustment, by gravity field and permanent magnetic field. The signal generator could output the pulse square wave that could be continuously adjusted in pulse width, amplitude and cycle. Results show that it can be used as the signal source as well as the pulsed power supply.
Number of references:13
Main heading:Signal generators
Controlled terms:Damping - Magnetic fields - Pendulums
Uncontrolled terms:Electron technology - Pulsed signals - Sector pendulum - Self-consistent adjustment - Stable magnetic field - Supple damping - Ultra-low frequencies
Classification code:701.2 Magnetism: Basic Concepts and Phenomena - 715 Electronic Equipment, General Purpose and Industrial - 931.1 Mechanics - 931.5 Gravitation, Relativity and String Theory
Database:Compendex

<RECORD 146>

Accession number:20104913466231Title:Cryptanalysis of an identity-based multi-recipient signcryption scheme

Authors:Zhang, Xi (1); Chen, Min-Rong (2); Yang, Ling (1)
Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China; (2) College of Information Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhang, X.

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Abstract:Identity-based multi-recipient signcryption (ID-MRSC) is an important cryptographic primitive which can simultaneously provide authenticity and privacy. In 2009, DU and WEN

proposed an ID-MRSC scheme, and claimed that their scheme satisfied the security requirements of confidentiality and unforgeability. This paper analyzed the scheme and presented a concrete attack against the scheme, indicating that the scheme fails to satisfy the security requirement of unforgeability. We presented a new ID-MRSC scheme that simultaneously satisfies the requirements of confidentiality and unforgeability. It's efficiency could be improved is our future work.

<RECORD 147>

Title:A hybrid bionic optimization algorithm for test access mechanism of system-on-chip

Authors:Gu, Juan (1); Cui, Xiao-Le (2); Yin, Liang (2); Cheng, Wei (2)
Author affiliation:(1) College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) Key Lab of Integrated Microsystems, Shenzhen Graduate School, Peking University, Shenzhen 518055, China
Corresponding author:Cui, X.-L.
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Abstract:A hybrid bionic optimization algorithm based on the particle swarm optimization is

presented in this paper. The algorithm is to solve the test access mechanism (TAM) optimization problem, which is modeled as the multi-processor scheduling problem, based on the optimization result of test wrappers with the ACO algorithm. The experiment results on benchmark circuits of ITC 2002 show that this algorithm can reduce the testing application time effectively, and achieve better optimization result than other classic algorithms do.

Number of references:8

Main heading:Particle swarm optimization (PSO)

Controlled terms:Algorithms - Application specific integrated circuits - Benchmarking - Computer architecture - Design for testability - Integrated circuit testing

Uncontrolled terms:ACO algorithms - Benchmark circuit - Bionic optimization - Classic algorithm - Multi processor scheduling - Optimization problems - Particle swarm - Scan chain - System on chips - Test access mechanism - Test wrapper

Classification code:714.2 Semiconductor Devices and Integrated Circuits - 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 912 Industrial Engineering and Management - 913 Production Planning and Control; Manufacturing - 921 Mathematics

Database:Compendex

<RECORD 148>

Title:Improving the precision of fluorescence lifetime measurement using a streak camera

Authors:Li, Heng (1); Shao, Yonghong (1); Wang, Yan (1); Qu, Junle (1); Niu, Hanben (1)

Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China

Corresponding author:Qu, J.

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Abstract:Streak camera has high temporal resolution and high sensitivity, and is a powerful tool in biomedical study to measure fluorescence lifetime and perform fluorescence lifetime imaging. However, nonuniformity of the gain in the streak tube and nonlinearity of the sweeping speed

limit the precision of fluorescence lifetime measurement, particularly when fluorescence lifetimes are short. We have constructed a twophoton excitation fluorescence lifetime measurement system that is based on a synchroscan streak camera and have developed accordingly a method to correct the effect of gain nonuniformity and nonlinearity of sweeping speed on the measurement precision. A continuous-wave laser of high stability is used to calibrate the gain of the streak camera, and a Fabry-Perot etalon is used to calibrate the nonlinearity of the sweeping speed. Fitting algorithms are used to correct the gain of the streak camera and nonlinearity of the sweeping speed respectively, which significantly improves the measurement precision of the system, as characterized through the fluorescence lifetime of the short-lived fluorescence dye, Rose Bengal. Experimental results show that the measurement fluctuation of the lifetime has been improved from more than 10% to 2% after correcting the effects of gain nonuniformity and sweeping speed nonlinearity. © 2010 Chinese Optics Letters.
Number of references:18
Main heading:Cameras
Controlled terms:Fluorescence - Speed - Streak cameras
Uncontrolled terms:Fabry-Perot etalons - Fitting algorithms - Fluorescence lifetime imaging - Fluorescence lifetime measurements - Fluorescence lifetimes - High sensitivity - High stability - High temporal resolution - Measurement precision - Non-Linearity - Nonuniformity - Rose Bengal - Streak tubes - Sweeping speed - Two photon excitation fluorescence
Classification code:741.1 Light/Optics - 742.2 Photographic Equipment - 931.1 Mechanics
DOI:10.3788/COL20100810.0934
Database:Compendex

<RECORD 149>

Accession number:20104713408854Title:Uptake of transferrin-conjugated quantum dots in single living cells
Authors:Chen, Danni (1); Xu, Gaixia (2); Ali, Bahi Ahmed (3); Yong, Ken-Tye (5); Zhou, Cuihong (3); Wang, Xiaomei (3); Qu, Junle (2); Prasad, Paras N. (6); Niu, Hanben (2)
Author affiliation:(1) College of Optoelectronic Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, China; (2) Institute of Optoelectronics, Key Lab of Optoelectronics Devices and Systems of Ministry of Education/Guangdong Province, Shenzhen Key Lab of Biomedicine Engineering, Shenzhen University, Shenzhen 518060, China; (3) College of Medicine, Shenzhen University, Shenzhen 518060, China; (4) Mubarak City for Scientific Research and Technology Applications, New Borg Al-Arab City, Alexandria 21934, Egypt; (5) School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore 639798, Singapore; (6) Institute for Laser, Photonics and Biophotonics, State University of New York at Buffalo, NY 14260-3000, United States
Corresponding author:Chen, D.
Source title:Chinese Optics Letters
Abbreviated source title:Chin. Opt. Lett.
Volume:8
Issue:10

Abstract:We study the uptake and distribution of transferrin (Tf)-conjugated CdSe/CdS/ZnS quantum dots (QDs) in single living HeLa cells with both fluorescence confocal microscopy and three-dimensional (3D) recon- struction technique. By increasing the co-incubation time or the dosage of QDs-Tf, we find that the uptake of QDs-Tf bioconjugates in the cells increases correspondingly, but with different uptake rates. Addition-ally, the distribution of QDs-Tf, in single live HeLa cells is time dependent. To our knowledge, this is the first study on quantitatively analyzing the uptake and distribution of bioconjugated QDs in single living cells. Such QDs nanoplatform can be further modified for developing biomedical evaluation tool in cancer diagnosis and targeted drug delivery. © 2010 Chinese Optics Letters.

<RECORD 150>

Authors:Niu, Ben (1); Fan, Yan (2); Tan, Lijing (3); Rao, Junjun (2); Li, Li (2)
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Abstract:Bacterial foraging optimization (BFO) is a relatively new swarm intelligent algorithm inspired by the foraging behavior of Escherichia coli (E.coli) in human intestines. With formative research over the last decade, BFO has displayed good performance in many application domains. However, some researches, especially the recent advances, are not as widely known as they deserve to be. This paper proposes a comprehensive and timely review of the algorithm. Part I involves the original implementation and development of BFO, including the current research on parameter improvement and hybridization. Part II involves a range of indicative application areas, as well as the existing challenges of BFO are concerned in the paper for this new added approach of optimization technology. © 2010 Springer-Verlag Berlin Heidelberg.
Number of references:25
Main heading:Intelligent computing
Controlled terms:Bacteriology - Computation theory - Escherichia coli - Optimization - Research
Uncontrolled terms:Application area - Application domains - Bacterial foraging - Bacterial foraging optimization - Current researches - Foraging behaviors - Human intestine - Optimization technology - Swarm intelligent
Classification code:461.9 Biology - 723.4 Artificial Intelligence - 901.3 Engineering Research - 921 Mathematics - 921.5 Optimization Techniques
DOI:10.1007/978-3-642-14831-6_70
Database:Compendex

<RECORD 151>

Accession number:20103913262296Title:A review of bacterial foraging optimization Part II : Applications and challenges
Authors:Niu, Ben (1); Fan, Yan (2); Tan, Lijing (3); Rao, Junjun (2); Li, Li (2)
Author affiliation:(1) Hefei Institute of Intelligent Machines, Chinese Academy of Sciences, Hefei 230031, China; (2) College of Management, Shenzhen University, Shenzhen 518060, China; (3) Measurement Specialties Inc, Shenzhen 518107, China

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Abstract:Bacterial foraging optimization (BFO) is a relatively new swarm intelligent algorithm inspired by the foraging behavior of Escherichia coli (E.coli) in human intestines. With formative research over the last decade, BFO has displayed good performance in many application domains. However, some researches, especially the recent advances, are not as widely known as they deserve to be. This paper proposes a comprehensive and timely review of the algorithm. Part I involves the original implementation and development of BFO, including the current research on parameter improvement and hybridization. Part II involves a range of indicative application areas, as well as the existing challenges of BFO are concerned in the paper for this new added approach of optimization technology. © 2010 Springer-Verlag Berlin Heidelberg.

<RECORD 152>

Title:Liquidity risk portfolio optimization using swarm intelligence

Authors:Niu, Ben (1); Xiao, Han (1); Tan, Lijing (3); Fan, Yan (1); Rao, Junjun (1)
Author affiliation:(1) College of Management, Shenzhen University, Shenzhen 518060, China; (2) Hefei Institute of Intelligent Machines, Chinese Academy of Sciences, Hefei 230031, China; (3) Measurement Specialties Inc., Shenzhen 518107, China
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Abstract:The liquidity risk is one of the most important adjustable parameters of the portfolio selection. This paper proposes an improved model considering the liquidity risk and market risk, which makes it more suitable for the actual situation. In the improved model we take into account the risk appetite of investors and other psychological factors. To solve the improved portfolio optimization model with complex constraints, we present a comparative study for three swarm intelligence methods namely genetic algorithm (GA), bacterial foraging optimization (BFO) and particle swarm optimization (PS0). The primary results demonstrate their effectiveness and efficiency. © 2010 Springer-Verlag Berlin Heidelberg.

- Improved models - Liquidity risk - Market risks - Particle swarm - Portfolio optimization - Portfolio optimization models - Portfolio selection - Psychological factors - Swarm Intelligence

Classification code:461.9 Biology - 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 911.1 Cost Accounting - 921 Mathematics

<RECORD 153>

Title:Annealing temperature influence on electrical properties of ion beam sputtered Bi$_2$Te$_3$ thin films

Authors:Zheng, Zhuang-hao (1); Fan, Ping (1); Liang, Guang-xing (1); Zhang, Dong-ping (1); Cai, Xing-min (1); Chen, Tian-bao (1)

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Abstract:Ion beam sputtering process was used to deposit n-type fine-grained Bi$_2$Te$_3$ thin films on BK7 glass substrates at room temperature. In order to enhance the thermoelectric properties, thin films are annealed at the temperatures ranging from 100 to 400 °C. X-ray diffraction (XRD) shows that the films have preferred orientations in the c-axis direction. It is confirmed that grain growth and crystallization along the c-axis are enhanced as the annealing temperature increased. However, broad impurity peaks related to some oxygen traces increase when the annealing temperature reached 400 °C. Thermoelectric properties of Bi$_2$Te$_3$ thin films were investigated at room temperature. The Bi$_2$Te$_3$ thin films, including as-deposited, exhibit the Seebeck coefficients of -90 to -168 μV K^{-1} and the electrical conductivities of 3.92×10^2-7.20×10^2 S cm^{-1} after annealing. The Bi$_2$Te$_3$ film with a maximum power factor of 1.10×10^{-3} Wm^{-1} K^{-2} is achieved when annealed at 300 °C. As a result, both structural and transport properties have been found to be strongly affected by annealing treatment. It was considered that the annealing conditions reduce the number of potential scattering sites at grain boundaries and defects, thus improving the thermoelectric properties. © 2010 Elsevier Ltd. All rights reserved.

Main heading:Annealing

Controlled terms:Electric conductivity - Electric power factor - Grain boundaries - Grain growth - Grain size and shape - Ion beams - Oxygen - Sputtering - Substrates - Tellurium compounds - Thermoelectric equipment - Thermoelectricity - Thin films - Transport properties - Vapor deposition - X ray diffraction

Uncontrolled terms:Annealing condition - Annealing temperatures - Annealing treatments - BK7 glass - C-axis direction - Electrical conductivity - Electrical property - Impurity peaks - Ion-beam sputtering - Maximum power factor - Potential scattering - Preferred orientations - Room temperature - Thermoelectric properties

Classification code:537.1 Heat Treatment Processes - 615.4 Thermoelectric Energy - 701.1 Electricity: Basic Concepts and Phenomena - 714.2 Semiconductor Devices and Integrated Circuits - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 804 Chemical Products Generally - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 932.1 High Energy Physics - 933.1 Crystalline Solids - 933.1.2 Crystal Growth

DOI:10.1016/j.jpcs.2010.09.012

Database:Compendex

<RECORD 154>

Title:A cascaded photonic crystal fiber Mach-Zehnder interferometer formed by extra electric arc discharges

Authors:Geng, Y. (1); Li, X. (1); Tan, X. (2); Deng, Y. (1); Yu, Y. (1)

Author affiliation:(1) College of Physics Science and Technology, Shenzhen Key Laboratory of Sensor Technology, Shenzhen University, Shenzhen, 518060, China; (2) College of Science, Nibo University, Ningbo, 315211, China

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Abstract:In this paper, a cascaded Mach-Zehnder interferometer based on a photonic crystal fiber is reported. It is demonstrated that by applying a small dose of extra arc discharge to the photonic crystal fiber sensing part which is spliced to lead-in and lead-out single-mode fibers with core offset, the in-line Mach-Zehnder interferometer could be simply cascaded. From the analysis of Fourier transformed spatial spectra and the response tests as a sensor, it is shown that such a

cascaded interferometer could effectively broaden the utilizable spectral shift range for a measured value. © 2010 Springer-Verlag.
Number of references:11
Main heading:Photonic crystal fibers
Controlled terms:Crystal whiskers - Electric arcs - Fibers - Mach-Zehnder interferometers - Optical instruments - Photonic crystals
Uncontrolled terms:Arc discharge - Crystal fiber - Electric arc discharges - Fourier - In-line - Spatial spectra - Spectral shift
Classification code:701.1 Electricity: Basic Concepts and Phenomena - 741.3 Optical Devices and Systems - 801.4 Physical Chemistry - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 933.1 Crystalline Solids - 951 Materials Science
DOI:10.1007/s00340-010-4238-9
Database:Compendex
Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 155>

Authors:Feng, Jianwen (1); Dai, Anding (1); Xu, Chen (1); Wang, Jingyi (1)
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Corresponding author:Feng, J.
        (fengjw@szu.edu.cn)

Abstract:Lag synchronization of chaotic unified systems is investigated theoretically and numerically. Three kinds of single-controller schemes are designed to achieve lag synchronization of the so-called chaotic unified systems and some results are proved theoretically using Lyapunov's stability theory. Computer simulations are then provided to show the effectiveness and feasibility of the proposed methods. © 2010 Elsevier Ltd. All rights reserved.
Main heading:Chaotic systems
Controlled terms:Computer simulation - Synchronization
Uncontrolled terms:Lag synchronization - Lyapunov's stability - Unified chaotic systems - Unified system
Classification code:723.5 Computer Applications - 921 Mathematics - 931 Classical Physics; Quantum Theory; Relativity - 961 Systems Science
DOI:10.1016/j.camwa.2010.08.092

<RECORD 156>

Authors:Ma, Lijun (1); Liu, Fangmei (1); Li, Sijie (2); Yan, Houmin (3)
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Corresponding author:Li, S.
Abstract:We first consider a supply chain with one manufacturer and one retailer where there is only one product with stochastic demand. The retailer is risk averse with Conditional Value-at-Risk (CVaR) as her risk measure and the manufacturer is a risk-neutral agent. We model the problem as a Nash-bargaining problem where the manufacturer and the retailer negotiate about the wholesale price and order quantity. We show that there exists a Nash-bargaining equilibrium for the wholesale price and order quantity with equal and unequal bargaining power. We also find that even for the equal bargaining power between the two agents, the retailer's bargaining power for the supply chain profit increases as she becomes more risk averse. We then extend the model to the case where demand is endogenous and can be manipulated by setting the retail price. We show that there exists a Nash-bargaining equilibrium for the wholesale price, retail price and the order quantity under equal bargaining power. © 2010 Elsevier B.V. All rights reserved.
Main heading:Risk assessment
Controlled terms:Costs - Manufacture - Profitability - Sales - Supply chain management - Supply chains
Uncontrolled terms:Conditional Value-at-Risk - Neutral agents - Order quantity - Retail price - Risk averse - Risk measures - Stochastic demand - Whole sale prices
Classification code:911 Cost and Value Engineering; Industrial Economics - 912 Industrial Engineering and Management - 913 Production Planning and Control; Manufacturing - 913.4 Manufacturing - 922.1 Probability Theory
DOI:10.1016/j.ijpe.2010.08.016

<RECORD 157>

Authors:Li, Bing Shi (1); Goh, M. Cynthia (1)
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Corresponding author:Li, B. S.
(phbingsl@gmail.com)

Abstract:To gain insight into the influence of ATPγS on the competitive binding of RecA and single-stranded binding protein (SSB) on single-stranded DNA (ssDNA), AFM imaging was used to examine the three-dimensional structures of the different complexes formed by the binding of the two proteins on ssDNA in the presence and absence of ATPγS. In the presence of ATPγS, RecA attaches to ssDNA, displacing SSB, to form continuous binding regions that caused considerable elongation of the strand. When ATPγS is absent, RecA could not compete with SSB and only binds at a few sites that correspond to the vacancy in ssDNA left when SSB unbinds. These results provide direct evidence that, while SSB binding affinity to DNA is substantially higher than that of RecA, the presence of ATPγS is sufficient to alter the events and enable RecA coating of DNA. © 2010 American Chemical Society.

Number of references:33
Main heading:DNA
Controlled terms:Binding energy - Escherichia coli - Genes - Proteins
Uncontrolled terms:AFM imaging - Binding affinities - Competitive binding - Gain insight - Single-stranded bindings - Single-stranded DNA - Single-stranded DNA (ss-DNA) - Three-dimensional structure
Classification code:461.2 Biological Materials and Tissue Engineering - 461.9 Biology - 801.2 Biochemistry - 801.4 Physical Chemistry - 804.1 Organic Compounds
DOI:10.1021/la102347b
Database:Compendex

<RECORD 158>

Title:The design of smart car based on freescale processor
Authors:Song, Zhicong (1); Li, Xuemei (2); Chen, Mei (1); Zhang, Hongbin (3)
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Abstract:This paper introduces the design of smart cars based on 16-bit microcontroller MC9S12XS128, which is provided by Freescale Semiconductor Company. The controller is also combined with the steering gear to make up path identification. Its speed control system uses a CCD camera to track the black line through edge detection. In addition, it uses MOSFET to set up H bridges driving circuit. Omron rotary encoder is used for speed feedback. Finally, it is proved that this smart car system can run on the track line steadily. © 2010 IEEE.
Number of references:5
Main heading:Integrated circuit manufacture
Controlled terms:Agriculture - Cameras - CCD cameras - Design - Edge detection - Image

acquisition - Printed circuit boards

Uncontrolled terms:Circuit designs - Driving circuits - Freescale - Freescale semiconductors - H-bridges - MC9S12XS128 MCU - MOS-FET - Rotary encoder - Smart car - Speed feedback - Steering gear

Classification code:408 Structural Design - 714.2 Semiconductor Devices and Integrated Circuits - 716 Telecommunication; Radar, Radio and Television - 723 Computer Software, Data Handling and Applications - 742.2 Photographic Equipment - 821 Agricultural Equipment and Methods; Vegetation and Pest Control

<RECORD 159>

Title:Quantization based semi-fragile watermarking scheme for H.264 video

Authors:Zhang, Yong (1); Lu, Zhe-Ming (2); Zhao, Dong-Ning (3)
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Corresponding author:Lu, Z.-M.

Abstract:Although many fragile video watermarking techniques have been proposed as an effective solution to content authentication problems, they cannot effectively distinguish between legal attacks and illegal attacks. In order to solve this problem, this paper proposes a novel semi-fragile video watermarking algorithm for H. 264 video. Traditional fragile video watermarking methods often select the motion vectors as the embedding positions, while our scheme adopt the intra-prediction residuals after Integer DCT (Discrete Cosine Transform) and quantization to be embedding locations. During the watermark embedding process, we modify the standard H.264 quantizer and we embed the watermark based on the dither modulation technique in order to extract the watermark blindly. In the watermark extraction process, this paper adopts a

threshold to distinguish between illegal attacks and legal attacks performed on the video clip. Experimental results demonstrate the effectiveness and feasibility of the proposed algorithm and the proposed scheme can survive legal recompression operations and recognize illegal filtering operations. © 2010 Asian Network for Scientific Information.

Number of references:27

Main heading:Watermarking

Controlled terms:Algorithms - Authentication - Computer crime - Cosine transforms - Crime - Digital watermarking - Discrete cosine transforms - Forecasting - Image coding

Uncontrolled terms:Content authentication - H.264 - Integer-DCT - Intra-prediction - Quantization - Semi-fragile

Classification code:723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 811.1.1 Papermaking Processes - 921 Mathematics - 921.3 Mathematical Transformations - 971 Social Sciences

Database:Compendex

<RECORD 160>

Title:A blind image watermarking scheme using fast hadamard transform

Authors:Zhang, Yong (1); Lu, Zhe-Ming (2); Zhao, Dong-Ning (3)

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Corresponding author:Lu, Z.-M.

Abstract:This study presents a Hadamard transform based blind digital watermarking scheme whose extraction process doesn't require the original image. In this scheme, we use a binary image as the original watermark. During the embedding process, the original cover image is first partitioned into non-overlapped 8×8 blocks and the Arnold transform is performed on the original watermark to make the scheme more robust. Secondly, the Hadamard transform is applied

to the blocks. Thirdly, one bit information is embedded in each block by modifying the relationship of two coefficients in the transformed matrix. Finally, the inverse Hadamard transform is performed on the modified coefficient matrix to obtain the watermarked image. The experimental results show that the proposed watermarking method performs well in both security and robustness against general image processing operations and various kinds of attacks, while keeping the invisibility very well. © 2010 Asian Network for Scientific Information.

Number of references:16

Main heading:Watermarking

Controlled terms:Copyrights - Digital watermarking - Image processing

Uncontrolled terms:Arnold transform - Blind digital watermarking - Blind watermarking - Copyright protection - Cover-image - Embedding process - Extraction process - Fast Hadamard transform - Hadamard transforms - Image Watermarking - matrix - Modified coefficient - Original images - Processing operations - Watermarked images

Classification code:723.2 Data Processing and Image Processing - 811.1.1 Papermaking Processes - 903 Information Science

Database:Compendex

<RECORD 161>

Title:The rotating machines measuring speed system based on microcomputer

Authors:Fan, Zhili (1); Zeng, Dehuai (1); Zhou, Kai (1); Zhang, Hongbing (2)

Author affiliation:(1) College of Mechatronics and Control Engineering, Shenzhen University, 518060, China; (2) Laboratory and Facility Management Division, Shenzhen University, 518060, China

Corresponding author:Fan, Z.

Source title:ICIMA 2010 - 2010 2nd International Conference on Industrial Mechatronics and Automation

Abbreviated source title:ICIMA- Int. Conf. Ind. Mechatronics Autom.

Volume:2

Monograph title:2010 2nd International Conference on Industrial Mechatronics and Automation, ICIMA 2010

Issue date:2010

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Article number:5538265

Language:English

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Document type:Conference article (CA)

Conference name:2010 2nd International Conference on Industrial Mechatronics and Automation, ICIMA 2010

Conference date:May 30, 2010 - May 31, 2010

Conference location:Wuhan, China

Conference code:81583

Abstract:A new method to measure the speed of rotating machines based on microcomputer and quadrature encoder is presented in this paper. The hardware and software of the measuring speed system are described. This circuit contains active crystal, quadrature decoder chips HCTL-2020 and LCD module. It can meet the requirement of the general speed measuring system. It can also display the speed situation on the LCD module. We can appropriately modify the program to make different displaying model on the LCD module. The speed measuring circuit also provides two interfaces of 9 pins and 15 pins, which is compatible with any other quadrature encoders. © 2010 IEEE.

Number of references:8
Main heading:Speed
Controlled terms:Computers - Liquid crystal displays - Mechatronics - Microcomputers - Rotating machinery - Rotation
Uncontrolled terms:Active crystal - Displaying model - Hardware and software - HCTL-2020 - LCD module - Measuring circuit - Measuring systems - Quadrature encoders - Rotating machine - System-based
Classification code:601.1 Mechanical Devices - 608 Mechanical Engineering, General - 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 931.1 Mechanics
DOI:10.1109/ICINDMA.2010.5538265
Database:Compendex
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<RECORD 162>

Accession number:20103613208139Title:Application of an improved RESS process for Atractylodes macrocephala Koidz volatile oil liposomes production

Authors:Wen, Zhen (1); You, Xinkui (1); Liu, Bo (1); Zheng, Zongkun (1); Pu, Yitao (1); Li, Qiong (2)
Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, Guangdong 518060, China; (2) School of Chemistry and Chemical Engineering, South China University of Technology, Guangzhou 510640, China
Corresponding author:Wen, Z.
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Source title:2010 4th International Conference on Bioinformatics and Biomedical Engineering, iCBBE 2010
Abbreviated source title:Int. Conf. Bioinformatics Biomed. Eng., iCBBE
Monograph title:2010 4th International Conference on Bioinformatics and Biomedical Engineering, iCBBE 2010
Issue date:2010

Abstract:To improve the bioavailability and targeting effect to hepatic cells of volatile oil from Atractylodes macrocephala Koidz, the volatile oil was incorporated into liposomes by a improved process of rapid expansion of supercritical solutions (RESS). In this process, the liposomal materials and the volatile oil were dissolved in the mixture of supercritical carbon dioxide (SC-CO$_2$)/ethanol and then the solution was sparyed into a buffer solution through a coaxial nozzle to form liposomes suspension.The physicochemical properties of the liposomes including structure, size of particle, entrapment ratio and loading efficiency were measured. The encapsulating performance of liposomes could be controlled by changing expansion process conditions such as pressure, temperature of SC-CO$_2$ and the amount of cosolvent in SC-CO$_2$[x (CH$_3$CH$_2$OH)]. Under the optimum conditions of 30MPa, 338K and x (CH$_3$CH$_2$OH)=15 %, the entrapment efficiency, drug loading, and average particle size of liposomes were found to be 82.18 %, 5.18 % and 173 nm respectively, which were complied with the standards of Chinese pharmacopoeia. The results indicate the improved RESS technique provide an innovative way for formation of liposomes loading multi-components extracted from Chinese traditional medicines. © 2010 IEEE.

Number of references:9

Main heading:Liposomes

Controlled terms:Biochemistry - Bioinformatics - Biomaterials - Carbon dioxide - Electromagnetic wave emission - Ethanol - Expansion - Loading - Medicine - Particles (particulate matter) - Phospholipids - Supercritical fluid extraction - Volatile organic compounds

Uncontrolled terms:Atractylodes macrocephala koidz - Average particle size - Buffer solutions - Chinese traditional medicine - Coaxial nozzles - Cosolvents - Drug loading - Entrapment efficiency - Expansion process - Hepatic cells - Improved process - Loading efficiency - Multicomponents - Optimum conditions - Physicochemical property - Rapid expansion of supercritical solutions - RESS process - Supercritical carbon dioxides - Volatile oil

Classification code:951 Materials Science - 903 Information Science - 804.2 Inorganic Compounds - 804.1 Organic Compounds - 802.3 Chemical Operations - 801.2 Biochemistry - 711 Electromagnetic Waves - 672 Naval Vessels - 462.5 Biomaterials (including synthetics) - 461.9 Biology - 461.6 Medicine and Pharmacology

<RECORD 163>

Accession number:20103513197927Title:Applying ant colony optimization to search all extreme points of function

Authors:Pang, Chao-Yang (1); Li, Xia (2); Wang, Yun-Fei (3); Hu, Ben-Qiong (4); Liu, Hui (5)
Author affiliation:(1) Group of Gene Computation, Key Lab. of Visual Computation and Virtual Reality of Sichuan Province, Chengdu 610066, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong Province 518060, China; (3) College of Computer Science, SNU, Chengdu 610066, China; (4) College of Information Management, Chengdu University of Technology, Chengdu 610066, China; (5) College of Mathematics and Software Science, Sichuan Normal University, Chengdu 610066, China
Corresponding author:Hu, B.-Q.
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Source title:Proceedings of the 2010 5th IEEE Conference on Industrial Electronics and Applications, ICIEA 2010
Abbreviated source title:Proc. IEEE Conf. Ind. Electron. Appl., ICIEA
Monograph title:Proceedings of the 2010 5th IEEE Conference on Industrial Electronics and Applications, ICIEA 2010
Issue date:2010
Publication year:2010
Pages:1517-1521
Article number:5514672
Language:English
ISBN-13:9781424450466
Document type:Conference article (CA)
Conference name:5th IEEE Conference on Industrial Electronics and Applications, ICIEA 2010
Conference date:June 15, 2010 - June 17, 2010
Conference location:Taichung, Taiwan
Conference code:81519
Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:To find all extreme points of multimodal functions is called extreme problem, which is a well known difficult issue in optimization fields. Applying the ant colony optimization (ACO) to solve this problem is rarely reported. The method of applying ACO to solve extreme problem is explored in this paper. Experiments show that the method presented in this paper generates solution with high quality, and its solution error is less than 10^{-8}. © 2010 IEEE.

Number of references:32
Main heading:Algorithms
Controlled terms:Industrial electronics - Optimization - Problem solving
Uncontrolled terms:Ant-colony optimization - Extreme points - Extremum problem - High quality

- Multi modal function

<RECORD 164>

Title:C and Si codoping method for p -type AlN

Authors:Wu, Honglei (1); Zheng, Ruisheng (1); Liu, Wen (1); Meng, Shu (1); Huang, Junyi (2)
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Corresponding author:Wu, H.
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Abstract:Aluminum Nitride (AlN), the largest direct band gap material (6.2 eV) in the III-nitride semiconductors, is emerging as an important semiconductor due to its promising applications in the development of solid-state ultraviolet light sources in the form of light-emitting diodes and laser diodes. However, the applications have been limited by absence of p -type AlN. In view of the extremely low ∼ 10^{10} cm^{-3} hole concentration in p -type AlN reported up to date, we proposes a method of C:Si codoping in AlN. We have performed ab initio density functional pseudopotential calculations to investigate the energies of separated C acceptor binding to C_n -Si (n=0, 1, 2, and 3, respectively) complexes in wurtzite AlN. The results show that the C_{n+1} -Si complexes are favorable and stable. In N-rich growth condition, the formation level of C_2 -Si complex is -0.24 eV, suggesting high doping concentration can be formed. The calculated activation energy for C_2 -Si is only 0.19 eV, which is 0.28 eV lower than that for a single C acceptor. The results suggest the codoping of C:Si is an effective p -type doping method in AlN. © 2010 American Institute of Physics.

Number of references:26
Main heading:Aluminum nitride
Controlled terms:Activation energy - Energy gap - Hole concentration - Light emitting diodes - Nitrides - Semiconductor diodes - Semiconductor doping - Semiconductor growth - Silicon - Ultraviolet lasers   - Ultraviolet radiation - Zinc sulfide
Uncontrolled terms:Ab initio - AlN - Co-doping - Codoping method - Density functionals - Direct band gap - Doping concentration - Growth conditions - III-nitride semiconductors - Laser diodes - P-type aln - P-type doping - Pseudopotential calculation - Ultraviolet light sources - Wurtzites
Classification code:804.2 Inorganic Compounds - 801.4 Physical Chemistry - 744.1 Lasers, General - 931.3 Atomic and Molecular Physics - 741.1 Light/Optics - 712.1.1 Single Element Semiconducting Materials - 701.1 Electricity: Basic Concepts and Phenomena - 714.2 Semiconductor Devices and Integrated Circuits

<RECORD 165>

Title:Theoretical and experimental study of Chen chaotic system with notch filter feedback control
Authors:Xiaoming, Zhang (1); Ju-Fang, Chen (2); Jian-Hua, Peng (1)
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Abstract:Since the past two decades, the time delay feedback control method has attracted more and more attention in chaos control studies because of its simplicity and efficiency compared with other chaos control schemes. Recently, it has been proposed to suppress low-dimensional chaos with the notch filter feedback control method, which can be implemented in a laser system. In this work, we have analytically determined the controllable conditions for notch filter feedback controlling of Chen chaotic system in terms of the Hopf bifurcation theory. The conditions for notch filter feedback controlled Chen chaoitc system having a stable limit cycle solution are given.

Meanwhile, we also analysed the Hopf bifurcation direction, which is very important for parameter settings in notch filter feedback control applications. Finally, we apply the notch filter feedback control methods to the electronic circuit experiments and numerical simulations based on the theoretical analysis. The controlling results of notch filter feedback control method well prove the feasibility and reliability of the theoretical analysis. © 2010 Chinese Physical Society and IOP Publishing Ltd.

Number of references:33

Main heading:Chaotic systems

Controlled terms:Control theory - Delay circuits - Delay control systems - Feedback control - Hopf bifurcation - Notch filters - Numerical methods - Reliability analysis

Uncontrolled terms:Chaos control - Chen chaotic system - Electronic circuits - Experimental studies - Feedback control applications - Feedback control methods - Hopf bifurcation theory - Laser systems - Numerical simulation - Parameter setting - Stable limit cycle - Time-delay feedback control

Classification code:931 Classical Physics; Quantum Theory; Relativity - 921.6 Numerical Methods - 921 Mathematics - 961 Systems Science - 913 Production Planning and Control; Manufacturing - 703.2 Electric Filters - 703.1 Electric Networks - 731.1 Control Systems

DOI:10.1088/1674-1056/19/9/090507

Database:Compendex

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<RECORD 166>

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Corresponding author:Song, J.

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Abstract:Compact planar grating demultiplexers are designed and fabricated using silicon wafers. The demultiplexers have a much more compact size compared to conventional silica-based devices. The dimension of the devices is around half a millimeter. Demultiplexers with both echelle and total internal reflection facets are characterized. The loss of demultiplexers using total internal reflection facets will be 3-5 dB lower than that using echelle facets. It is shown that sidewall roughness of grating facets results in most of the loss for fabricated samples. The noise floor of amorphous silicon-based grating demultiplexers is relatively high for practical applications. Appropriate annealing can be used to reduce the noise floor. Copyright © Taylor & Francis Group, LLC.

Number of references:16

Main heading:Optical communication

Controlled terms:Amorphous silicon - Demultiplexing - Diffraction - Diffraction gratings - Floors - Manufacture - Multiplexing equipment - Planar waveguides - Planers - Refractive index - Semiconducting silicon compounds - Semiconductor device manufacture - Semiconductor switches - Silica - Silicon wafers - Wavelength division multiplexing

Uncontrolled terms:Compact size - Demultiplexers - Echelle - Noise floor - Planar grating - Sidewall roughness - Silicon platforms - Total internal reflections

Classification code:933.2 Amorphous Solids - 812 Ceramics, Refractories and Glass - 741.3 Optical Devices and Systems - 741.1 Light/Optics - 718 Telephone Systems and Related Technologies; Line Communications - 717.1 Optical Communication Systems - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television - 714.2 Semiconductor Devices and Integrated Circuits - 712.1.2 Compound Semiconducting Materials - 603.1 Machine Tools, General - 537.1 Heat Treatment Processes - 402 Buildings and Towers

DOI:10.1080/01468030.2010.507861

Database:Compendex

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<RECORD 167>

Title:Research on fuzzy measurability of moving target in sensor networks

Authors:Cao, Wenming (1); Wang, Rui (2)
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Corresponding author:Wang, R.
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Abstract:Aiming at target-localization oriented uncertain sensor network, an approach of fuzzy n-dimensional geometry is introduced to investigate the fuzzy measurability of moving target in sensor networks. The fuzzy analytical bias expressions are derived for the bearing-only target localization in a passive sensor network. A detailed analysis of the interplay between target localization geometry and fuzzy estimation bias for the case of fuzzy linear observer trajectory in R^3 space is provided, which can realize four-dimensional localization, including the fuzzy estimate coordinate and speed of the target, through measuring fuzzy azimuth angle and fuzzy elevation angle at intervals of fixed time. Simulation results validate the rationality and effectiveness of the proposed method.
Number of references:15
Main heading:Sensor networks
Controlled terms:Computational geometry
Uncontrolled terms:Azimuth angles - Bearing-only - Elevation angle - Fixed time - Fuzzy estimation - Fuzzy measurability - Fuzzy n-dimensional geometry - Linear observer - Localization - Moving targets - Passive sensor - Simulation result - Target localization
Classification code:723.5 Computer Applications - 732 Control Devices
Database:Compendex

<RECORD 168>

Title:Influence of N,N'-dimethylaminoethanol as an inhibitor on the chloride threshold level for corrosion of steel reinforcement
Authors:Xu, J. (1); Jiang, L. (1); Xing, F. (2)
Author affiliation:(1) Department of Materials Science and Engineering, Hohai University, Nanjing 210098, China; (2) Shenzhen Durability Center for Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Xu, J.
        (xujinxia@hhu.edu.cn)

Abstract:The aim of this study is to examine the influence of N,N'- dimethylaminoethanol (DMEA) as an inhibitor on the chloride threshold level for corrosion of steel in a concrete contaminated by chlorides. The experiment has been carried out in a saturated $Ca(OH)_2$ solution and chloride contaminated concrete containing different chloride and DMEA level. The critical point of corrosion onset is concluded by combining the open-circuit potential (E_{corr}) with corrosion current (I_{corr}), which is decided by electrochemical impedance spectra (EIS) in the solution. Besides, the EIS has also been applied to determinate the chloride threshold level in the chloride contaminated concrete. It has been found that the presence of DMEA represented as an amino-alcohol inhibitor, exerts little influence on the chloride threshold level for corrosion of steel in the solution. Similarly, the effect of the DMEA on the chloride threshold level in the chloride contaminated concrete, is also negligible. © 2010 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.
Number of references:32
Main heading:Chlorine compounds
Controlled terms:Contamination - Corrosion inhibitors - Electrochemical corrosion - Reinforcement - Steel corrosion
Uncontrolled terms:Chloride threshold - Corrosion current - Corrosion of steel - Critical points - Electrochemical impedance spectra - inhibitor - N,N'-dimethylaminoethanol - Open-circuit potential - steel reinforcement
Classification code:951 Materials Science - 804.1 Organic Compounds - 803 Chemical Agents and Basic Industrial Chemicals - 714.2 Semiconductor Devices and Integrated Circuits - 545.3 Steel - 539.1 Metals Corrosion - 415 Metals, Plastics, Wood and Other Structural Materials
DOI:10.1002/maco.200905393
Database:Compendex
Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 169>

Accession number:20111113751759Title:Reliable and efficient service composition based on smart objects' state information
Authors:Feng, Yuhong (1); Cao, Jiannong (3); Sun, Yan (3); Wu, Weigang (4); Chen, Canfeng (5); Ma, Jian (5)
Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China; (2) National High Performance Computing Center at Shenzhen, Shenzhen 518060, China; (3) Department of Computing, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong; (4) Department of Computer Science, Sun Yat-sen University, Guangzhou 510275, Guangdong, China; (5) Nokia Research Center, Beijing, China

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Abstract:Service composition is a mechanism to combine two or more services to form a composite service for delivering the users' desirable functionalities. Existing service composition system in pervasive computing does not capture state information of the smart objects (SOs). Based on the study of relationships of SOs' states and services, we identify unqualified composite services generated by existing service composition systems, which are either inefficiently executed or fail to complete their execution. This handicaps the applications of pervasive computing because its applications like health care normally need more reliable and timing services. In this paper, we first formally model SOs' states and their transitions using finite state machines and propose extending existing service description technologies using the SOs'state information. The obtained information is then used in designing an algorithm to compose SOs' services, which avoids generating the identified unqualified composite services. The proof of the efficiency of the composite services obtained by our proposed algorithms is elaborated. Finally, a performance study was conducted to evaluate our algorithm against the one without considering SO state information. Our experimental results show that the composite services generated using our algorithm can execute faster and more reliably. © Springer-Verlag 2010.

Number of references:40
Main heading:Systems engineering
Controlled terms:Algorithms - Health care - Quality of service - Ubiquitous computing
Uncontrolled terms:Composite services - Finite state machines - Performance study - Pervasive computing - Service compositions - Service description - Smart objects - State information
Classification code:961 Systems Science - 921 Mathematics - 912.4 Personnel - 912 Industrial Engineering and Management - 723.5 Computer Applications - 723 Computer Software, Data Handling and Applications - 718 Telephone Systems and Related Technologies; Line Communications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television
DOI:10.1007/s12652-010-0017-z
Database:Compendex

<RECORD 170>

Title:Critical success factors for on-site sorting of construction waste: A china study
Authors:Wang, Jiayuan (1); Yuan, Hongping (2); Kang, Xiangping (3); Lu, Weisheng (4)
Author affiliation:(1) College of Civil Engineering, Shenzhen University, Guangdong 518060, China; (2) Department of Building and Real Estate, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong; (3) Department of Construction Engineering Management, Henan University of Urban Construction, Pingdingshan, Henan 467044, China; (4) Department of Real Estate and Construction, University of Hong Kong, Hong Kong, Hong Kong
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Abstract:Benefits of conducting on-site sorting of construction waste, typically including increasing the rates of reuse and recycling, reducing the cost for waste transportation and disposal, prolonging the lifespan of landfills designed for receiving non-inert construction waste, and lessening the pollution resulted from the huge amount of construction waste, have been extensively investigated by previous studies. However, effective implementation of construction waste sorting requires a wide range of factors involving human beings, management, technology, environment and resources. So far, we know little about how to conduct effective construction waste sorting in China. This research therefore aims to identify the critical success factors (CSFs) for on-site sorting of construction waste in China. A set of methods including CSF approach, pilot study, questionnaire survey and face-to-face interview are adopted to facilitate the identification and analysis of the CSFs. Six factors including (1) manpower, (2) market for recycled materials, (3) waste sortability, (4) better management, (5) site space, (6) equipment for sorting of construction waste, are considered the CSFs for effective on-site sorting of construction waste in Shenzhen, China. These CSFs are of great significance both to researchers and industry practitioners. © 2010 Elsevier B.V. All rights reserved.
Number of references:38
Main heading:Waste disposal
Controlled terms:Construction equipment - Land fill - Recycling - Surveys
Uncontrolled terms:China - Construction waste - Construction wastes - Critical success factor -

Face-to-face interview - Human being - Life span - Pilot studies - Questionnaire surveys - Recycled materials   - Reuse and recycling - Waste sorting - Waste transportation

<RECORD 171>

Title:Application of particle image velocimetry to deformation analysis in centrifugal tests

Authors:Zhang, Min (1); Ng, Charles W W (3)
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Abstract:Since the technique of particle image velocimetry(PIV) can be controlled remotely and in real time, it is applied to the measurement of soil deformation in centrifugal tests. Soil model is divided into a number of fine elements. The displacement of each element can be traced by recognizing the texture of the soil element. A system is configured to measure slope deformations in centrifugal tests. After processing the test images with error correction, soil deformations can be achieved. The precision and accuracy of this method is estimated as 0.04 and 0.02 mm, respectively, based on the analysis of PIV theory. Two examples are used to illustrate the function of the system. One is to measure the slope deformation when the centrifugal acceleration is increased. The other is to measure the deformation induced by the rise in groundwater table. The analysis gives reasonable results in the two examples and illustrates the capability of the system for measuring displacements in the entire slope field at different moments. It is verified that the

system is an important tool for studying the physical process.

<RECORD 172>

Title:Growth and characterization of polycrystalline CdS thin films prepared by ion beam sputtering deposition
Authors:Fan, Ping (1); Liang, Guang-Xing (1); Zhang, Dong-Ping (1); Cai, Xing-Min (1); Chi, Jing-Rong (1); Li, Sheng-Yi (1)
Author affiliation:(1) Institute of Thin Film Physics and Application, College of Physical Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Fan, P.
Abstract:Polycrystalline CdS thin films were prepared on BK7 glass substrates by ion beam sputtering deposition. The influence of the substrate temperatures(100-400°C) and thicknesses(35-200nm) on the structural, optical and electrical properties of CdS thin films was investigated. X-ray diffraction (XRD) analysis revealed that CdS thin films present the preferential (002) orientation of hexagonal phase and the characteristic peak intensity of CdS (002) increases which indicates an improvement in the crystallinity of CdS thin films with the increase of substrate temperature. The average film optical transmittance of the films is over 75% in the

visible region and the optical band gap increases from 2.32 to 2.42eV when the substrate temperature elevated. The electrical sheet resistance of all the CdS thin films reaches up to 10^9 Ω. Then, the investigation of CdS thin films with different thicknesses prepared at the substrate temperature of 400°C shows that the thinner CdS films(50-100nm) also have a preferable performance, which is good enough for the buffer layer materials of CIS solar cells.

Number of references:11

Main heading:Optical films

Controlled terms:Cadmium compounds - Cadmium sulfide - Deposition - Electric properties - Electric resistance - Film preparation - Ion beams - Ions - Microstructure - Optical properties - Sputtering - Substrates - Thin films - Vapor deposition - X ray diffraction - X ray diffraction analysis

Uncontrolled terms:BK7 glass - Buffer layer materials - CdS - CdS films - CdS thin films - Characteristic peaks - Crystallinities - Electrical and optical properties - Electrical sheet resistance - Hexagonal phase - Ion beam sputtering deposition - Ion-beam sputtering - Optical and electrical properties - Optical transmittance - Polycrystalline - Substrate temperature - Visible region

Classification code:951 Materials Science - 802.2 Chemical Reactions - 804 Chemical Products Generally - 813.1 Coating Techniques - 932.1 High Energy Physics - 933 Solid State Physics - 933.1.1 Crystal Lattice - 801 Chemistry - 741.1 Light/Optics - 714.2 Semiconductor Devices and Integrated Circuits - 712.1 Semiconducting Materials - 701.1 Electricity: Basic Concepts and Phenomena - 423 Non Mechanical Properties and Tests of Building Materials - 741.3 Optical Devices and Systems

Database:Compendex

<RECORD 173>

Title:Dwell time dependent morphological transition and sputtering yield of ion sputtered Sn

Authors:Qian, H.X. (1); Zhou, W. (2); Zeng, X.R. (1)

Author affiliation:(1) Shenzhen Key Laboratory of Special Functional Materials, College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (2) Precision Engineering and Nanotechnology Centre, School of Mechanical and Aerospace Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore

Corresponding author:Qian, H. X.
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Abstract:Self-organized nano-scale patterns may appear on a wide variety of materials irradiated with an ion beam. Good manipulation of these structures is important for application in nanostructure fabrication. In this paper, dwell time has been demonstrated to be able to control the ripple formation and sputtering yield on Sn surface. Ripples with a wavelength of 1.7μm were observed for a dwell time in the range 3-20mu;s, whereas much finer ripples with a wavelength of 540 nm and a different orientation were observed for a shorter dwell time in the range 0.1-2μs. The sputtering yield increases with dwell time significantly. The results provide a new basis for further steps in the theoretical description of morphology evolution during ion beam sputtering. © 2010 IOP Publishing Ltd.

<RECORD 174>

Title:Liquid crystalline phases of 1,2-dimethyl-3-hexadecylimidazolium bromide and binary mixtures with water
Authors:Li, Cuihua (1); He, Jinhua (1); Liu, Jianhong (1); Qian, Lian-An (1); Yu, Zhenqiang (1); Zhang, Qianling (1); He, Chuanxin (1)
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Corresponding author:Li, C.
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Abstract:1,2-Dimethyl-3-hexadecylimidazolium bromide, which lacks an acidic proton at the C-2 imidazolium ring position, exhibits thermotropic SmA$_2$ phase behavior above its melting point of 90.3°C and up to 232.1°C. The corresponding layer spacing and the full width at half maximum from XRD patterns display a temperature dependence. In binary mixtures with water, over a concentration range of 40-75%, lyotropic liquid crystalline phases form between 0.5 and 25°C. The molecules of the new ionic liquid (IL) in the binary mixtures show three different self-assembly processes, namely, formation of rod micelles, coexistence of rod micelles and a hexagonal phase, and a pure hexagonal phase. The distance between the two centers of adjacent columns of cylinder units remains nearly constant at 4.97±0.04nm when the IL content exceeds 70%, indicating that the cylinder units attain a dense and highly ordered packing. © 2010 Elsevier Inc.

Number of references:22
Main heading:Binary mixtures
Controlled terms:Bromine compounds - Crystalline materials - Cylinders (shapes) - Ionic liquids - Ionization of liquids - Micelles
Uncontrolled terms:Acidic proton - Concentration ranges - Hexagonal phase - Imidazolium ring - Layer spacings - Liquid-crystalline - Liquid-crystalline phasis - Lyotropic liquid crystalline - Lyotropic liquid crystalline phasis - Self assembly process   - Temperature dependence - XRD patterns
Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 804.2 Inorganic Compounds - 804.1 Organic Compounds - 804 Chemical Products Generally - 933.1 Crystalline Solids - 802.2 Chemical Reactions - 531.2 Metallography - 482.2 Minerals - 408.2 Structural Members and Shapes - 801.3 Colloid Chemistry
DOI:10.1016/j.jcis.2010.05.040
Database:Compendex

<RECORD 175>

Title:Synchronizing the noise-perturbed Genesio chaotic system by sliding mode control

Authors:Jianwen, Feng (1); Ling, He (1); Chen, Xu (1); Austin, Francis (2); Geng, Wu (1)
Author affiliation:(1) College of Mathematics and Computational Sciences, Shenzhen University, Shenzhen, 518060, China; (2) Department of Applied Mathematics, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, Hong Kong
Corresponding author:Jianwen, F.
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Abstract:This paper investigates the chaos synchronization between Genesio chaotic systems with noise perturbation. It is proved theoretically that the synchronization between such noise-perturbed systems can be implemented by choosing a suitable sliding mode surface and designing a sliding mode controller. Numerical simulations show the effectiveness of the theoretical analysis. This proposed method is important because it can be applied to many other chaotic systems. © 2009 Elsevier B.V. All rights reserved.
Number of references:15
Main heading:Chaotic systems
Controlled terms:Computer simulation - Sliding mode control - Synchronization
Uncontrolled terms:Chaos synchronization - Genesio system - Noise perturbation - Noise-perturbed - Numerical simulation - Sliding mode controller - Sliding mode surface - System noise
Classification code:723.5 Computer Applications - 731.1 Control Systems - 921 Mathematics - 931 Classical Physics; Quantum Theory; Relativity - 961 Systems Science
DOI:10.1016/j.cnsns.2009.09.021
Database:Compendex

<RECORD 176>

Accession number:20104313324049Title:Non-rigid registration using robust point matching with compactly supported radial basis function
Authors:Sun, Wei (1); Liu, Xia (1); Yang, Xuan (1)
Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Sun, W.
        (sunweidemail@gmail.com)

Abstract:An improved robust point matching (RPM) algorithm with compactly supported radial basis function is presented and named CS-RPM. Compared to the RPM algorithm with thin plate spline (TPS-RPM), the proposed algorithm overcomes the only global deformation influence to the point and effectively enhances the performance of point matching as well as image registration. Furthermore, with CS-RPM, varying support radiuses can be flexibly selected for each local elastic deformation region which has different degree of distortion. Experiments show that the proposed CS-RPM algorithm has higher flexibility and outperforms TPS-RPM on both point-set matching as well as image registration. © 2010 Binary Information Press.
Number of references:11
Main heading:Radial basis function networks
Controlled terms:Algorithms - Attitude control - Deformation - Image registration - Splines
Uncontrolled terms:Compactly supported radial basis functions - Degree of distortion - Global deformations - Nonrigid registration - Point-matching - Radial basis functions - Robust point matching - Set matching - Thin plate spline
Classification code:421 Strength of Building Materials; Mechanical Properties - 422 Strength of Building Materials; Test Equipment and Methods - 601.2 Machine Components - 656.1 Space Flight - 723 Computer Software, Data Handling and Applications - 921 Mathematics
Database:Compendex

<RECORD 177>

Accession number:20103313151052Title:Adjustment of the selenium amount during ion beam sputtering deposition of CIS thin films
Authors:Fan, Ping (1); Liang, Guang-Xing (1); Zheng, Zhuang-Hao (1); Cai, Xing-Min (1); Zhang, Dong-Ping (1)
Author affiliation:(1) Institute of Thin Film Physics and Application, College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Fan, P.
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Abstract:$CuInSe_2$ (CIS) films were prepared by ion beam sputtering depositing Cu, In and Se layers sequentially on BK7 glass substrates and annealing the 3-layer film in the same vacuum chamber. The adjustment of the Se amount in the film was achieved by controlling the sputtering time of the Se target. X-ray diffraction pattern shows CIS films have chalcopyrite structure and preferential (112) orientation when the sputtering of the Se layer is between 60 and 180 min. It also can be seen that the most intense and narrow peak indicates the highest crystallinity for the sample with sputtering Se of 60 min, which is in agreement with the Raman measurement. The content of Cu, In and Se in the film deviates from 1, 1 and 2 with increasing the sputtering time of the Se target. Direct band gap energy between 0.96 and 1.05 eV, depending on the Se amount, and a high absorption coefficient of 10^5 cm $^{-1}$ are found. The measured film resistivities vary from 0.01 to 0.05 Ω cm. Thus, the structural, optical and electrical characteristics of the CIS thin films were dependent on the Se amount during the fabrication of films and after fitting the sputtering time of Se, an optimization of the properties and a saving of Se consumption were achieved. © 2009 Springer Science+Business Media, LLC.

Number of references:19

Main heading:Semiconducting selenium compounds

Controlled terms:Copper - Copper compounds - Deposition - Electric properties - Holographic interferometry - Ion beams - Optical properties - Selenium - Sputtering - Substrates - Thin films - X ray diffraction

Uncontrolled terms:Absorption coefficients - BK7 glass - Chalcopyrite structures - CIS film - CIS thin films - Crystallinities - Direct band gap - Electrical characteristic - Film resistivity - Ion beam sputtering deposition - Ion-beam sputtering - Raman measurements - Sputtering time - Vacuum chambers

Classification code:802.3 Chemical Operations - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 813.1 Coating Techniques - 801 Chemistry - 931.2 Physical Properties of Gases, Liquids and Solids - 932.1 High Energy Physics - 933.1.1 Crystal Lattice - 941.4 Optical Variables Measurements - 931.3 Atomic and Molecular Physics - 743.2 Holographic Applications - 539.3 Metal Plating - 544.1 Copper - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 701.1 Electricity: Basic Concepts and Phenomena - 461 Bioengineering and Biology - 712.1 Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 741.1 Light/Optics - 712.1.1 Single Element Semiconducting Materials

DOI:10.1007/s10854-009-0013-2

Database:Compendex

<RECORD 178>

Accession number:20103713238048Title:Electrochemical biosensing platforms using

poly-cyclodextrin and carbon nanotube composite

Authors:Yang, Haipeng (1); Zhu, Yongfa (2); Chen, Dongcheng (1); Li, Chunhui (1); Chen, Shiguo (1); Ge, Zaochuan (1)

Author affiliation:(1) College of Materials Science and Engineering, Shenzhen University, Shenzhen Key Laboratory of Special Functional Materials, Shenzhen 518060, China; (2) Department of Chemistry, Tsinghua University, Beijing 100084, China

Corresponding author:Yang, H.

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Abstract:Carbon nanotubes (CNTs) were " dissolved" in mixed solution of cyclodextrin (CD) and cyclodextrin prepolymer (pre-CDP) and were used as modifier to fabricate chemical modified electrode. The dispersions of CNTs in different solutions were characterized using UV-vis spectrophotometer. The insoluble conducting composite film of poly-cyclodextrin (CDP) and carbon nanotube was synthesized, and glucose oxidase (GOx) was immobilized on the film to fabricate amperometric biosensor. The CNT-CDP electrode was stable. It can keep the exceptional chemical and physical properties of CNTs and the host-guest chemical reaction ability of cyclodextrins. Cyclic voltammetry measurements of potassium ferricyanide solution (50mM, and scan rate $100mVs^{-1}$) shows that the CDP film was compact and the CNT-CDP film maintains the electrocatalytic activity of CNT. Glucose oxidase was used as a model enzyme to prepare a glucose biosensor. The bioactivity of immobilized glucose oxidase was maintained due to the biocompatibility of cyclodextrin. Amperometric measurements were done with different concentrations of glucose. The CNT-CDP/GCE-GOx biosensor has wide concentration ranges and good sensitivity to glucose. It showed a detection limit of 3.5μM with a linear range from 0.004 to 3.23mM and from 4.26 to 10.00mM. In addition, the biosensor can be operated under wide pH range (pH 5.6-7.8) without great changes in its sensitivity. © 2010 Elsevier B.V.

Number of references:34

Main heading:Absorption spectroscopy

Controlled terms:Absorption - Biocompatibility - Biosensors - Carbon nanotubes - Composite films - Cyclic voltammetry - Cyclodextrins - Enzyme immobilization - Enzymes - Glucose - Glucose oxidase - Glucose sensors - Potassium - Silanes

Uncontrolled terms:Amperometric biosensors - Amperometric measurements - Carbon-nanotube composites - Chemical modified electrode - Concentration ranges - Conducting composite film -

Detection limits - Electrocatalytic activity - Electrochemical biosensing - Glucose biosensor - Host-guests - Linear range - Mixed solution - Potassium ferricyanide - Prepolymers - Scan rates - UV-Vis spectrophotometers - Voltammetry measurements - Wide pH range

<RECORD 179>

Title:Microscopic second-harmonic generation emission direction in fibrillous collagen type i by quasi-phase-matching theory
Authors:Tian, Long (1); Qu, Junle (2); Guo, Zhouyi (1); Jin, Ying (1); Meng, Yaoyong (1); Deng, Xiaoyuan (1)
Author affiliation:(1) MOE Key Laboratory of Laser Life Science, South China Normal University, Guangzhou, Guangdong 510631, China; (2) Key Laboratory of Optoelectronic Devices and Systems, Shenzhen University, Ministry of Education, Shenzhen 518060, China
Corresponding author:Tian, L.
Abstract:Quasiphase matching (QPM) is a widely used theory in crystal to analyze the character of second-harmonic generation (SHG) emitted from it. Based on the structural features of collagen type I, where the constituted fibrils in collagen function as a crystal which has the structure of two-dimensional (2D) quasicrystalline, in this paper, we use the QPM theory on collagen for SHG emission direction study under the excitation of laser light through a microscope. The effects of numerical aperture NA, as well as the structural parameters, such as QPM order (m,l) and collagen period $a = d_1 + d_2$ associated with the fibrils diameter (d_1), packing density and interfibrils structure (d_2), etc., on SHG emission angle have been investigated. Our theoretical results show that collagen period a has threshold effect on to present forward or backward SHG emission and NA has minor influence on this threshold value a.

Collagen period of a has more significant influence on SHG emission angle when a is smaller than the threshold value. In reality, we realize that diameter of collagen fibrils d_1 plays a major role on forward or backward emission of SHG. Here, for example, (we assume d_1 =a/2), when d_1 95 nm [(m,l) = (1,0)], the backward SHG shows up at any magnitude of NA, while when d_1 150 nm [(m,l) = (1,0)], SHG presents forward emission feature under all circumstances. Between them, SHG emits from forward direction to backward direction as the increase in NA. The QPM order (m,l) has nonlinear impact on SHG emission angle and has different degrees of influence on different collagen period a. Our theoretical results are highly consistent with the experiments results demonstrated by other researchers and provide a proper explanation of the phenomenon of appreciable backward SHG signals appearing in collagen type I. Our established theoretical model of applying QPM theory in 2D quasicrystalline fibrils is therefore confirmed to be a suitable model for dealing with SHG in type I collagen. © 2010 American Institute of Physics.

<RECORD 180>

Title:Thermal lens measurements in a Nd:GdVO$_4$ self-Raman laser

Authors:Wang, Zhichao (1); Du, Chenlin (1); Ruan, Shuangchen (1); Zhang, Li (1)
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Abstract:A method to characterize the thermal lens in a Nd:GdVO$_4$ self-Raman laser is presented. The thermal focal length was measured to be as short as 180 mm with a self-Raman laser output power of 0.95 W. For comparison, the thermal focal lengths in the cases of fundamental operation and first-Stokes operation were measured experimentally, indicating that the heat generated in the SRS process exacerbated the thermal loading of the Nd:GdVO$_4$ crystal. © 2010 Elsevier Ltd. All rights reserved.
Number of references:7
Main heading:Neodymium
Controlled terms:Lenses - Optical instruments
Uncontrolled terms:Fundamental operations - Nd:GdVO - Nd:GdVO$_4$ crystal - Self-Raman laser - Thermal focal length - Thermal lens - Thermal loadings
Classification code:547.2 Rare Earth Metals - 741.3 Optical Devices and Systems - 941.3 Optical Instruments

<RECORD 181>

Accession number:20103713225952Title:Spectroscopic studies on refolding process in vitro of pan-allergen profilin in coco pollen
Authors:Luo, Hai-Mei (1); Xiao, Jie (1); Wu, Yu-Lan (2); Liu, Zhi-Gang (2); Jun, Lu (3); Xu, Hong (1)
Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China; (2) Allergy and Immunology Institute, School of Medicine, Shenzhen University, Shenzhen 518060, China; (3) School of Biological Science, The University of Auckland, Auckland University of Technology, 92019, Auckland, New Zealand
Corresponding author:Xu, H.
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CODEN:GYGFED

Abstract:Recombinant proteins expressed by prokaryotic expression system are normally in the form of inclusion. In the present paper, refolding process of recombinant pan-allergen profilin protein induced by urea has been investigated by using circular dichroism spectra, fluorescence spectra, synchronous fluorescence spectra systematically. And the spectral characteristics of the renaturation were obtained. In addition, bioinformatics methods including predications of secondary and tertiary structures have also been used to explain the spectral characteristics and analyze the conformational changes of the protein during renaturation in vitro. Results from this study should be useful to the establishment of a spectral method examining the extent of protein renaturation, and be helpful to the understanding of the mechanism of renaturation of recombinant protein.

<RECORD 182>

Title:Thermoelectric characterization of ion beam sputtered Sb_2Te_3 thin films

Authors:Fan, Ping (1); Zheng, Zhuang-Hao (1); Liang, Guang-Xing (1); Zhang, Dong-Ping (1); Cai, Xing-Min (1)
Author affiliation:(1) Shenzhen Key Laboratory of Sensor Technology, College of Physical Science and Technology, Shenzhen University, 518060, China
Corresponding author:Fan, P.
        (fanping@szu.edu.cn)

Abstract:Ion beam sputtering was used to deposit Sb_2Te_3 thin films on BK7 glass substrates at room temperature. The effect of annealing on the thermoelectric properties of the Sb_2Te_3 thin films was investigated. After the stoichiometric films were annealed at 100 °C to 400 °C for one hour, the Seebeck coefficient decreases from 190 μV K $^{-1}$ to 106 μV K^{-1}, and the conductivity increases from 1.1 × 10^2 S cm^{-1} to 2.01 × 10^3 S cm^{-1}. The Power Factor is enhanced greatly from 0.40 × 10 $^{-3}$ W m^{-1} K^{-2} to 2.26 × 10^{-3} W m^{-1} K^{-2} after annealing at 400 °C. The positive Seebeck coefficient α suggests the films to be p-type. X-ray diffraction (XRD) shows that the major diffraction peaks of the films match those of Sb_2Te_3 and high crystalline films are achieved after annealing. These results indicate that high-quality Sb_2Te_3 thin films are achieved and annealing greatly improves the thermoelectric properties of the films. © 2010 Elsevier B.V. All rights reserved.
Number of references:23
Main heading:Tellurium compounds
Controlled terms:Annealing - Beam plasma interactions - Electric power factor - Ion beams - Ion bombardment - Ions - Sputtering - Substrates - Thermoelectric equipment - Thin films - Vapor deposition - X ray diffraction
Uncontrolled terms:BK7 glass - Crystalline films - Diffraction peaks - High quality - Ion-beam sputtering - P-type - Power factors - Room temperature - Stoichiometric films - Thermoelectric characterization - Thermoelectric material - Thermoelectric properties
Classification code:714.2 Semiconductor Devices and Integrated Circuits - 801 Chemistry - 802.2 Chemical Reactions - 804.1 Organic Compounds - 933.1.1 Crystal Lattice - 804.2 Inorganic Compounds - 931.3 Atomic and Molecular Physics - 932.1 High Energy Physics - 932.3 Plasma Physics - 813.1 Coating Techniques - 712.1 Semiconducting Materials - 706 Electric Transmission and Distribution - 461 Bioengineering and Biology - 537.1 Heat Treatment Processes - 539.3 Metal Plating - 615.4 Thermoelectric Energy - 633.2 Vacuum Equipment - 701.1 Electricity: Basic Concepts and Phenomena - 703.1 Electric Networks - 704.2 Electric Equipment
DOI:10.1016/j.jallcom.2010.06.046
Database:Compendex

<RECORD 183>

Accession number:20103413170229Title:Improvement of an E. coli bioreporter for monitoring trace amounts of phenol by deletion of the inducible σ^{54}-dependent promoter

Authors:Peng, Zixin (1); Yan, Yongliang (1); Xu, Yuquan (1); Takeo, Masahiro (2); Yu, Haiying (1); Zhao, Zhonglin (3); Zhan, Yuhua (1); Zhang, Wei (1); Lin, Min (1); Chen, Ming (1)

Author affiliation:(1) Key Laboratory of Crop Biotechnology, Biotechnology Research Institute, Ministry of Agriculture, Chinese Academy of Agricultural Sciences, Beijing 100081, China; (2) Department of Materials Science and Chemistry, Graduate School of Engineering, University of Hyogo, 2167 Shosha, Himeji, Hyogo 671-2280, Japan; (3) College of Life Sciences, Shenzhen University, Shenzhen 518060, China

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Abstract:An Escherichia coli bioreporter harboring the phenol-inducible mphK promoter (P_{mphK}) from Acinetobacter calcoaceticus PHEA-2 fused to a β-galactosidase gene (lacZ) and the regulator gene (mopR) of A. calcoaceticus NCIB8250 was constructed to detect phenol. P_{mphK} containing three inverted repeats (IR1, IR2 and IR3) upstream of mphK was activated by the regulator MopR in the presence of phenol. Deletion analysis of P_{mphK} revealed that IR2 and IR3 were essential for promoter activity, while IR1 was involved in transcriptional repression. The sensitivity of the bioreporter for the detection of phenol (0.1-5 μM) was improved by about 100% through deletion of IR1 in P_{mphK}. © 2010 Springer Science+Business Media B.V.

Number of references:16

Main heading:Phenols

Controlled terms:Escherichia coli

Uncontrolled terms:Acinetobacter calcoaceticus - Bioreporter - Deletion analysis - E. coli - Galactosidases - Inverted repeat - MopR - mphK promoter - Promoter activities - Trace amounts - Transcriptional repression

Classification code:461.9 Biology - 804.1 Organic Compounds

DOI:10.1007/s10529-010-0317-6

Database:Compendex

<RECORD 184>

Accession number:20103513199828Title:Polarisation-independent bidirectional triplexer using grating-assisted multimode interference coupler in silica-on-silicon platform

Authors:Song, J. (1); Ding, J.F. (2)
Author affiliation:(1) College of Optoelectronics Engineering, Shenzhen University, Shenzhen 518060, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Song, J.
        (songjun@szu.edu.cn)

Abstract:A bidirectional triplexer based on a Bragg grating assisted multimode interference (MMI) coupler has been designed and fabricated. The MMI coupler can multiplex/demultiplex the 1310nm wavelength (i.e. upload data) and the 1490nm wavelength (i.e. download data). Moreover, the grating written in the waveguide of the MMI can reflect the 1550nm wavelength (i.e. download video signals) to the other download port. Using a polarised UV ArF excimer laser irradiation, intrinsic waveguide birefringence can be compensated. Therefore, the fabricated device is polarasation insensitive. The working bandwidths of the final triplexer for 1310, 1490, and 1550nm are about 110, 50, and 15nm, respectively. © 2010 The Institution of Engineering and Technology.

Number of references:6
Main heading:Integrated optics
Controlled terms:Excimer lasers - Gas lasers - Multiplexing equipment - Silica - Waveguides
Uncontrolled terms:1550 nm - ArF excimer laser - Fabricated device - MMI-coupler - Multimode interference couplers - Polarisation - Silica-on-silicon - Triplexers - Video signal - Waveguide birefringence
Classification code:812 Ceramics, Refractories and Glass - 744.2 Gas Lasers - 741.3 Optical Devices and Systems - 718 Telephone Systems and Related Technologies; Line Communications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television - 714.3 Waveguides
DOI:10.1049/el.2010.0871
Database:Compendex

<RECORD 185>

Accession number:20103313148105Title:Study of metal powder extrusion and accumulating rapid prototyping

Authors:Li, Jibin (1); Xie, Zhangong (1); Zhang, Xiaohui (1); Zeng, Qigao (1); Liu, Haijun (1)
Author affiliation:(1) College of Mechatronics and Control Engineering, Shenzhen University, 518060, China
Corresponding author:Li, J.
        (Lijb@szu.edu.cn)

Abstract:A new method, namely Metal Powder Extrusion & Stacking Modeling is proposed in this paper based on RP and Metal Injection Molding (MIM) principle. Stainless steel powder and thermoplastic paraffin wax-based binder are used in our experiment. Firstly, feedstock is generated by mixing power and binder in a rotor internal mixer. Then the granular feedstock is put into screw-extruder devices to extruded filament, and accumulating green part at atmospheric status. Finally, green part is thermal defatted and sintered in hydrogen atmosphere to product the sintered parts. The testing results are as follows. The density of our RP product is 73.75%. The average shrinkage rate is 7.51%, 18.00%, and 29.31%, for diameter, thickness and volume respectively. Brinell hardness is HB77.52, while bending strength is 457MPa and tensile strength is 163Mpa. The experimental results verify that our proposed method is promising. © (2010) Trans Tech Publications, Switzerland.
Number of references:4
Main heading:Stainless steel
Controlled terms:Annealing - Bending strength - Binders - Concurrent engineering - Corrosion

resistant alloys - Extrusion molding - Feedstocks - Injection molding - Job analysis - Metal extrusion - Metal molding - Metals - Molds - Paraffin waxes - Paraffins - Powder metallurgy - Powder metals - Rapid prototyping - Sintering - Tensile strength

Uncontrolled terms:Brinell hardness - Hydrogen atmosphere - Internal mixers - Metal injection molding - Metal powder - Mixing power - Shrinkage rates - Sintered parts - Skim - Stainless steel powders - Testing results

Classification code:913.6 Product Development; Concurrent Engineering - 812.2 Refractories - 804.1 Organic Compounds - 804 Chemical Products Generally - 803 Chemical Agents and Basic Industrial Chemicals - 802.3 Chemical Operations - 723.5 Computer Applications - 812.3 Glass - 816.1 Processing of Plastics and Other Polymers - 816.2 Plants and Machinery for Plastics and Other Polymers - 818.4 Rubber Factories and Machinery - 912 Industrial Engineering and Management - 913.1 Production Engineering - 816 Plastics and Other Polymers: Processing and Machinery - 545.3 Steel - 539.1 Metals Corrosion - 421 Strength of Building Materials; Mechanical Properties - 422 Strength of Building Materials; Test Equipment and Methods - 513.3 Petroleum Products - 531 Metallurgy and Metallography - 533.1 Ore Treatment - 534.2 Foundry Practice - 535.2 Metal Forming - 535.2.1 Metal Forming Machines - 535.2.2 Metal Forming Practice - 536 Powder Metallurgy - 536.1 Powder Metallurgy Operations - 537.1 Heat Treatment Processes

DOI:10.4028/www.scientific.net/KEM.443.81

Database:Compendex

<RECORD 186>

Title:An improved shuffled frog-leaping algorithm with extremal optimisation for continuous optimisation
Authors:Li, Xia (1); Luo, Jianping (1); Chen, Min-Rong (1); Wang, Na (1)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Li, X.
(lixia@szu.edu.cn)

Abstract:Several types of evolutionary computing methods are documented in the literature and are well known for solving unconstrained optimisation problems. This paper proposes a hybrid scheme that combines the merits of a global search algorithm, the shuffled frog-leaping algorithm (SFLA) and local exploration, extremal optimisation (EO) and that exhibits strong robustness and fast convergence for high-dimensional continuous function optimisation. A modified shuffled

frog-leaping algorithm (MSFLA) is investigated that improves the leaping rule by properly extending the leaping step size and adding a leaping inertia component to account for social behaviour. To further improve the local search ability of MSFLA and speed up convergence, we occasionally introduce EO, which has an excellent local exploration capability, in the local exploration process of the MSFLA. It is characterised by alternating the coarse-grained Cauchy mutation and the fine-grained Gaussian mutation. Compared with standard particle swarm optimisation (PSO), SFLA and MSFLA for six widely used benchmark examples, the hybrid MSFLA-EO is shown to be a good and robust choice for solving high-dimensional continuous function optimisation problems. It possesses excellent performance in terms of the mean function values, the success rate and the fitness function evaluations (FFE), which is a rough measure of the complexity of the algorithm. © 2010 Elsevier Inc. All rights reserved.

Main heading:Convergence of numerical methods
Controlled terms:Algorithms - Function evaluation - Functions - Optimization
Uncontrolled terms:Cauchy mutation - Coarse-grained - Continuous functions - Evolutionary computing - Excellent performance - Exploration process - Extremal - Fast convergence - Gaussian mutation - Global search algorithm - High-dimensional - Hybrid scheme - Local search - Mean functions - Optimisations - Particle swarm optimisation - Shuffled frog-leaping algorithms - Social behaviour - Speed-ups - Step size
Classification code:921 Mathematics
DOI:10.1016/j.ins.2010.07.016
Database:Compendex
Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 187>

Accession number:20103113117830Title:The phase-shifting network design of electronically-steered smart antennas for TD-SCDMA systems
Authors:He, Yejun (1); Han, Xiangzi (2); Lau, Francis C.M. (3)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Nanhai Road, Nanshan District Shenzhen 518060, China; (2) Mobi Antenna Technologies (Shenzhen) Co. Ltd., Langshan Road, Nanshan District Shenzhen 518060, China; (3) Department of Electronic and Information Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong
Corresponding author:He, Y.
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Source title:IWCMC 2010 - Proceedings of the 6th International Wireless Communications and Mobile Computing Conference
Abbreviated source title:IWCMC - Proc. Int. Wirel. Commun. Mob. Comput. Conf.
Monograph title:IWCMC 2010 - Proceedings of the 6th International Wireless Communications and Mobile Computing Conference
Issue date:2010
Publication year:2010
Pages:129-132
Language:English

Abstract:This paper firstly introduced some principles of the phase-shifting network of an electronically-steered smart antenna for TDSCDMA systems. Secondly, we described the principle of a phase-shifter. The proposed phase-shifter is used in TD-SCDMA systems and is simulated by the Ansoft HFSS software. Simulation results show that the proposed phase-shifter can obtain better angle of phase-shifting. The phase-shifting network based on the proposed phase-shifter can also attain efficient downtilt angle. Copyright © 2010 ACM.
Number of references:5
Main heading:Antennas
Controlled terms:Code division multiple access - Directional patterns (antenna) - Mobile computing - Phase shift - Smart antennas - Wireless telecommunication systems
Uncontrolled terms:Ansoft HFSS - Downtilt - Network design - Network-based - Phase-shifting - Phase-shifting network - Simulation result - TD-SCDMA - TD-SCDMA systems
Classification code:703.1 Electric Networks - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 942.2 Electric Variables Measurements
DOI:10.1145/1815396.1815426
Database:Compendex

<RECORD 188>

Accession number:IP51026041 Article in PressTitle:Synthesis and characterization of partially fluorinated poly(fluorenyl ether ketone)s with different degrees of sulfonation as proton exchange membranes
Authors:Wang, L. (1); Zhu, G.M. (1); Li, J.Q. (1); Gao, C.M. (2)
Author affiliation:(1) Shenzhen Key Laboratory of Special Functional Materials and College of Materials Science and Enginee, Shenzhen University, Shenzhen, 518060, China; (2) Graduate School at Shenzhen, Tsinghua University, Shenzhen, 518055, China
Corresponding author:Gao, C.M.
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Source title:Polymer Bulletin

Abstract:Partially fluorinated poly(fluorenyl ether ketone)s with different degree of sulfonation were successfully synthesized by the sulfonation of the designed parent polymer. The sulfonation took place only at the specific (2, 7)-position on the fluorenyl groups due to the positions adjacent to the ether bond occupied by methyl groups. The sulfonated polymers are soluble in common organic solvents and can readily be cast into tough and smooth films from their solutions. The properties of proton conductivity, water uptake, thermal and oxidative stability for the membranes were investigated. It was found that the oxidative stability of the membrane decreased with increasing the degree of sulfonation. However, the partially fluorinated membrane with high degree of sulfonation exhibited better oxidative stability compared to the non-fluorinated analogy with low degree of sulfonation. The proton conductivity of the membranes increased with increasing the degree of sulfonation and temperature. Moreover, the membranes also showed good thermal and hydrolytic stabilities. © 2010 Springer-Verlag.
Number of references:36
Main heading:Sulfonation
Controlled terms:Ethers - Fluorine containing polymers - Functional groups - Ketones - Membranes - Organic polymers - Organic solvents - Oxidation resistance - Polymers - Proton conductivity
Uncontrolled terms:Degree of sulfonation - Ether bond - Fluorenyl - Hydrolytic stability - Low degree - Methyl group - Oxidative stability - Parent polymers - Proton exchange membranes - Synthesis and characterizations - Water uptake
Classification code:702.2 Fuel Cells - 802.2 Chemical Reactions - 804.1 Organic Compounds - 815.1 Polymeric Materials - 815.1.1 Organic Polymers - 951 Materials Science
DOI:10.1007/s00289-010-0364-0
Database:Compendex

<RECORD 189>

Title:Iterative data detection for OFDM systems with unknown narrowband interference
Authors:Yi, Youwen (1); Qu, Daiming (1); Jiang, Tao (1); Zhu, Guangxi (1); He, Yejun (2)
Author affiliation:(1) Department of Electronics and Information, Engineering Huazhong U of SandT, Wuhan, Hubei 430074, China; (2) College of Information, Engineering Shenzhen University, Shenzhen, 518060, China
Corresponding author:Yi, Y.

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Abstract:In this paper, we propose an iterative data detection scheme to combat unknown narrowband interference for orthogonal frequency division multiplexing (OFDM) systems. The key idea of the proposed scheme is to joint channel estimation, noise plus interference power estimation and decoding together to enhance both the estimation accuracy and bit error ration (BER) performance. We derive the Cramér-Rao Bounds (CRB) for mean square errors of channel estimation and noise plus interference estimations, and the CRBs can be achieved via the proposed scheme with very few iteration numbers, hence, the complexity of the proposed scheme is very low. Moreover, simulation results show that the decoding performance of the proposed scheme substantially approaches to that of the maximum likelihood decoder with perfect channel estimation and full knowledge of interference distribution. Copyright 2009 ACM.

Number of references:13

Main heading:Maximum likelihood estimation

Controlled terms:Channel estimation - Decoding - Estimation - Frequency allocation - Mobile computing - Orthogonal frequency division multiplexing - Orthogonal functions - Radio interference - Wireless telecommunication systems

Uncontrolled terms:Bit-errors - Data detection - Data detection schemes - Decoding performance - Interference distribution - Interference estimation - Interference power - Iteration numbers - Joint channel estimation - Maximum likelihood decoders - Narrow band interference - OFDM systems - Orthogonal frequency division multiplexing systems - Perfect channels - Simulation result

Classification code:922 Statistical Methods - 921 Mathematics - 723.2 Data Processing and Image Processing - 723 Computer Software, Data Handling and Applications - 718 Telephone Systems

and Related Technologies; Line Communications - 717 Optical Communication - 716.4 Television Systems and Equipment - 716.3 Radio Systems and Equipment - 716.1 Information Theory and Signal Processing - 716 Telecommunication; Radar, Radio and Television - 711 Electromagnetic Waves

<RECORD 190>

Title:Analytical design of total-internal-reflection grating demultiplexers with a low noise floor

Authors:Song, Jun (1); Ding, Jinfei (2)
Author affiliation:(1) College of Optoelectronics Engineering, Shenzhen University, 518060 Shenzhen, China; (2) College of Electronic Science and Technology, Shenzhen University, 518060 Shenzhen, China
Corresponding author:Song, J.
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Abstract:Etched diffraction grating (EDG) demultiplexers using total-internal- reflection (TIR) facets with a low noise floor have theoretically been designed based on silicon nanowire wafers. The transfer function (TF) of EDG demultiplexers is derived based on Fourier analysis. Since the GoosHnchen shift and the finite size of facets result in most of the loss of EDG demultiplexers with TIR facets, we can reshape the TF into an approximate Gaussian distribution by slightly adjusting each grating facet's size and structure. Thus, we design an EDG demultiplexer with a very low noise floor based on silicon waveguide. © 2006 IEEE.
Number of references:11
Main heading:Silicon wafers
Controlled terms:Demultiplexing - Floors - Fourier analysis - Multiplexing equipment - Optical waveguides - Planar waveguides - Semiconducting silicon compounds - Waveguide components -

Wavelength division multiplexing

Uncontrolled terms:Analytical design - Demultiplexers - Etched diffraction grating - Finite size - Low noise - Nano-silicon - Noise floor - Optical planar waveguide components - Shift-and - Silicon Nanowires   - Silicon waveguide - Total internal reflections - Very low noise

Classification code:717 Optical Communication - 717.2 Optical Communication Equipment - 718 Telephone Systems and Related Technologies; Line Communications - 741.3 Optical Devices and Systems - 751 Acoustics, Noise. Sound - 752 Sound Devices, Equipment and Systems - 921 Mathematics - 716 Telecommunication; Radar, Radio and Television - 402 Buildings and Towers - 482.1 Mineralogical Techniques - 711.2 Electromagnetic Waves in Relation to Various Structures - 712.1.1 Single Element Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 714.3 Waveguides

<RECORD 191>

Title:The study of robot navigation based on infrared sensor

Authors:Kanggui, Chen (1); Xuemei, Li (2); Xiaoyu, Wen (1); Hongbing, Zhang (3)
Author affiliation:(1) College of Mechatronics and Control Engineering, Shenzhen University, 518060, China; (2) Institute of Built Environment and Control, Zhongkai University of Agriculture and Engineering, Guangzhou 510225, China; (3) Laboratory and Facility Management Division, Shenzhen University, 518060, China
Corresponding author:Kanggui, C.

Computer Scientists and Engineering Forum Wuhan Branch

Abstract:Infrared sensor is an attractive range sensor for mobile robots, but the lack of good spatial resolution makes it difficult to apply in localization or mapping. To overcome the bad angular resolution and the frequent number of outliers in infrared data, different infrared data are used. A robot navigation method to avoid obstacles based on infrared sensors is presented in this paper. To demonstrate the effectiveness of the method, an experiment is carried out along a corridor and results are given. © 2010 IEEE.

Number of references:5
Main heading:Sensors
Controlled terms:Infrared detectors - Mobile robots - Navigation - Navigation systems
Uncontrolled terms:Angular resolution - Infrared data - Infrared sensor - Range sensors - Robot navigation - Spatial resolution
Classification code:944.7 Radiation Measuring Instruments - 914.1 Accidents and Accident Prevention - 801 Chemistry - 741.3 Optical Devices and Systems - 732.2 Control Instrumentation - 731.6 Robot Applications - 731.5 Robotics - 716.3 Radio Systems and Equipment - 655.1 Spacecraft, General - 434.4 Waterway Navigation - 431.5 Air Navigation and Traffic Control
DOI:10.1109/OPEE.2010.5508185
Database:Compendex

<RECORD 192>

Accession number:20103913261018Title:Effect of 1, 3-2, 4-di-(3, 4-dimethyl-benzylidene) sorbitol on crystalline structures and crystallization behaviors of polyethylene

Authors:Ni, Zhuo (1); Xi, Wen-Ying (1); Yang, Song-Feng (1)
Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Ni, Z.
        (royzhuoni@hotmail.com)

Chengdu, 610065, China

Abstract:1, 3-2, 4-di-(3, 4-dimethyl-benzylidene) sorbitol (DMDBS) was synthesized from sorbitol and p-ethyl-benzaldehyde by acetalization reaction. Mass fraction of 0% and 0.3% DMDBS was respectively introduced into polyethylene by a solution-precipitation method, forming several samples in order to investigate their properties. Crystalline structures and behaviors of PE materials were measured by X-ray diffractometer, infrared spectrometer, polarized light microscopy, differential scanning calorimeter. It showes that DMDBS can maintain the crystal stability and improve the nucleation density for the PE samples. This compound can increase PE crystallinity from 60.08% to 64.91% and decrease the spherulite size from 65 μm to 51 μm. The kinetic analysis reveals that DMDBS can increase the crystallization rate and significantly promote the heterogeneous nucleation process, the activation energy is reduced from 484 kJ/mol to 351 kJ/mol, Avrami exponent is declined from 4.0 to 3.2.

Number of references:9

Main heading:Crystallization kinetics

Controlled terms:Activation analysis - Activation energy - Alcohols - Aldehydes - Crystalline materials - Differential scanning calorimetry - Nucleation - Polyethylenes - Precipitation (chemical) - Thermoplastics

Uncontrolled terms:Acetalization reaction - Avrami exponent - Benzylidene - Crystal stability - Crystalline behaviors - Crystalline structure - Crystallinities - Crystallization behavior - Crystallization rates - Differential scanning calorimeters   - DMDBS - Heterogeneous nucleation - Kinetic analysis - Mass fraction - Nucleation densities - Polarized light microscopy - Solution-precipitation - X ray diffractometers

Classification code:933.1.2 Crystal Growth - 933.1 Crystalline Solids - 815.1.1 Organic Polymers - 804.1 Organic Compounds - 802.3 Chemical Operations - 801.4 Physical Chemistry - 801 Chemistry

Database:Compendex

<RECORD 193>

Title:Localized affine transform resistant watermarking in region-of-interest

Authors:Zhang, Li (1); Zhou, Ping-Ping (2)

Author affiliation:(1) State key Laboratory of Networking and Switching Technology, Beijing University of Posts and Telecommunications, Beijing 100876, China; (2) Faculty of Information Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Zhang, L.
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Abstract:Many proposed image watermarking techniques are sensitive to affine transforms, such as rotation, scaling and translation. In this paper, a localized affine transform resistant watermarking is designed utilizing Krawtchouk transform and dual channel detection. Watermark is inserted into the significant Krawtchouk invariant moment. Watermarking based on Krawtchouk moments is local, which permits to the watermark to be embedded at the most significant information-wise portion. Watermark embedding intensity is modified according to the results of performance analysis. The convergence of closed loop embedding system is proved. An optimum watermark detector is designed with the introduction of dual channel detection utilizing high order spectra detection and likelihood detection. The detector extracts watermark blindly utilizing Independent Component Analysis. The computational aspects of the proposed watermarking are discussed. Experimental results demonstrate that this watermarking is robust with respect to attacks produced by watermark benchmark-Stirmark. © Springer Science+Business Media, LLC 2010.

<RECORD 194>

Title:An approach to enhanced acceptor concentration in ZnO:N films
Authors:Li, L. (1); Shan, C.X. (1); Li, B.H. (1); Zhang, J.Y. (1); Yao, B. (1); Shen, D.Z. (1); Fan, X.W. (1); Lu, Y.M. (3)
Author affiliation:(1) Key Lab of Excited State Processes, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences, Changchun 130033, China; (2) Graduate School of the Chinese Academy of Sciences, Beijing 100049, China; (3) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Li, L.
        (linlihlj@yahoo.cn)

Abstract:Owing to the low doping concentration of nitrogen and strong compensation of intrinsic donors, the attainment of highly conductive p-type ZnO films remains one of the largest challenges for the application of ZnO. An approach has been proposed to increase the doping concentration of nitrogen in ZnO by exposing the ZnO:N films in the ambient of nitrogen plasma periodically in this paper. Hall measurements and photoluminescence spectroscopy indicate that this approach is effective in improving the hole concentration in ZnO films. Under the optimized conditions, a p-type ZnO film with a hole concentration of 1.68×10^{18} cm^{-3} has been achieved. © 2010 Springer Science+Business Media, LLC.

Number of references:26

Main heading:Hole concentration

Controlled terms:Concentration (process) - Conductive films - Metallic films - Nitrogen - Nitrogen plasma - Photoluminescence spectroscopy - Zinc oxide

Uncontrolled terms:Acceptor concentrations - Doping concentration - Hall measurements - Optimized conditions - P-type ZnO film - ZnO - ZnO films

Classification code:932.3 Plasma Physics - 931.3 Atomic and Molecular Physics - 804.2 Inorganic Compounds - 804 Chemical Products Generally - 802.3 Chemical Operations - 941.4 Optical Variables Measurements - 741.3 Optical Devices and Systems - 708.2 Conducting Materials - 701.1 Electricity: Basic Concepts and Phenomena - 539 Metals Corrosion and Protection; Metal Plating - 531 Metallurgy and Metallography - 712.1 Semiconducting Materials

DOI:10.1007/s10853-010-4497-1

Database:Compendex

<RECORD 195>

Title:Electron transport through Al-ZnO-Al: An ab initio calculation

Authors:Yang, Zijiang (1); Wan, Langhui (1); Yu, Yunjin (1); Wei, Yadong (1); Wang, Jian (2)

Author affiliation:(1) School of Physics Science and Technology, Institute of Computational Condensed Matter Physics, Shenzhen University, Shenzhen 518060, China; (2) Department of

Physics, University of Hong Kong, Pokfulam Road, Hong Kong, Hong Kong
Corresponding author:Yang, Z.
Abstract:The electron transport properties of ZnO nanowires coupled by two aluminum electrodes were studied by ab initio method based on nonequilibrium Green's function approach and density functional theory. A clearly rectifying current-voltage characteristics was observed. It was found that the contact interfaces between Al-O and Al-Zn play important roles in the charge transport at low bias voltage and give very asymmetric I-V characteristics. When the bias voltage increases, the negative differential resistance occurs at negative bias voltage. The charge accumulation was calculated and its behavior was found to be well correlated with the I-V characteristics. We have also calculated the electrochemical capacitance which exhibits three plateaus at different bias voltages which may have potential device application. © 2010 American Institute of Physics.
Number of references:43
Main heading:Current voltage characteristics
Controlled terms:Aluminum - Bias voltage - Density functional theory - Distillation - Electron transitions - Electron transport properties - Green's function - Nanowires - Transport properties - Zinc   - Zinc oxide
Uncontrolled terms:Ab initio calculations - Ab initio method - Aluminum electrodes - Charge accumulation - Charge transport - Contact interface - Electrochemical capacitance - Electron transport - IV characteristics - Low bias voltage - Negative bias - Negative differential resistances - Non-equilibrium Green's function - Potential device applications - ZnO - ZnO nanowires
Classification code:933.3 Electronic Structure of Solids - 933 Solid State Physics - 932 High Energy Physics; Nuclear Physics; Plasma Physics - 931 Classical Physics; Quantum Theory; Relativity - 804.2 Inorganic Compounds - 802.3 Chemical Operations - 761 Nanotechnology - 714 Electronic Components and Tubes - 713 Electronic Circuits - 546.3 Zinc and Alloys - 541.1 Aluminum
DOI:10.1063/1.3467000
Database:Compendex

<RECORD 196>

Authors:Li, Yingjian (1); Li, Jiezhi (2); Qiu, Qi (1); Xu, Yafei (3)

Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, 518060 Shenzhen, China; (2) École Supérieure de Commerce de Lille, 59000 Lille, France; (3) Hunan Energy Conservation Center, 410007 Changsha, China

Corresponding author:Li, Y.

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Abstract:A state-owned glass production enterprise introduces the strategic investor to carry on the assets reorganization, including the purchase of two float glass production lines with subsequent technology transformations and the construction of a new float glass production line with domestic leading technology. The fuel consumption structure has changed from coal-burning to natural gas or fuel oil. The following auditing procedures were followed according to Chinese national standards. These procedures include constituting an ordinance on energy management, strengthening the energy measurement and data statistical system, and improving production lines as well as energy-saving measures. Production scale expanded approximately twice during the period of audit. Comprehensive energy consumption was 2.58 ton coal equivalent (tce) at aqual in heat value (AHV refers to energy consumed to generate each kW h of electric power, each m^3 of oxygen, nitrogen, hydrogen, or each kg of steam. The term of AHV provides a unification measurement criterion for fossil fuels consumed before the energy transformation.) account per 10,000 Yuan output value, and 2.17 tce at heat value equivalent (HVE) account. Comprehensive energy consumption per unit of product was 15.35 kg coal equivalent (kce) per weight box. The percentage of energy cost among total cost reduced from 51.19% in 2007 to 46.48% in 2008. Consequently, the comprehensive energy conversion level holds a leading position among peers in China. © 2010 Elsevier Ltd. All rights reserved.

Number of references:16

Main heading:Energy utilization

Controlled terms:Coal - Coal industry - Cost reduction - Energy conservation - Energy conversion - Fossil fuels - Fuel oils - Fuels - Glass - Oxygen   - Purchasing

Uncontrolled terms:Chinese national standard - Coal-burning - Comprehensive energy - Electric

power - Energy auditing - Energy conservation potential - Energy consumption - Energy consumption target - Energy cost - Energy measurements - Energy saving potential - Energy transformation - Energy-saving measures - Float glass production - Glass production - Heat value - Leading technology - Output values - Per unit - Production line - Production scale - Reorganization energies - Statistical systems - Total costs

Classification code:913 Production Planning and Control; Manufacturing - 912.2 Management - 911.2 Industrial Economics - 911 Cost and Value Engineering; Industrial Economics - 812.3 Glass - 804 Chemical Products Generally - 525.5 Energy Conversion Issues - 525.3 Energy Utilization - 525.2 Energy Conservation - 524 Solid Fuels - 523 Liquid Fuels - 522 Gas Fuels - 503 Mines and Mining, Coal

<RECORD 197>

Authors:Gui, Da-Yong (1); Liu, Jian-Hong (1); Tian, De-Yu (1); Pang, Ai-Min (2); Zhang, Xiao-Ping (2)
Author affiliation:(1) School of Chemistry and Chemical Engineering, Normal Coll. Shenzhen Univ., Shenzhen 518060, China; (2) Hubei Inst. of Aerospace Chemotechnology, Xiangfan 441003, China
Corresponding author:Gui, D.-Y.
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Abstract:A three-phase viscoelastic constitutive model is proposed and verified for prediction of the mechanical properties of NEPE high energetic propellants. The relationships between mechanical properties of NEPE propellants and the formulation, particle size, gradation, modulus and tensile strength of matrix, etc. are constructed mathematically. The results show that the predictions of this model is in good agreement with experimental measurements for both tensile strength and elongation of NEPE high energetic propellants.

<RECORD 198>

Title:Nodal electricity pricing without marketing surplus based on dissipation power imputation
Authors:Song, Xiao-Ming (1); Peng, Jian-Chun (2); Qu, Gui-Ying (1); Huang, Yin-Hua (1); Xie, Yun-Yan (1)
Author affiliation:(1) College of Electrical and Information Engineering, Hunan University, Changsha 410082, Hunan Province, China; (2) College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, Guangdong Province, China
Corresponding author:Song, X.-M.
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Abstract:Due to its rich economic information, the nodal marginal price is widely applied in electricity market and the implementation of locational marginal price will surely bring marketing surplus, however there is controversy on its management. In this paper, firstly the cause engendering the marketing surplus is analyzed; then based on the allocation of dissipation power and combining with actual load flow, a method to draft nodal price without marketing surplus is proposed, thus the marketing surplus is eliminated by the root. Simulation results of IEEE 9-bus system show that the proposed method not only can make the loss component in the electricity price explicit, and its calculation is convenient, but also the marketing surplus can be eliminated,

therefore the balance of income and outlay of the whole power grid can be ensured.

Main heading:Marketing
Controlled terms:Commerce - Costs - Electric industry - Power generation
Uncontrolled terms:Bus systems - Economic information - Electricity market - Electricity prices - Electricity pricing - Load flow - Locational marginal prices - Network loss - Nodal marginal price - Nodal prices   - Power allocations - Power grids - Simulation result
Classification code:706 Electric Transmission and Distribution - 911 Cost and Value Engineering; Industrial Economics - 911.4 Marketing
Database:Compendex

<RECORD 199>

Authors:Qiu, Qi (1); Heckler, Tracy (2); Wang, Jun (2); Mei, Bing C. (2); Mountziaris, T.J. (2)
Author affiliation:(1) Shenzhen University, Shenzhen, Guangdong 518060, China; (2) University of Massachusetts-Amherst, Amherst, MA 01003, United States
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Abstract:Compound semiconductor nanocrystals (quantum dots, QDs) of manganese-doped zinc selenide (ZnMnSe) were prepared at room temperature in a reverse micelle template consisting of poly (ethylene)poly (propylene)poly (ethylene) (PEOPPOPEO) block copolymer, p-xylene, and water. The nanocrystals showed a distinct photoluminescence (PL) peak of Mn^2 at the wavelength of 585 nm. Based on a gradual increase in the PL intensity from Mn relative to ZnSe, a three-stage surface diffusion process was proposed for this room temperature doping process with an initial surface adsorption and subsequent lattice incorporation until saturation of the dopant. This slow diffusion is unique and cannot be easily observed in the regular hot-injection method. QDs of larger size require higher annealing temperature. Consequently, room temperature synthesis may provide insufficient energy to anneal QDs of larger size and result in more defects

in crystals. Accordingly, a decrease in PL intensity was observed for QDs with larger crystal sizes owing to more defects in those QDs. Complete doping of manganese ion into ZnSe QDs is much faster for QDs of smaller sizes. Furthermore, the overall PL intensity of the ZnMnSe nanocrystals increased significantly due to surface stabilization by the surrounding PEOPPOPEO block copolymer. Moreover, the PL at 585 nm was also observed for ZnMnSe prepared with different Mn valence state. This method has the potential to reveal the diffusion mechanism experimentally upon further investigation. © 2010 Elsevier B.V.

Number of references:37

Main heading:Doping (additives)

Controlled terms:Adsorption - Aromatic hydrocarbons - Block copolymers - Copolymerization - Crystal defects - Diffusion - Ethylene - Magnetic semiconductors - Manganese - Manganese compounds - Micelles - Nanocrystals - Optical waveguides - Propylene - Semiconductor quantum dots - Xylene - Zinc

Uncontrolled terms:Annealing temperatures - Compound semiconductors - Crystal size - Diffusion mechanisms - Diluted magnetic semiconductors - Doping process - Injection method - Manganese ions - P-xylene - PL intensity   - Quantum Dot - Reverse micelles - Room temperature - Room temperature synthesis - Self-assembled template - Slow diffusion - Surface adsorption - Surface stabilization - Valence state - Zinc selenide

Classification code:801.3 Colloid Chemistry - 802.3 Chemical Operations - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 815.1 Polymeric Materials - 815.2 Polymerization - 931.1 Mechanics - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 801 Chemistry - 543.2 Manganese and Alloys - 546.3 Zinc and Alloys - 708.4 Magnetic Materials - 712.1 Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 714.3 Waveguides - 717.2 Optical Communication Equipment - 741.3 Optical Devices and Systems - 761 Nanotechnology

DOI:10.1016/j.jlumin.2010.03.020

Database:Compendex

<RECORD 200>

Title:Unusual plastic deformability in a Zr-based bulk metallic glass after structural relaxation

Authors:Xie, S.H. (1); Zeng, X.R. (2); Qian, H.X. (2); Hu, Q. (1); Zheng, Z.Y. (2)

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Abstract:The structural stability is an essential problem for engineering application of bulk metallic glasses (BMGs). Constant-heating dilatometric measurements were conducted for 2 mm $Zr_{63.78}Cu_{14.72}Ni_{10}Al_{10}Nb_{1.5}$ BMG rods and two visible structural relaxation processes below T_g were found, which correspond to the obvious annihilation of free volume (FV) and the continuous decrease in coefficient of linear thermal expansion (α). After annealing the BMGs near the temperature of the main structural relaxation processes and T_g for 3600 s, the BMG rods have much FV relaxed, but still remain the amorphous structure. The microhardness of the annealed samples increases with increasing the annealing temperature, but the plastic strains remain unchanged considering the uncertainty of uniaxial compression after annealing the BMGs at the temperature below T_g. The excellent plasticity of the BMGs experienced the structural relaxation is absolutely different from those previous results of embrittlement after structural relaxation below T_g. The mechanisms of this unusual plastic deformability for the BMGs experienced the structural relaxation below T_g is discussed in the light of apparent activation volume. © 2010 Elsevier B.V.

Number of references:38

Main heading:Structural relaxation

Controlled terms:Annealing - Glass - Metallic glass - Plastic deformation - Plastics - Stability - Thermal expansion - Zirconium

Uncontrolled terms:Activation volume - Amorphous structures - Annealed samples - Annealing temperatures - Bulk metallic glass - Coefficient of linear thermal expansion - Deformability - Dilatometric measurements - Engineering applications - Essential problems - Plastic strain - Structural stabilities - Uni-axial compression - Zr based bulk metallic glass

Classification code:951 Materials Science - 931 Classical Physics; Quantum Theory; Relativity - 817.1 Polymer Products - 812.3 Glass - 961 Systems Science - 801 Chemistry - 537.1 Heat Treatment Processes - 531 Metallurgy and Metallography - 421 Strength of Building Materials; Mechanical Properties - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals

DOI:10.1016/j.jallcom.2010.04.012

Database:Compendex

<RECORD 201>

Accession number:20103213126990Title:Representing and matching simulation cases: A

case-based reasoning approach

Authors:Zhou, Ming (1); Chen, Zhimin (2); He, Wenjing (2); Chen, Xu (3)
Author affiliation:(1) Center for Systems Modeling and Simulation, Indiana State University, Terre Haute, IN 47809, United States; (2) College of Management, Shen Zhen University, Shen Zhen, Guangdong 518060, China; (3) School of Management, University of Electronics Science and Technology, Chendu, Sichuan 610054, China
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Abstract:Simulation modelling is a complex decision-making process that involves the processing of various knowledge and information within a context defined by specific application. Building a "good" simulation model has been heavily reliant on the skill and experience of human expert, which has become one of the most expensive and limited resources in market competition. Case-based reasoning (CBR) can be used to effectively solve problems in ill-defined domains where operations specific knowledge and information are processed in a contextual manner such as simulation modeling. This paper addresses some of the basic issues in applying CBR to improve simulation modeling, with emphasis on knowledge or case representation, case indexing, and case matching. Numerical examples and experimental studies were conducted to verify and validate the concepts and model/algorithms developed. The results showed the effectiveness and applicability of proposed method. © 2010 Elsevier Ltd. All rights reserved.

Number of references:23
Main heading:Case based reasoning
Controlled terms:Competition - Computer simulation - Decision making - Knowledge representation
Uncontrolled terms:Case indexing - Case matching - Case representation - Case-based reasoning approaches - CBr - Complex decision - Conceptual modelling - Experimental studies - Human expert - Market competition   - Numerical example - Simulation model - Simulation modeling - Simulation modelling - Specific knowledge
Classification code:723.4 Artificial Intelligence - 723.5 Computer Applications - 903.1 Information Sources and Analysis - 911.2 Industrial Economics - 912.2 Management
DOI:10.1016/j.cie.2010.03.008
Database:Compendex

<RECORD 202>

Title:A new method for evaluating structural stability of bulk metallic glasses
Authors:Zhao, Lei (1); Jia, Haoling (1); Xie, Shenghui (2); Zeng, Xierong (2); Zhang, Tao (1); Ma, Chaoli (1)
Author affiliation:(1) Key Laboratory of Aerospace Materials and Performance, Beihang University, Ministry of Education, Beijing 100191, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen Key Laboratory of Special Functional Materials, ShenZhen 518060, China
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Abstract:This paper proposed a new method for evaluating the structural stability of bulk metallic glasses (BMGs) based on dilatometric measurements. During heating in the dilatometric experiments, the BMGs expanded continuously with increasing temperature. When the temperature reached the glass transition temperature (T_g), viscous shrinkage occurred due to the viscosity of material becoming lower. Since the inhomogeneous nature of the metallic glasses at atomic level, the processes of rigid expansion and the viscous shrinkage co-exist in a certain temperature region. The expansion stopped completely at a temperature (named T_p here) beyond T_g. The values of the temperature region, $\Delta T_{gp} = T_p - T_g$, and the corresponding time interval (Δt_{gp}) and the activation energy (E_p) corresponding to the expansion processes, are the reflection of the structural stability of BMGs. Investigating the co-existing processes kinetically and thermodynamically, we can make an insight into the structural stability of metallic glasses. Based on this idea, the thermal expansion behaviors of Mg-, Pd-, Zr-, Ti- and Fe-based BMG were studied, and their structural stability was evaluated by the parameters of ΔT_{gp}, Δt_{gp} and E_p. © 2010 Elsevier B.V. All rights reserved.
Number of references:17

Main heading:Stability

Controlled terms:Activation energy - Glass - Glass transition - Metallic glass - Palladium - Shrinkage - Thermal expansion - Zirconium

Uncontrolled terms:Atomic levels - Bulk metallic glass - Co-existing - Dilatometric measurements - Expansion process - Glass transition temperature - Structural stabilities - Temperature regions - Thermal expansion behavior - Time interval

Classification code:951 Materials Science - 931.3 Atomic and Molecular Physics - 931 Classical Physics; Quantum Theory; Relativity - 815.1 Polymeric Materials - 812.3 Glass - 961 Systems Science - 801.4 Physical Chemistry - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 547.1 Precious Metals - 531 Metallurgy and Metallography - 421 Strength of Building Materials; Mechanical Properties - 801 Chemistry

DOI:10.1016/j.jallcom.2010.03.226

Database:Compendex

<RECORD 203>

Title:Dynamics of relativistic electrons propagating in a funnel-guided target

Authors:Zhou, C.T. (1); Wang, X.G. (3); Ruan, S.C. (4); Wu, S.Z. (1); Chew, L.Y. (5); Yu, M.Y. (3); He, X.T. (1)

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Abstract:Hot electron transport in a funnel-guided target is investigated using two-dimensional hybrid simulations. Relativistic electrons generated by a petawatt picosecond short-pulse laser interacting with a gold slab are guided by a funnel to the compressed core region of the fuel. It is shown that as the energetic electrons propagate into the compressed core, the interface magnetic fields in the inner and outer surfaces of the funnel can change sign so that the fast electrons are efficiently guided in the gold funnel to reach the dense core. It is also shown that with funnel guiding, fuel heating is enhanced compared to that without the funnel. The findings here may be useful in the design of more efficient fast-ignition schemes, as well as in other applications involving transport and heating of energetic electrons in targets. © 2010 American Institute of Physics.
Number of references:26
Main heading:Electrons
Controlled terms:Electron scattering - Heating - Magnetic fields - Nuclear energy - Pulsed laser applications
Uncontrolled terms:Compressed cores - Dense core - Energetic electron - Fast electrons - Fast ignition - Fuel heating - Hot-electron transport - Hybrid simulation - Other applications - Outer surface   - Petawatt - Picoseconds - Relativistic electron - Short-pulse lasers
Classification code:621 Nuclear Reactors - 643.1 Space Heating - 701.2 Magnetism: Basic Concepts and Phenomena - 744.9 Laser Applications - 931.3 Atomic and Molecular Physics
DOI:10.1063/1.3465905
Database:Compendex

<RECORD 204>

Accession number:20103213146418Title:Preparation of liposomes entrapping essential oil from Atractylodes macrocephala Koidz by modified RESS technique
Authors:Wen, Zhen (1); Liu, Bo (1); Zheng, Zongkun (1); You, Xinkui (1); Pu, Yitao (1); Li, Qiong (2)
Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China; (2) School of Chemistry and Chemical Engineering, South China University of Technology, Guangzhou 510640, China
Corresponding author:Wen, Z.
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CODEN:CERDEE

Abstract:A modified technique of rapid expansion of supercritical solutions (RESS) was applied to incorporate essential oil extracted from Atractylodes macrocephala Koidz into liposomes. In the modified RESS process, both the liposomal materials and the essential oil were dissolved in the mixture of supercritical carbon dioxide ($SC-CO_2$)/ethanol and then the solution was sprayed into an aqueous medium through a coaxial nozzle to form liposomes suspension. The encapsulation performance of liposomes could be controlled by changing expansion processing conditions such as pressure, temperature of $SC-CO_2$ and the amount of ethanol. The entrapment efficiency, drug loading and average particle size of liposomes were found to be 82.18%, 5.18% and 173nm, respectively, under the optimum conditions of at a pressure of 30MPa, a temperature of 338K and a ethanol mole fraction in $SC-CO_2$ [($x(CH_3CH_2OH)$)] of 15%. The formed liposomes appeared as double-layered colloidal spheres with a uniform and narrow particle size distribution. The physicochemical properties of liposomes including entrapment efficiency, dissolution rate and stability were complied with the provisions of Chinese pharmacopoeia. All these results indicate that the modified RESS technique is an innovative way for self-assembly of liposomes incorporation of multi-components extracted from Chinese traditional medicines in the $SC-CO_2$. © 2010 The Institution of Chemical Engineers.

<RECORD 205>

Title:Simulation of physical properties of organic bulk heterojunction solar cells

Authors:Li, Weimin (1); Guo, Jinchuan (3); Sun, Xiuquan (4); Zhou, Bin (3)

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Corresponding author:Guo, J.

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Abstract:Based on optical interference and carrier transport principle, the models of the organic polymer bulk heterojunction solar cells were proposed. The functional relation of exciton generation rate, carrier densities and short circuit current densities versus the film thickness were simulated and analyzed, and the model was validated by experiment. The results show that model can be useful for the organic solar cells with higher conversion efficiency.
Number of references:9
Main heading:Heterojunctions
Controlled terms:Computer simulation - Conversion efficiency - Solar cells
Uncontrolled terms:Bulk heterojunction - Carrier - Carrier density - Exciton generation - Functional relation - Optical interference - Organic bulk-heterojunction solar cells - Organic solar cell - Polymer bulk - Simulation
Classification code:525.5 Energy Conversion Issues - 615.2 Solar Power - 714.2 Semiconductor Devices and Integrated Circuits - 723.5 Computer Applications
Database:Compendex

<RECORD 206>

Title:Synthesis and characterization of quaternized β-chitin
Authors:Chen, Qunying (1); Wu, Yiguang (1); Pu, Yitao (1); Zheng, Zongkun (1); Shi, Chunzhi (1); Huang, Xinzheng (1)
Author affiliation:(1) Faculty of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Wu, Y.

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Abstract:Water-soluble 2′-O-hydroxypropyltrimethylammoniumchitin chloride (2′-O-HTACCt) was prepared directly from β-chitin and 3-chloro-2-hydroxypropyltrimethylammonium chloride (CTA) in basic medium. The effect of alkali concentration, reaction temperature, reaction time, and dosage of CTA on yield and degree of substitution (DS) of 2′-O-HTACCt were studied. These quaternized chitin derivatives were characterized by FTIR and ¹H NMR spectroscopy, conductometric titration, and elemental analysis methods. Research results indicate that β-chitin can react directly with CTA to produce a water-soluble 2′-O-HTACCt derivative with a high DS. The optimal preparation conditions were determined to be 35-40 wt % (aq NaOH), 40 °C (reaction temperature), 6 h (reaction time), and 4 (molar ratio of CTA to β-chitin unit). © 2010 Elsevier Ltd. All rights reserved.

Number of references:27
Main heading:Chitin
Controlled terms:Chlorine compounds - Nuclear magnetic resonance spectroscopy - Synthesis (chemical)
Uncontrolled terms:3-chloro-2-hydroxypropyltrimethylammonium chloride - Alkali concentrations - Basic medium - Chitin derivatives - Conductometric titrations - Degree of substitution - Elemental analysis - FTIR - H NMR spectroscopy - Molar ratio - Preparation conditions - Reaction temperature - Reaction time - Research results - Synthesis and characterization
Classification code:802.2 Chemical Reactions - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 931.3 Atomic and Molecular Physics - 932.2 Nuclear Physics
DOI:10.1016/j.carres.2010.05.014
Database:Compendex

<RECORD 207>

Title:Some features of the photonic crystal fiber temperature sensor with liquid ethanol filling
Authors:Yu, Yongqin (1); Li, Xuejin (1); Hong, Xueming (2); Deng, Yuanlong (2); Song, Kuiyan

(2); Geng, Youfu (1); Wei, Huifeng (3); Tong, Weijun (3)
Author affiliation:(1) College of Physics Science and Technology, Shenzhen University, 518060, China; (2) Shenzhen Key Laboratory of Sensor Technology, Shenzhen, 518060, China; (3) RandD Center, Yangtze Optical Fiber and Cable Company Ltd., Wuhan, 430073, China
Corresponding author:Yu, Y.

Abstract:We introduce a novel photonic crystal fiber (PCF) temperature sensor that is based on intensity modulation and liquid ethanol filling of air holes with index-guiding PCF. The mode field, the effective refractive index and the confinement loss of PCF were all found to become highly temperature-dependent when the thermo-optic coefficient of the liquid ethanol used is higher than that of silicon dioxide and this temperature dependence is an increasing function of the d/and ratio and the input wavelength. All the experiments and simulations are discussed in this paper and the temperature sensitivity of transmission power was experimentally determined to be 0.315 dB/°C for a 10-cm long PCF. © 2010 Optical Society of America.

Number of references:17
Main heading:Photonic crystals
Controlled terms:Crystal whiskers - Ethanol - Fiber optics - Holey fibers - Liquids - Nonlinear optics - Refractive index - Silica - Temperature sensors
Uncontrolled terms:Air holes - Confinement loss - Effective refractive index - Increasing functions - Index guiding - Input wavelength - Intensity modulations - Mode fields - Silicon dioxide - Temperature dependence - Temperature dependent - Temperature sensitivity - Thermo-optic coefficients - Transmission power
Classification code:804.2 Inorganic Compounds - 812 Ceramics, Refractories and Glass - 931.2 Physical Properties of Gases, Liquids and Solids - 804.1 Organic Compounds - 933.1 Crystalline Solids - 944.5 Temperature Measuring Instruments - 951 Materials Science - 933.1.1 Crystal Lattice - 801.4 Physical Chemistry - 523 Liquid Fuels - 531.2 Metallography - 732 Control Devices - 482.2 Minerals - 741.1 Light/Optics - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 741.1.1 Nonlinear Optics
DOI:10.1364/OE.18.015383
Database:Compendex

<RECORD 208>

Authors:Chen, Jianyong (1); Lin, Qiuzhen (1); Ji, Zhen (1)
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Abstract:In this paper, we develop a hybrid immune multiobjective optimization algorithm (HIMO) based on clonal selection principle. In HIMO, a hybrid mutation operator is proposed with the combination of Gaussian and polynomial mutations (GP-HM operator). The GP-HM operator adopts an adaptive switching parameter to control the mutation process, which uses relative large steps in high probability for boundary individuals and less-crowded individuals. With the generation running, the probability to perform relative large steps is reduced gradually. By this means, the exploratory capabilities are enhanced by keeping a desirable balance between global search and local search, so as to accelerate the convergence speed to the true Pareto-optimal front in the global space with many local Pareto-optimal fronts. When comparing HIMO with various state-of-the-art multiobjective optimization algorithms developed recently, simulation results show that HIMO performs better evidently. © 2009 Elsevier B.V. All rights reserved.

<RECORD 209>

Title:Synthesis and characteristic of the Fe$_3$O$_4$@SiO$_2$@Eu(DBM)$_3$·2H$_2$O/SiO$_2$ luminomagnetic microspheres with core-shell structure

Authors:Lu, Ping (1); Zhang, Ji-Lin (1); Liu, Yan-Lin (1); Sun, De-Hui (3); Liu, Gui-Xia (2); Hong, Guíang-Yan (1); Ni, Jia-Zuan (1)

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Abstract:The core-shell structured luminomagnetic microsphere composed of a Fe$_3$O$_4$ magnetic core and a continuous SiO$_2$ nanoshell doped with Eu(DBM)$_3$·2H$_2$O fluorescent molecules was fabricated by a modified Stöber method combined with a layer-by-layer assembly technique. X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), field emission scanning electron microscopy (FE-SEM), transmission electron microscopy (TEM), confocal microscopy, photoluminescence (PL), and superconducting quantum interface device (SQUID) were employed to characterize the Fe$_3$O$_4$@SiO$_2$@Eu(DBM)$_3$·2H$_2$O/SiO$_2$ microspheres. The experimental results show that the microshpere has a typical diameter of ca. 500 nm consisting of the magnetic core with about 340 nm in diameter and silica shell doped with europium complex with an average thickness of about 80 nm. It possesses magnetism with a saturation magnetization of 25.84 emu/g and negligible coercivity and remanence at room temperature and exhibits strong red emission peak originating from electric-dipole transition $^5D_0$ → $^7F_2$ (611 nm) of Eu^{3+} ions. The luminomagnetic microspheres can be uptaken by HeLa cells and there is no adverse cell

reaction. These results suggest that the luminomagnetic microspheres with magnetic resonance response and fluorescence probe property may be useful in biomedical imaging and diagnostic applications. © 2010 Elsevier B.V. All rights reserved.

Number of references:38

Main heading:Magnetic bubbles

Controlled terms:Confocal microscopy - Europium - Field emission - Field emission microscopes - Fluorescence - Fourier transform infrared spectroscopy - Fourier transforms - Magnetic circuits - Magnetic cores - Magnetic devices - Magnetite - Medical imaging - Microspheres - Oxide minerals - Remanence - Resonance - Saturation magnetization - Scanning electron microscopy - Silica - SQUIDs - Synthesis (chemical) - Transmission electron microscopy - Wavelet transforms - X ray diffraction

Uncontrolled terms:Biomedical imaging - Cell imaging - Cell reactions - Coercivities - Core shell structure - Core-shell - Diagnostic applications - Electric dipole transition - Eu complexes - Eu(III) complex - Europium complex - Field emission scanning electron microscopy - Fluorescence probes - Fluorescent molecules - HeLa cell - Layer-by-layer assembly technique - Magnetic - Nanoshells - Quantum interfaces - Red emissions   - Room temperature - Silica shell - TEM

Classification code:933.1.1 Crystal Lattice - 812.1 Ceramics - 812 Ceramics, Refractories and Glass - 804.2 Inorganic Compounds - 802.2 Chemical Reactions - 801 Chemistry - 751.1 Acoustic Waves - 746 Imaging Techniques - 744.9 Laser Applications - 812.3 Glass - 932 High Energy Physics; Nuclear Physics; Plasma Physics - 931.4 Quantum Theory; Quantum Mechanics - 931.3 Atomic and Molecular Physics - 818 Rubber and Elastomers - 931.2 Physical Properties of Gases, Liquids and Solids - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.3 Mathematical Transformations - 931.1 Mechanics - 741.3 Optical Devices and Systems - 701.2 Magnetism: Basic Concepts and Phenomena - 701 Electricity and Magnetism - 547.2 Rare Earth Metals - 704 Electric Components and Equipment - 545.1 Iron - 461.1 Biomedical Engineering - 741.1 Light/Optics - 482.2 Minerals - 704.2 Electric Equipment - 723.2 Data Processing and Image Processing - 722.1 Data Storage, Equipment and Techniques - 714.2 Semiconductor Devices and Integrated Circuits - 741 Light, Optics and Optical Devices - 714 Electronic Components and Tubes - 708.4 Magnetic Materials - 708.3 Superconducting Materials - 712.1 Semiconducting Materials

DOI:10.1016/j.talanta.2010.04.052

Database:Compendex

<RECORD 210>

Accession number:20102312993391Title:An investigation on the fracturing behavior of bulk metallic glass with large plasticity

Authors:Tao, P.J. (1); Yang, Y.Z. (1); Bai, X.J. (2); Xie, Z.W. (1); Chen, X.C. (1)

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Corresponding author:Yang, Y.Z.

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Abstract:A bulk metallic glass (BMG) with large plasticity was prepared and its fracturing behavior was observed at a strain rate larger than $\sim 10^{-3}$ s^{-1} under uniaxial compression. Even in this strain rate condition, the BMG still exhibits an excellent plastic deformability. The BMG exhibits a large elastic limitation of about 2.43% for engineering strain and 2.46% for true strain. The engineering and true plastic strains are 3.05% and 3.18%, respectively, and the maximum compressive strength is 1810 MPa. High dense shear bands appear in the outer surfaces of the failed BMG, of which the fracture surface exhibits melting and subsequently tearing-up signs with low vein height and small droplet, orientating significantly. The fracture angle is about 54°, deviating from the theoretical fracture angle by 9°. These may be related to the unique performance characteristics and the micro-structure of the BMG. © 2010 Elsevier B.V. All rights reserved.

Number of references:10

Main heading:Fracture

Controlled terms:Compressive strength - Deformation - Glass - Mechanical properties - Metallic glass - Metallurgy - Plasticity - Plasticity testing - Scanning electron microscopy - Smelting - Strain rate

Uncontrolled terms:Bulk metallic glass - Deformability - Deformation and fracture - Engineering strains - Fracture angle - Fracture surfaces - Fracturing behaviors - Metals and alloys - Outer surface - Performance characteristics - Plastic strain - Small droplets - True strain - Uni-axial compression

Classification code:933.2 Amorphous Solids - 931.2 Physical Properties of Gases, Liquids and Solids - 931.1 Mechanics - 812.3 Glass - 741.1 Light/Optics - 951 Materials Science - 533.2 Metal Refining - 531 Metallurgy and Metallography - 422.2 Strength of Building Materials : Test Methods - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties - 531.1 Metallurgy

DOI:10.1016/j.matlet.2010.03.031

Database:Compendex

<RECORD 211>

Accession number:IP50988723 Article in PressTitle:The study on the evaporation cooling efficiency and effectiveness of cooling tower of film type

Authors:Li, Yingjian (1); You, Xinkui (1); Qiu, Qi (1); Li, Jiezhi (2)
Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, PR China; (2) Ecole Centrale de Lyon 69130, France
Corresponding author:Li, Y.
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Abstract:Based on heat and mass transport mechanism of film type cooling, which was combined with an on-site test on counter flow film type cooling tower, a mathematical model on the evaporation and cooling efficiency and effectiveness has been developed. Under typical climatic conditions, air conditioning load and the operating condition, the mass and heat balances have been calculated for the air and the cooling water including the volume of evaporative cooling water. Changing rule has been measured and calculated between coefficient of performance (COP) and chiller load. The influences of air and cooling water parameters on the evaporative cooling efficiency were analyzed in cooling tower restrained by latent heat evaporative cooling, and detailed derivation and computation revealed that both the evaporative cooling efficiency and effectiveness of cooling tower are the same characteristics parameters of the thermal performance of a cooling tower under identical assumptions. Crown Copyright © 2010.
Main heading:Evaporative cooling systems
Controlled terms:Cooling towers - Cooling water - Evaporation - Mathematical models - Water cooling systems
Uncontrolled terms:Air conditioning load - Characteristics parameters - Climatic conditions - Coefficient of performance - Cooling efficiency - Cooling water parameter - Counter-flows - Evaporation cooling - Evaporative cooling - Heat balance - Mass transport - On-site tests - Operating condition - Thermal Performance
Classification code:616 Heat Exchangers - 616.1 Heat Exchange Equipment and Components - 644.3 Refrigeration Equipment and Components - 802.1 Chemical Plants and Equipment - 802.3 Chemical Operations - 921 Mathematics
DOI:10.1016/j.enconman.2010.06.036
Database:Compendex

<RECORD 212>

Accession number:20102713054306Title:Microwave pyrolysis chemical vapor infiltration of carbon: Textural changes

Authors:Zou, Jizhao (1); Zeng, Xierong (1); Niu, Ben (3)
Author affiliation:(1) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen 518060, China; (3) School of Management, Shenzhen University, Shenzhen 518060, China
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Abstract:Carbon/Carbon composites were fabricated by microwave pyrolysis chemical vapor infiltration. The carbon fiber felts (the bulk density $\sim$0.2 g/cm^3) were infiltrated from methane at temperature of 1075°C, 1100°C, 1125°C and 1150°C, methane partial pressure ranging from 5KPa to 15KPa, and gas residence times of 0.05s ,0.1s, 0.15s and 0.2s. The effect of residence time, deposition temperature and partial pressure of source gas on the textures was studied by polarized-light microscopy. The results show that the anisotropy of texture is better when the parameter is higher; and rough layer texture can be fabricated easily by microwave pyrolysis chemical vapor infiltration. © (2010) Trans Tech Publications.

Number of references:6
Main heading:Carbon carbon composites
Controlled terms:Carbon fibers - Ceramic materials - Chemical vapor deposition - Chemical vapor infiltration - Cracking (chemical) - Methane - Microwaves - Pressure effects - Seepage - Soil mechanics - Textures - Vapors
Uncontrolled terms:Bulk density - Deposition temperatures - Gas residence - Microwave pyrolysis - Polarized-light microscopy - Residence time - Rough layer - Source gas - Textural changes
Classification code:804 Chemical Products Generally - 804.1 Organic Compounds - 812.1

Ceramics - 813.1 Coating Techniques - 817.1 Polymer Products - 931.1 Mechanics - 933 Solid State Physics - 802.2 Chemical Reactions - 407 Maritime and Port Structures; Rivers and Other Waterways - 415.4 Structural Materials Other Than Metal, Plastics or Wood - 441 Dams and Reservoirs; Hydro Development - 483.1 Soils and Soil Mechanics - 522 Gas Fuels - 641.1 Thermodynamics - 711 Electromagnetic Waves

DOI:10.4028/www.scientific.net/AMR.105-106.589

<RECORD 213>

Title:Cooperative diversity of wireless networks with multiple amplify-and-forward relays and hard-decision detections

Authors:Yan, Qiuna (1); Yue, Dian-Wu (2); He, Yejun (3)
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Abstract:This paper investigates the diversity performance of wireless cooperative networks with

multiple parallel relays communicating with the destination over orthogonal channels, and focuses on the amplify-andforward relaying protocol. The networks under consideration employ two signal-to-noise ratio (SNR) thresholds and multiple hard-decision detections (HDDs) at the destination. One SNR threshold is used to select transmitting relays in the second phase: a relay retransmits to the destination if its received SNR is larger than the threshold, otherwise, it remains silent. The other threshold is used at the destination for detection: the destination makes a hard decision on the received signal from a relay if its SNR is higher than the threshold, otherwise, the destination makes an erasure decision. Then the destination simply combines all the hard decision results and makes the final binary decision based on majority voting. The paper derives the end-to-end bit error and outage probabilities, and presents the diversity analysis of the proposed method. It is shown that the full diversity order can be achieved by setting appropriate thresholds even when the destination does not know the exact or average SNRs of the source-relay links. Simulation results corroborate our analysis. The results show that the error performance with HDDs is improved gradually as the number of relays increases. © 2010 IEEE.

Number of references:12

Main heading:Wireless networks

Controlled terms:Amplification - Demodulation - Mobile computing - Network protocols - Outages - Probability - Relay control systems - Signal detection - Signal to noise ratio

Uncontrolled terms:Amplify-and-forward - Binary decision - Bit-errors - Co-operative diversity - Diversity performance - Error performance - Full diversity order - Hard decisions - Majority voting - Orthogonal channels - Outage probability - Parallel relays - Received signals - Relay links - Second phase - Simulation result - SNR threshold - Wireless cooperative networks - Wireless relay networks

Classification code:722.3 Data Communication, Equipment and Techniques - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 731.1 Control Systems - 741.1 Light/Optics - 913.5 Maintenance - 922.1 Probability Theory - 718 Telephone Systems and Related Technologies; Line Communications - 706.1 Electric Power Systems - 713.1 Amplifiers - 713.3 Modulators, Demodulators, Limiters, Discriminators, Mixers - 716 Telecommunication; Radar, Radio and Television - 716.1 Information Theory and Signal Processing - 716.3 Radio Systems and Equipment - 717 Optical Communication

DOI:10.1109/CMC.2010.270

Database:Compendex

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<RECORD 214>

Accession number:20102613045041Title:Analysis and improvements of the constant modulus algorithm

Authors:Hu, Hengyun (1); Xie, Ning (1); Wang, Hui (1)

Author affiliation:(1) College of Information Engineering, Shenzhen University, Guangdong 518060, China; (2) National Mobile Communications Research Laboratory, Southeast University, Nanjing, Jiangsu 210096, China

Corresponding author:Hu, H.

Source title:2010 WRI International Conference on Communications and Mobile Computing,

CMC 2010

Abstract:In this paper, we study a widely used blind equalization algorithm - constant modulus algorithm (CMA), by introducing several methods which can improve its convergence or complexity performance. Moreover, we discuss the pros and cons of every method. © 2010 IEEE.

<RECORD 215>

Title:Design and FPGA implementation of the fast algorithm for extracting laser line

Authors:Haijun, Lei (1); Zhanfu, Chen (2); Zhang, Yang (2)
Author affiliation:(1) College of Computer and Software, Shenzhen University, National High Performance Computing Center, shenzhen 518060, China; (2) College of Information Engineering, Shenzhen University, shenzhen 518060, China

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Abstract:A fast algorithm of extracting laser line is proposed for real-time image processing in 3DLCS and is compared with the former algorithm. First of all" the threshold S(T) of the laser stripe is computed by host computer unnecessarily in real time. Second the laser stripe is determined in real time. At last the central line of the laser stripe is detected by templates in real time. The fast algorithm was successfully implemented using VC6.0, then simulated successfully programming with Verilog HDL on the "Verilog XL" software which is developed by CANDENCE corporation.The fast algorithm is implemented by FPGA designed as pipelined architecture. The average time of processing every pixel in each step is less than 74ns. The results of emulation and synthesis show that extracting laser line from a frame of standard PAL video image is completed within 40ms.The advantages of the fast algorithm include easy computing, less data throughput, and fast implementation,etc.It reduces greatly information redundancy. © 2010 Crown Copyright.

Number of references:10
Main heading:Computation theory
Controlled terms:Algorithms - Computer hardware description languages - Image processing - Mobile computing - Pipeline processing systems - Three dimensional
Uncontrolled terms:A-frames - Data throughput - Fast algorithms - Fast implementation - FPGA implementations - Host computers - Information redundancies - Laser lines - Laser stripes - Pipelined architecture   - Real time - Real-time image processing - Time of processing - Verilog - Verilog HDL - Video image

<RECORD 216>

Title:The packet delay characteristics analysis of two-tier polling system
Authors:Yu, Ying (1); Zhao, Dongfeng (2); Yuan, Lingyun (1); Niu, Ben (3)
Author affiliation:(1) College of Computer Science and Information Technology, Yunnan Normal University, Kunming 650092, China; (2) College of Information, Yunnan University, Kunming 650091, China; (3) College of Management Shenzhen University, Shenzhen 518060, China
Corresponding author:Yu, Y.
Abstract:Polling systems are widely used in communication systems and computer networks. The discrete-time asymmetric two-tier exhausting and gated polling system is proposed in the paper. On the basis of embedded Markov chain and generating function, mean queuing delay derivative

characteristics has been obtained. By use of mathematics analysis and computer simulations, we have analyzed the system performances and obtained some useful results about QOS of the system. © 2010 IEEE.

<RECORD 217>

Title:Space-time adaptive monopulse processing for airborne radar in non-homogeneous environments

Authors:Wu, Renbiao (1); Su, Zhigang (1); Wang, Lu (1)
Author affiliation:(1) Tianjin Key Laboratory for Advanced Signal Processing, Civil Aviation University of China, North Campus, P.O. Box 9, Tianjin 300300, China; (2) Intelligent Information Institute of ATR Lab, Shenzhen University, Shenzhen 518060, China
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Abstract:Space-time adaptive processing (STAP) can be used in combination with monopulse techniques for the estimation of spatial and temporal parameters of moving targets in airborne radar. However, in non-homogeneous environment, the available amount of secondary data which

have the same statistical characteristics with the clutter in the primary data is very limited. In this case, the optimum STAP is impractical. In this paper, by combining linearly constrained monopulse technique with STAP, a Reduced Dimension Spatial and Temporal Parameter Estimation (referred to as RD-STPE) method is proposed. Simulation results show that, in non-homogeneous environments, the proposed method can improve the estimation accuracy of the target parameters dramatically, and is more robust than the full dimension adaptive monopulse method with STAP. © 2010 Elsevier GmbH. All rights reserved.

<RECORD 218>

Title:DFT study on electronic structures and spectra properties of substituent pentacene connected with electron donating and withdrawing groups

Authors:Liu, Ya-Wei (1); Niu, Fang-Fang (1); Zeng, Peng-Ju (1); Wang, Ming-Liang (2); Lian, Jia-Rong (1); Niu, Han-Ben (1)
Author affiliation:(1) College of Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Niu, H.-B.
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Abstract:The geometric structures of pentacene and fifteen substituent pentacene were optimized at B3LYP/6-31G(d) level by Density Functional Theory(DFT) method. The regularities of substituent effects of the electron-donating group(-OCH$_3$) and the electron-withdrawing group(-CN and -F) on electronic structure and the frontier molecular orbital energies of pentacene were investigated. On the same basis, the electronic absorption spectra of the excited state were calculated by time-dependent density functional theory. The computed results show that the introducing of substituent groups significantly affected the electronic structure, frontier molecular orbital energies and optoelectronic property of pentacene.
Number of references:17
Main heading:Density functional theory
Controlled terms:Electronic properties - Electronic structure - Excited states - Molecular modeling - Molecular orbitals
Uncontrolled terms:B3LYP/6-31G - Density functional theory methods - DFT method - DFT study - Electron withdrawing group - Electron-donating - Electron-donating group - Electronic absorption spectra - Electronic spectra - Frontier molecular orbitals - Frontier orbitals - Geometric structure - Optoelectronic properties - Pentacenes - Spectra properties - Substituent effect - Time dependent density functional theory
Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics
Database:Compendex

<RECORD 219>

Accession number:20103013095980Title:Multiframe super-resolution reconstruction using sparse directional regularization
Authors:Li, Yan-Ran (1); Dai, Dao-Qing (2); Shen, Lixin (3)
Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China; (2) Faculty of Mathematics and Computing, Sun Yat-Sen (Zhongshan) University, Guangzhou 510275, China; (3) Department of Mathematics, Syracuse University, Syracuse, NY 13244, United States
Corresponding author:Li, Y.-R.
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Abstract:We present a variational approach to obtain high-resolution images from multiframe low-resolution video stills. The objective functional for the variational approach consists of a data fidelity term and a regularizer. The fidelity term is formed by adaptively mimicking ell and ell norms. The regularization uses the ell norm of the framelet coefficients of a high-resolution image with a geometric tight framelet system constructed in this paper. The tight framelet system has abilities to detect multi-orientation and multi-order variations of an image. A two-phase iterative method for super-resolution reconstruction is proposed to construct a high-resolution image. The first phase is to get an approximation of the solution (i.e., the ideal image) using the steepest descent method. The second phase is to enhance the sparsity of the approximate solution by using the soft thresholding operator with variable thresholding parameters. Numerical results based on both synthetic data and real videos show that our algorithm is efficient in terms of removing visual artifacts and preserving edges in restored images. © 2010 IEEE.

Number of references:37

Main heading:Edge detection

Controlled terms:Mathematical operators - Numerical analysis - Optical resolving power - Steepest descent method - Video recording - Wavelet transforms

Uncontrolled terms:Approximate solution - Data fidelity - Fidelity term - High resolution image - Ideal images - Multi-frame - Numerical results - Regularizer - Resolution video - Second phase - Soft thresholding - Super resolution - Super-resolution reconstruction - Synthetic data - Thresholding - Variational approaches - Visual artifacts

Classification code:921.3 Mathematical Transformations - 921 Mathematics - 751.1 Acoustic Waves - 921.6 Numerical Methods - 741.1 Light/Optics - 716.4 Television Systems and Equipment - 716 Telecommunication; Radar, Radio and Television - 723.5 Computer Applications

DOI:10.1109/TCSVT.2010.2045908

Database:Compendex

<RECORD 220>

Title:Study on ultrasound-based prosthetic hand real-time control system

Authors:Chen, Xin (1); Zheng, Yongping (2); Guo, Jingyi (2)

Author affiliation:(1) Biomedical Engineering Dept., School of Medicine, Shenzhen University, Shenzhen 518060, China; (2) Department of Health Technology and Informatics, Hong Kong Polytechnic University, Hong Kong, Hong Kong; (3) Research Institute of Innovative Products and Technologies, Hong Kong Polytechnic University, Hong Kong, Hong Kong

Corresponding author:Chen, X.

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Abstract:The bionic control of prosthetic hand is a challenging problem in prosthesis research, and researchers have explored the potential of using many physiological signals to provide simple, convenient and dexterous control with multiple degree of freedom. In this study, we suggest a new real-time control method for powered prosthetic hand based on our previous research results. This study designs an ultrasound-based prosthetic hand control system including A-mode ultrasound transmission and collection, prosthetic hand control, information processing and feedback, and etc. The control performance of the system was evaluated with normal subjects and the feasibility of ultrasound control of prosthetic hand was investigated. Experiment results show that ultrasound signal could control the continuous change of prosthetic hand's opening and closure position, which provides a simple method for grasp control. The results suggest that ultrasound signal, through further improvement, has great potential to be an alternative method for prosthesis control.
Number of references:20
Main heading:Prosthetics
Controlled terms:Control systems - Data processing - Real time control - Research - Ultrasonic transmission - Ultrasonic waves - Ultrasonics
Uncontrolled terms:Alternative methods - Control performance - Information processing - Multiple-degree-of-freedom - Physiological signals - Prosthesis - Prosthesis control - Prosthetic hands - Research results - SIMPLE method   - Study design - Ultrasound - Ultrasound signal
Classification code:901.3 Engineering Research - 753.1 Ultrasonic Waves - 732 Control Devices - 731.1 Control Systems - 731 Automatic Control Principles and Applications - 723.2 Data Processing and Image Processing - 462.4 Prosthetics
Database:Compendex

<RECORD 221>

Accession number:20103713225834Title:Effect of composite modes on structure and electrochemical performance of V$_2$O$_5$/PPy
Authors:Ren, Xiang-Zhong (1); Jiang, Ying-Kai (1); Zhang, Pei-Xin (1); Liu, Jian-Hong (1); Zhang, Qian-Ling (1)

Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Zhang, P.-X.

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Abstract:The plate-like vanadium pentoxide (V_2O_5) was prepared by sol-gel method using V_2O_5 and H_2O_2 as raw materials. The composites of V_2O_5/polypyrrole (PPy) were synthesized by chemical oxidative polymerization. By using different methods of adding oxidant, different structure composites were obtained. The composites were investigated and characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM) and Brunner-Emmett-Teller method (BET). The conductivities of the composites were measured by a four-probe instrument. The results show that the composites obtained by using different methods of adding the oxidant have different structures and morphologies. When the oxidant is added first, polypyrrole intercalates into the sandwich of V_2O_5, leading to an increase in the d-spacing from 0.40806 nm for V_2O_5 to 0.41019 nm for the composites; when the pyrrole is added first, PPy deposits preferentially on the V_2O_5 particle surface, the d-spacing of the composite is not changed. The specific discharge capacity of the composites reaches 271.8 mAh/g at 0.1 C rate and voltage limits of 1.8 V~4.0 V, and still owned 225.4 mAh/g after 50 cycles.

Number of references:7

Main heading:Gels

Controlled terms:Cathodes - Electric discharges - Lithium - Lithium alloys - Lithium compounds - Oxidants - Polypyrroles - Scanning electron microscopy - Sol-gel process - Sol-gels - Sols - Vanadium - Vanadium alloys - Vanadium compounds - X ray diffraction - X ray diffraction analysis

Uncontrolled terms:Cathode materials - Electrochemical performance - Lithium-ion batteries - Sol-gel method - Vanadium pentoxide

Classification code:931.3 Atomic and Molecular Physics - 815.1.1 Organic Polymers - 813.1 Coating Techniques - 804 Chemical Products Generally - 803 Chemical Agents and Basic Industrial Chemicals - 801 Chemistry - 741.1 Light/Optics - 704.1 Electric Components - 701.1

Electricity: Basic Concepts and Phenomena - 549.1 Alkali Metals - 543.6 Vanadium and Alloys

<RECORD 222>

Title:Sonochemical synthesis of cobalt aluminate nanoparticles under various preparation parameters

Authors:Lv, Weizhong (1); Qiu, Qi (1); Wang, Fang (1); Wei, Shaohui (1); Liu, Bo (1); Luo, Zhongkuan (1)
Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Lv, W.
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Abstract:Cobalt aluminate ($CoAl_2O_4$) nanoparticles were synthesized using a precursor method with the aid of ultrasound irradiation under various preparation parameters. The effects of the preparation parameters, such as the sonochemical reaction time and temperature, precipitation agents, calcination temperature and time on the formation of $CoAl_2O_4$ were investigated. The precursor on heating yields nanosized $CoAl_2O_4$ particles and both these nanoparticles and the precursor were characterized by means of X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM) and atomic force microscopy (AFM). The use of ultrasound irradiation during the homogeneous precipitation of the precursor reduces the duration of the precipitation reaction. The mechanism of the formation of cobalt aluminate was investigated by means of Fourier transformation infrared spectroscopy (FT-IR) and EDX (energy dispersive X-ray). The thermal decomposition process and kinetics of the precursor of nanosized $CoAl_2O_4$ were investigated by means of differential scanning calorimetry (DSC) and thermogravimetry (TG). The apparent activation energy (E) and the pre-exponential constant (A) were 304.26 kJ/mol and 6.441×10^{14} s^{-1}, respectively. Specific surface area was investigated by means of Brunauer Emmett Teller (BET) surface area measurements. © 2010 Elsevier B.V. All rights reserved.

Number of references:43

Main heading:Scanning electron microscopy

Controlled terms:Activation energy - Atomic force microscopy - Calcination - Coal - Coal industry - Cobalt - Differential scanning calorimetry - Electrons - Fourier analysis - Fourier transforms - Infrared spectroscopy - Irradiation - Nanoparticles - Pyrolysis - Sonochemistry - Synthesis (chemical) - Thermogravimetric analysis - Transmission electron microscopy - Ultrasonics - X ray diffraction - X rays

Uncontrolled terms:Apparent activation energy - Brunauer-emmett-teller surface areas - Calcination temperature - Cobalt aluminate - Energy dispersive x-ray - Fourier transformations - Homogeneous Precipitation - Nano-sized - Precipitation reaction - Precursor method - Preexponential constant - Preparation parameters - SEM - Sonochemical reactions - Sonochemical synthesis - TEM - Thermal decomposition process - Thermogravimetry - Ultrasound irradiation

Classification code:802.3 Chemical Operations - 802.2 Chemical Reactions - 801.4 Physical Chemistry - 911 Cost and Value Engineering; Industrial Economics - 801.1 Chemistry, General - 761 Nanotechnology - 944.6 Temperature Measurements - 801 Chemistry - 913 Production Planning and Control; Manufacturing - 933.1.1 Crystal Lattice - 933 Solid State Physics - 932.1 High Energy Physics - 941.4 Optical Variables Measurements - 931.3 Atomic and Molecular Physics - 921.3 Mathematical Transformations - 921 Mathematics - 931.2 Physical Properties of Gases, Liquids and Solids - 753.1 Ultrasonic Waves - 701.1 Electricity: Basic Concepts and Phenomena - 641.1 Thermodynamics - 622.2 Radiation Effects - 753 Ultrasonics and Applications - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 503 Mines and Mining, Coal - 482.1 Mineralogical Techniques - 524 Solid Fuels - 708 Electric and Magnetic Materials - 711.1 Electromagnetic Waves in Different Media - 752 Sound Devices, Equipment and Systems - 751.1 Acoustic Waves - 751 Acoustics, Noise. Sound - 741.3 Optical Devices and Systems - 741.1 Light/Optics - 712.2 Thermionic Materials

DOI:10.1016/j.ultsonch.2010.01.018

Database:Compendex

<RECORD 223>

Title:Practical identity-based threshold decryption scheme without random oracle

Authors:Zhang, Xi (1); Chen, Min-Rong (2); Liu, Hao (1)

Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China; (2) College of Information Engineering, Shenzhen University, Shenzhen 518060, China

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Source title:Shenzhen Daxue Xuebao (Ligong Ban)/Journal of Shenzhen University Science and Engineering

Abbreviated source title:Shenzhen Daxue Xuebao (Ligong Ban)

Volume:27

Abstract:Existing IBTD schemes either are only secure in the random oracles or have a loose security reduction. An identity-based threshold decryption (IBTD) scheme which made use of bilinear pairing to guarantee safety without random oracles was proposed. The novelty of lies in the extraction of keys, which enables the simulator to successfully answer private key extraction queries, thus the security proof for the chosen-ciphertext security has a tight security reduction. Compared with the existing IBTD schemes, this new scheme has the advantages of satisfying the tight security reduction without random oracles.

Number of references:18
Main heading:Cryptography
Controlled terms:Query processing - Security of data - Security systems
Uncontrolled terms:Computer security - Identity based cryptography - Security reduction - Threshold decryption - Without random oracle model
Classification code:716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 914.1 Accidents and Accident Prevention
Database:Compendex

<RECORD 224>

Accession number:20103013099008Title:Nano and sub-nanosecond optical image framing recording system

Authors:Liu, Chunping (1); Gong, Xiangdong (1); Huang, Hongbin (1); Li, Jingzhen (1)
Author affiliation:(1) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Liu, C.
        (liucp@szu.edu.cn)

Abstract:A nano and sub-nanosecond optical image framing recording system is presented here to meet the photography demands of 10^8~10^{10} pps frequency in extreme conditions, such as laser flyer and Z-pinch. The overall system design and its principle are introduced. Several key techniques and solutions(such as precise synchronization, high voltage pulser etc). are put forward. The precise synchronization of sub-systems is carried out by a microcomputer and some precise delay units. Nano and sub-nanosecond rise time high voltage pulses are provided by an avalanche transistor array. Picosecond level time delay is generated by 8-bit programmable analog delay chip DS1023-25 and FPGA. Some key experiments have been completed and the experiment results such as 4000 V high voltage pulse of rise time less than 5 ns, time delay unit of ps resolution are presented.

Number of references:7
Main heading:Image recording
Controlled terms:Electric charge - Electric potential - Geometrical optics - Optical recording - Recording instruments - Synchronization - Time delay
Uncontrolled terms:Avalanche transistors - Delay units - Extreme conditions - High voltage pulse - High voltage pulsers - Key techniques - Optical image - Picoseconds - Programmable analogs - Recording systems - Risetimes - Sub-systems - Synchronization time - System design - Time delay units - Z pinch
Classification code:961 Systems Science - 741.3 Optical Devices and Systems - 744.9 Laser Applications - 941 Acoustical and Optical Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 943 Mechanical and Miscellaneous Measuring Instruments - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 741.1 Light/Optics - 731.1 Control Systems - 731 Automatic Control Principles and Applications - 716.4 Television Systems and Equipment - 713 Electronic Circuits - 701.1 Electricity: Basic Concepts and Phenomena - 741 Light, Optics and Optical Devices
DOI:10.3788/HPLPB20102207.1511
Database:Compendex

<RECORD 225>

Accession number:20103513195106Title:A Web performance testing framework and its mixed performance modeling process
Authors:Ming, Zhong (1); Yin, Jianfei (1); Yang, Wei (1); Wang, Hui (1); Xiao, Zhijiao (1)
Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, Guangdong 518060, China
Corresponding author:Ming, Z.

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Abstract:Methods of pure performance testing or single analytical modeling, such as queueing network model, etc, have their limitation on the accuracy of performance indexes measurement, the validity of performance forecasting, and the controlling of testing iteration due to the complexity of Web systems. A Web performance modeling framework supporting mixed performance modeling is proposed. It uses different performance modeling methods for different kinds of performance indexes to derive closed form functions and their hypothesis of measurement. The regression analysis and testing are used on the training data to estimate the parameters of the closed form functions. To demonstrate the feasibility and validity of this framework, a real-world Web community system (igroot.com) is studied under the framework. For the indexes of system response time and scalability, a mixed modeling method is proposed by combining queueing network reduction and extended universal scalability model US-γ. Compared with other practical system performance testing methods, such as universal scalability model US, the model accuracy of performance forecasting is greatly improved and the cost of software and hardware used in the process is greatly reduced. The error rate of estimated response time is within 4 percent, the error rate of estimated throughout saturation point is within 1 percent, and the error rate of estimated infimum of buckle point is within 5 percent. Correlating the scalability model and threads data of the Web server, an HTTP processing bottleneck at the architecture level is identified.

Number of references:14
Main heading:Queueing networks
Controlled terms:Distributed computer systems - Metal analysis - Queueing theory - Regression analysis - Response time (computer systems) - Scalability - Statistics - World Wide Web
Uncontrolled terms:Analysis and testing - Analytical modeling - Closed form - Error rate - Model accuracy - Modeling method - Network reduction - Performance forecasting - Performance indices - Performance Modeling   - Performance testing - Practical systems - Queueing network model - Real-world - Response time - Saturation point - System response time - Training data - Web community - Web performance   - Web servers - Web system
Classification code:922.2 Mathematical Statistics - 922.1 Probability Theory - 801 Chemistry - 723 Computer Software, Data Handling and Applications - 961 Systems Science - 722.4 Digital Computers and Systems - 717 Optical Communication - 716 Telecommunication; Radar, Radio

and Television - 531 Metallurgy and Metallography - 718 Telephone Systems and Related Technologies; Line Communications

<RECORD 226>

Title:A whole course food tracing system based on three dimensional code

Authors:Liang, Zheng-Ping (1); Ji, Zhen (1); Lin, Jia-Li (1); Liu, Ye (1); Mou, Kai (3)
Author affiliation:(1) Shenzhen City Key Laboratory of Embedded System Design, College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China; (2) State Key Laboratory of Software Engineering, Wuhan University, Wuhan 430072, China; (3) Shenzhen UNIRIHO Co Ltd, Shenzhen 518000, China
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Abstract:A whole course food tracing system based on modern information technology can be effective to guarantee the food safety. Analyzing each phrase of the food supply chain, we proposed a EAN&middotUCC compliant three-dimensional code strategy, which was used to identify the key control points in the processes of food production and circulation. An information system based on the new strategy and techniques used in Internet of things, e.g., radio frequency identification (RFID) was to support the whole course tracing of the food supply chain. The real-world applications indicate that the system is capable of facilitating the monitoring and management of the food safety "from farm to fork".

Number of references:10
Main heading:Monitoring
Controlled terms:Agriculture - Food supply - Health - Internet - Radio frequency identification (RFID) - Safety engineering - Security of data - Signal encoding - Software engineering - Supply chain management   - Supply chains - Three dimensional

Uncontrolled terms:Coding system - Food production - Food safety - Food tracing system - Internet of things - Key control - Monitoring and management - New strategy - Real-world application - System-based   - Techniques used - Three dimensional code

Classification code:944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 913 Production Planning and Control; Manufacturing - 914 Safety Engineering - 914.3 Industrial Hygiene - 941 Acoustical and Optical Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 943 Mechanical and Miscellaneous Measuring Instruments - 912 Industrial Engineering and Management - 723 Computer Software, Data Handling and Applications - 718 Telephone Systems and Related Technologies; Line Communications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television - 404.2 Civil Defense - 821 Agricultural Equipment and Methods; Vegetation and Pest Control

<RECORD 227>

Title:Photoelectrochemical etching of uniform macropore array on full 5-inch silicon wafers

Authors:Zhao, Zhigang (1); Guo, Jinchuan (1); Lei, Yaohu (1); Niu, Hanben (1)

Author affiliation:(1) Institute of Optoelectronics Engineering, Shenzhen University, Shenzhen 518060, China; (2) Institute of Optoelectronics Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, China

Corresponding author:Niu, H.
        (hbniu@szu.edu.cn)

Abstract:We analyze the two main factors causing non-uniformity of the etched macropore array first, and then a novel photoelectrochemical etching setup for large area silicon wafers is described. This etching setup refined typical etching setups by a water cooling system and a shower-head shaped electrolyte circulator. Experimental results showed that the uniform macropore array on full 5-inch n-type silicon wafers could be fabricated by this etching setup. The morphology of the macropore array can be controlled by adjusting the corresponding etching parameters. © 2010 Chinese Institute of Electronics.

Number of references:19

Main heading:Silicon wafers

Controlled terms:Etching - Semiconducting silicon - Semiconducting silicon compounds

Uncontrolled terms:Etching parameters - Large area - Macropore array - Macropore arrays - N type silicon - Non-uniformity - Photo-electrochemical etching

Classification code:531 Metallurgy and Metallography - 712.1.1 Single Element Semiconducting Materials - 712.1.2 Compound Semiconducting Materials

DOI:10.1088/1674-4926/31/7/076001

Database:Compendex

<RECORD 228>

Title:A new method of detecting interferogram in differential phase-contrast imaging system based on special structured x-ray scintillator screen

Authors:Liu, Xin (1); Guo, Jin-Chuan (1); Niu, Han-Ben (1)

Author affiliation:(1) College of Optoelectronic Engineering, Shenzhen University, Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education, Shenzhen 518060, China

Corresponding author:Guo, J.-C.
        (jcguo@szu.edu.cn)

Abstract:An x-ray scintillator screen with a special structure, functioning as detector and analyser grating, was proposed for collecting the interferogram of differential phase contrast imaging without absorption grating and difficulty of fabrication by a state of the art technique. On the basis of phase grating diffraction, a detecting model of the scintillator screen was built for analysing the phase and absorption information of objects. According to the analysis, a new method of phase retrievals based on two-images and the optimal structure of screen were presented. © 2010 Chinese Physical Society and IOP Publishing Ltd.

Number of references:20

Main heading:Fluorescent screens

Controlled terms:Absorption - Interferometry - Scintillation - Structural optimization - X rays

Uncontrolled terms:Differential phase - Differential phase contrast - Interferograms - Optimal structures - Phase grating - Phase retrieval - Special structure - State of the art - System-based -

X-ray scintillator screen

<RECORD 229>

Title:Circuit experiments of multiple synchronization states in discrete hyperchaotic systems

Authors:Zhang, Xiao-Ming (1); Wang, He (1); Peng, Jian-Hua (1)
Author affiliation:(1) College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Peng, J.-H.
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Abstract:Experiments on synchronization of two hyperchaotic discrete circuit systems are presented. These two systems are uniaxially coupled with the active-passive synchronization scheme. The state variables of the coupled circuits can achieve different kinds of synchronizations, such as complete synchronization, generalized synchronization, complete anti-synchronization and generalized anti-synchronization. The analytical conditions for different synchronous states are obtained. The experimental results are consistent with the theoretical computation and numerical simulations.

<RECORD 230>

Authors:Yin, Jun (1); Yu, Lingyao (1); Qu, Junle (1); Niu, Hanben (1); Lin, Ziyang (1)
Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, Guangdong 518060, China; (2) College of Optoelectronic Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei 430074, China
Corresponding author:Yin, J.
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Abstract:The mixing process of three narrow line-width laser beams with different wavelengths in the sample is analyzed with semi-classical theory and a set of coupling-wave equations for describing the generation process of coherent anti-Stokes Raman Scattering (CARS) signals is derived. Based on the derived CARS coupling-wave equations and the principle of the time-resolved method, a set of coupling-wave equations for describing the time-resolved CARS (T-CARS) method is obtained. The variation of CARS signals and non-resonant background noise with incident laser beams in the T-CARS method and the decaying process of molecular vibrations have been investigated by numerical simulation. The decaying time of molecular vibrations can be used to distinguish different molecules with similar components and structure, and monitor the change of microenvironment. Theoretical study of T-CARS method using narrow line-width laser source shows that whole Raman spectra of biomolecules can be obtained by using wide-spectrum laser source.
Number of references:20

<RECORD 231>

Title:Self-repairing behaviours of unsaturated polyester/microcapsule composites

Authors:Ni, Zhuo (1); Zhang, Ping (1); Lin, Yan-Ling (1); Wang, Shuai (1); Li, Wei-Wen (2); Huang, Zhong-Wei (2)

Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China; (2) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Ni, Z.
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Abstract:In-Situ polymerization was employed to prepared microcapsules using bisphenol A epoxy resin as core and urea-formaldehyde resins (UF) as wall. The specimen of polyester/microcapsule composites contain different amount of microcapsule. Experiments were done by using electronic tensile machine, measuring tensile properties, scanning electron

microscope to observe section topography, strain-point bending tester to initiate cracks in the material, and optical microscopy to observe self-repairing process for the cracks. Results show that these microcapsules have a toughening and self-healing effect on the polymer. The self-healing mechanism is that the cracks go through the microcapsules and cause them to break, the core liquid flows out to fill the crack and bonds the cracked surface. The design of self-healing materials and their engineering application is a promising field which could improve material life and safety of the works significantly.

Number of references:12

Main heading:Cracks

Controlled terms:Encapsulation - Epoxy resins - Fracture - Materials - Morphology - Optical microscopy - Phenols - Resins - Scanning electron microscopy - Urea - Urea formaldehyde resins

Uncontrolled terms:Composite - Fracture morphology - Materials physics and chemistry - Microcapsules - Self-healing materials - Unsaturated polyester

Classification code:421 Strength of Building Materials; Mechanical Properties - 741.1 Light/Optics - 804.1 Organic Compounds - 813.2 Coating Materials - 815.1.1 Organic Polymers - 951 Materials Science

Database:Compendex

<RECORD 232>

Title:Thermotropic liquid crystals of 1, 2-dimethyl-3-hexadecylimidazolium hexafluorophosphate

Authors:Li, Cui-Hua (1); Qian, Lian-An (1); Chen, Jia-Hui (1); Zhou, Yan-Feng (1); Yu, Zhen-Qiang (1)

Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Li, C.-H.
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Abstract:A new imidazolium-type ionic liquid(IL)1, a 2-dimethyl-3-hexadecylimidazolium hexafluorophosphate, lacking acidic proton at the C-2 imidazolium ring position, was synthesized, and its thermotropic liquid crystalline phase behavior was studied. The structure of liquid crystal and self-assembly process of the IL molecules were also studied. The insoluble IL exhibits bidirectional thermotropic liquid crystalline on heating and cooling. There exists phase transitions, namely, solid-solid, solid-mesophase, mesophase-isotropic phase. The layer spacing and the full widths at half-maximum from X-ray diffraction(XRD)patterns display temperature dependence.
Number of references:6
Main heading:Thermotropic liquid crystals
Controlled terms:Assembly - Crystal structure - Crystalline materials - Ionic liquids - Liquid crystals - Phase transitions - Self assembly - X ray diffraction
Uncontrolled terms:Acidic proton - Hexafluorophosphates - Imidazolium - Imidazolium ring - Isotropic phase - Layer spacings - Liquid crystalline phase - Liquid-crystalline - Mesophases - Self assembly process - Solid-solid - Structure of liquids - Temperature dependence - Thermotropic liquid crystalline
Classification code:951 Materials Science - 933.1 Crystalline Solids - 931.3 Atomic and Molecular Physics - 913.1 Production Engineering - 804 Chemical Products Generally - 801.4 Physical Chemistry - 801 Chemistry
Database:Compendex

<RECORD 233>

Accession number:20103613222219Title:Calculation of storage lengths for left-turn lanes with protected phases
Authors:Wang, Jingyuan (1); Wang, Wei (2)
Author affiliation:(1) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China; (2) School of Transportation, Southeast University, Nanjing 210096, China
Corresponding author:Wang, J.
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Abstract:Storage lengths of left-turn lane for signalized intersection approach with protected phase and only one left-turn lane were studied using queuing theory and probability theory. The storage length of this study focused on meeting the requirements of left-turn vehicles queuing. The main variables are left-turn volumes, cycle lengths and left-turn green time. A theoretical modal for calculating storage lengths for single left-turn lane with protected phase was established based on M/M/1 queuing system. The applicable and practical conditions are discussed. The variations of storage length with degree of saturation and left-turn volumes are analyzed. On this basis, the thresholds of queue length and degree of saturation etc. are proposed with overall consideration of geometric conditions, service quality and economic performance. It is indicated that the number of queuing vehicles can not be more than 20, and the practical saturation interval is [0, 0.8] for a 95% probability. Methods of determining values for three key parameters are discussed. They are the confidence probability, the design traffic volume and the queuing headway. Calculations and analyses were done for general conditions. Two sets of concepts are proposed in order to facilitate engineering application, which include limit traffic volume and limit queue length, critical traffic volume and critical queue length. The results are charted and the processes of determining the storage length are developed applying these charts. This study presents calculation guidelines for single left-turn lane with protected phase at signalized intersections approach, and can also be used to calculate the lengths of through and right-turn lane and queue after a little modification.
Number of references:15
Main heading:Queueing theory
Controlled terms:Probability - Supersaturation - Traffic signals
Uncontrolled terms:Confidence probability - Critical traffic - Cycle length - Degree of saturations - Economic performance - Engineering applications - Geometric conditions - Key parameters - Left-turn lane - Probability theory - Protected phase - Queue lengths - Queuing systems - Queuing theory - Service Quality - Signalized intersection - Storage length - Traffic volumes
Classification code:406 Highway Engineering - 801.4 Physical Chemistry - 922.1 Probability Theory
DOI:10.3969/j.issn.1001-0505.2010.04.036
Database:Compendex

<RECORD 234>

Accession number:20103413174891Title:Numerical simulation and software implementation of erbium-doped fiber source
Authors:Zhang, Li (1); Liu, Cheng-Xiang (2); Ye, Wei-Wei (3)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen 518060, China; (2) Key Laboratory of Laser Engineering, College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (3) Department of Mathematics and Physics, Xi'an Technological University, Xi'an 710032, China
Corresponding author:Liu, C.-X.
(chxliu@szu.edu.cn)

Abstract:Based on the energy level of erbium ions in the glass matrix, we analyzed the work mechanism of erbium-doped fiber super-fluorescent light source. The physical model of light source was set up, which was described by propagation equations of pump light and signal light along the erbium-fiber. By dividing the fluorescence spectra into 10 wavelengths, the issue was solving the boundary value problem of 21-dimensional ordinary differential equations. We translated the boundary value problems into an initial value problem using shooting method. The equations were solved using Runge-Kutta method. We wrote a program to implement the algorithms using Visual C++. The numerical simulation and software can provide directions for researching on erbium-doped fiber amplifiers and lasers.

Number of references:7
Main heading:Ordinary differential equations
Controlled terms:Computer simulation - Computer software - Erbium - Fiber amplifiers - Fibers - Fluorescence - Initial value problems - Light - Light sources - Optical instruments - Runge Kutta methods
Uncontrolled terms:Energy level - Erbium doped fibers - Erbium ion - Fluorescence spectra - Fluorescent light sources - Glass matrices - Numerical simulation - Optical technology - Physical model - Propagation equations - Pump light - Shooting methods - Signal light - Software implementation - VISUAL C++ - Work mechanism
Classification code:921.2 Calculus - 817 Plastics and Other Polymers: Products and Applications - 812 Ceramics, Refractories and Glass - 921.6 Numerical Methods - 741 Light, Optics and Optical Devices - 723 Computer Software, Data Handling and Applications - 547.2 Rare Earth Metals - 723.5 Computer Applications
Database:Compendex

<RECORD 235>

Accession number:20103413174885Title:Study on real-time reinforcement stress measurement based on Brillouin optical time domain analysis
Authors:He, Yong (1); Xing, Feng (2); Mao, Jiang-Hong (1); Jin, Wei-Liang (1)

Author affiliation:(1) Institute of Structural Engineering, Zhejiang University, Hangzhou 310058, China; (2) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Jin, W.-L.

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Abstract:A new method to monitor reinforcement stress is proposed. The distributed optical fiber can be rapidly laid into the concrete. The new method is feasible to evaluate structure performance because it can carry out stable, long-term, real-time reinforcement stress measurement. The measurement of the stress of reinforced bar can give more correct assessment of the durability of concrete structures. In order to increase the spatial resolution, the coil method of fiber felt is developed. The influence of radius of curvature of fiber is studied. The measurements of strain-gage transducer and the optical fiber are compared through tests of a beam. The results show the proposed method is feasible and valid.

Number of references:13
Main heading:Time domain analysis
Controlled terms:Concrete buildings - Corrosion - Durability - Fiber optic sensors - Fiber optics - Fiber reinforced materials - Fibers - Instruments - Mechanics - Monitoring - Optical fibers - Reinforced concrete - Reinforcement - Sensors - Stress measurement - Structural health monitoring
Uncontrolled terms:Brillouin optical time domain analysis - Distributed optical fiber - Distributed optical fiber sensors - Durability of concrete structure - Fiber felts - Mechanics of materials - Radius of curvature - Spatial resolution - Structure performance
Classification code:951 Materials Science - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 921 Mathematics - 931.1 Mechanics - 941 Acoustical and Optical Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 943 Mechanical and Miscellaneous Measuring Instruments - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 811 Cellulose, Paper and Wood Products - 412 Concrete - 415 Metals, Plastics, Wood and Other Structural Materials - 421 Strength of Building Materials; Mechanical Properties - 801 Chemistry - 422 Strength of Building Materials; Test Equipment and Methods - 539.1 Metals Corrosion - 741.1.2 Fiber Optics - 531 Metallurgy

and Metallography

Database:Compendex

<RECORD 236>

Title:High magnetostriction at low fields of $(Tb_{1-x}Dy_x)_{0.2}Pr_{0.8}(Fe_{0.4}Co_{0.6})_{1.88}C_{0.05}$ intermetallic compounds

Authors:Gu, Z.F. (1); Jiang, M.H. (1); Huang, Z.F. (1); Cheng, G. (1); Li, J.Q. (2); Han, Q.Y. (1)
Author affiliation:(1) Department for Information Materials Science and Engineering, Guilin University of Electronic Technology, Guilin, Guangxi 541004, China; (2) Department of Materials Science and Engineering, Shenzhen University, Shenzhen, Guangdong 518060, China
Corresponding author:Jiang, M.H.
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Abstract:The structure and magnetostriction of the $(Tb_{1-x}Dy_x)_{0.2}Pr_{0.8}(Fe_{0.4}Co_{0.6})_{1.88}C_{0.05}$ intermetallic compounds ($0 \le x \le 1$) were studied by X-ray diffraction and magnetic measurements. The formation of an approximate single Laves phase with a MgCu2-type cubic structure was observed in this series of compounds. It was found that the Curie temperature and the saturation magnetization of the compounds would decrease with increase in the Dy content up to x=1. The magnetostriction λ_a ($\lambda_a = \lambda_{\text{norm of matrix}} - \lambda_{\perp}$) gently rises when $x \le 0.6$, and follows with a precipitous fall when x exceeds 0.6, with the highest value of λ_a being reached in the compounds with x=0.6. The magnetostriction of all the samples was observed to approach their own saturation in the magnetic fields higher than 4 kOe. This indicates that the addition of a small amount of Dy could effectively improve the low-field magnetostriction of the $Tb_{0.2}Pr_{0.8}(Fe_{0.4}Co_{0.6})_{1.88}C_{0.05}$ compounds, which could become a kind of promising magnetostrictive material. © 2010 Elsevier B.V. All rights reserved.

<RECORD 237>

Title:Multi-wavelength fiber source with equal frequency spacing
Authors:Zhang, X.L. (1); Zhou, K.J. (2); Ngo, N.Q. (3); Tan, T.H. (3); Poon, W.C. (3)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) Department of Electronic Engineering, Zhejiang University, Hangzhou 310027, China; (3) School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore 639798, Singapore
Corresponding author:Zhang, X. L.
Abstract:A optical filter based on Sagnac interferometer was proposed to be acted as a comb filter with equal frequency spacing and good signal to noise ratio (SNR), which was composed of an 8.14 m stress-induced Hi-Bi (high-birefringence) PM (polarization-maintaining) fiber. Using this multi-wavelength Sagnac comb filter and a gain flattening Sagnac filter that made the output spectra flattening at different pump powers, a 25-channel multi-wavelength all-fiber source were successfully generated with channel spacing of 0.8 nm with respect to the center wavelength at

1550 nm and flattened gain about ±1 dB peak deviation. The channel spacing can be further reduced to 0.4 nm to produce a DWDM (dense wavelength division multiplexing) source, simply by increasing the Hi-Bi fiber to be 16.28 m. It can be used in many applications such as WDM (wavelength division multiplexing), optical amplifiers with a high SNR, narrow band filters and optical sensors. © 2010 Pleiades Publishing, Ltd.

Number of references:18

Main heading:Wavelength

Controlled terms:Birefringence - Dense wavelength division multiplexing - Electric filters - Fiber amplifiers - Fiber optics - Fibers - Light amplifiers - Multiplexing - Multiplexing equipment - Optical filters   - Signal to noise ratio

Uncontrolled terms:1550 nm - All fiber - Center wavelength - Channel spacings - Comb filter - Fiber sources - Frequency spacing - Gain flattening - High birefringence - High SNR   - Multiwavelength - Narrow band filter - Optical amplifier - Polarization maintaining - Pump power - Sagnac filter - Sagnac interferometer - Stress-induced

Classification code:817 Plastics and Other Polymers: Products and Applications - 812 Ceramics, Refractories and Glass - 741 Light, Optics and Optical Devices - 718 Telephone Systems and Related Technologies; Line Communications - 717.2 Optical Communication Equipment - 717 Optical Communication - 716.1 Information Theory and Signal Processing - 716 Telecommunication; Radar, Radio and Television - 703.2 Electric Filters

<RECORD 238>

Title:Optical matrix computing of rearrangeable optical interconnection network in free space

Authors:Yang, Junbo (1); Li, Xiujian (1); Yang, Jiankun (1); Liu, Ju (1); Su, Xianyu (2); Xu, Ping (3)

Author affiliation:(1) Tech-Physical Research Center, National University of Defense Technology, Changsha, Hunan 410073, China; (2) Department of Optoelectronics, Sichuan University, Chengdu, Sichuan 610064, China; (3) College of Electronic Science and Technology, Shenzhen University, Shenzhen, Guangdong 518060, China

Corresponding author:Yang, J.
        (yangjunbo008@sohu.com)

Abstract:Based on the link rule and the function principle of the banyan network, its corresponding processing matrix has been achieved to denote and illustrate the relative signal operating and controlling. In other words, the matrix computing is employed to replace the complicated control process of optical network. Furthermore, extend the results of the two-dimensional banyan network to three-dimensional space in terms of the relative mapping rule of banyan network, the performing matrix has also been attained to solve some problems such as node controlling, signal routing, etc. The simple truth is that the ability to replace the complex process of optical interconnection network using the matrix computing opens the door to a host of new and exciting opportunities including signal routing and node switch controlling. The results indicate that this method may be useful for optical switching applications, optical computing, and optical information processing.

Number of references:22

Main heading:Matrix algebra

Controlled terms:Interconnection networks - Optical communication - Optical data processing - Optical interconnects - Process control

Uncontrolled terms:Banyan networks - Complex Processes - Control process - Crossover network - Free space - Mapping rules - matrix - Optical computing - Optical information processing - Optical interconnection network - Optical matrix - Optical networks - Optical switching applications - Signal routing - Three dimensional space

Classification code:913.3 Quality Assurance and Control - 741.3 Optical Devices and Systems - 731 Automatic Control Principles and Applications - 921.1 Algebra - 723.2 Data Processing and Image Processing - 717.1 Optical Communication Systems - 703.1 Electric Networks - 721 Computer Circuits and Logic Elements

DOI:10.3788/CJL20103707.1762

Database:Compendex

<RECORD 239>

Title:A broadband ultra-low loss all-solid photonic bandgap fiber

Authors:Wei, Huifeng (1); Yan, Pei-Guang (2); Chen, Su (1); Tong, Weijun (1); Luo, Jie (1); Ruan, Shuang-Chen (2)

Author affiliation:(1) R and D Center, Yangtze Optical Fiber and Cable Co., LTD., Guanshan Er road, Hongshan, Wuhan, 430073, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen University, Shenzhen, 518060, China

Corresponding author:Wei, H.

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Source title:2010 Conference on Optical Fiber Communication, Collocated National Fiber Optic

Engineers Conference, OFC/NFOEC 2010

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Monograph title:2010 Conference on Optical Fiber Communication, Collocated National Fiber Optic Engineers Conference, OFC/NFOEC 2010

Issue date:2010

Publication year:2010

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Language:English

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Conference location:San Diego, CA, United states

Conference code:80740

Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:We describe the fabrication and characteristic of an all-solid photonic bandgap fiber with loss as low as 0.41dB/km at 1550nm within the first-order bandgap. The control of bandgaps, dispersion and bend characteristic has been investigated. © 2010 Optical Society of America.

Number of references:7

Main heading:Photonic bandgap fibers

Controlled terms:Energy gap - Engineers - Fiber optic components - Fibers - Optical communication - Optical fiber fabrication - Optical fibers - Spontaneous emission

Uncontrolled terms:1550 nm - All-solid photonic bandgap fiber - Band gaps - First-order - Low loss

Classification code:951 Materials Science - 931.3 Atomic and Molecular Physics - 912.4 Personnel - 901.1 Engineering Professional Aspects - 819.4 Fiber Products - 817 Plastics and Other Polymers: Products and Applications - 812.3 Glass - 812 Ceramics, Refractories and Glass - 741.3 Optical Devices and Systems - 741.1.2 Fiber Optics - 717.1 Optical Communication Systems - 712.1 Semiconducting Materials - 711 Electromagnetic Waves

Database:Compendex

<RECORD 240>

Accession number:20103413174892Title:Parallel proximal support vector machine and its application in intrusion detection

Authors:Ming, Zhong (1); Lin, Chao-Zhe (1); Cai, Shu-Bin (1)

Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Ming, Z.

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Abstract:A novel training method based on parallel proximal support vector machine (PSVM) classification algorithm was proposed. The efficient PSVM and the cascade SVM architecture were used to reduce the time of training through the equivalence between the Ε-support vectors and the original dataset. In addition, a new incremental learning method based on PSVM was used to make the update of the classifier easier. The experiments on the KDD CUP 1999 dataset demonstrate that the training time of our methods is 20% less than that of the other SVM methods under the condition of ensuring low false positive rate and high detection rate. it can update the classifier effectively by learning the characteristics of new dataset incrementally.
Number of references:16
Main heading:Intrusion detection
Controlled terms:Classifiers - Data mining - Support vector machines - Vectors
Uncontrolled terms:Cascade SVM - Classification algorithm - Data sets - False positive rates - High detection rate - Incremental learning - Proximal support vector machines - Support vector - Training methods - Training time
Classification code:723 Computer Software, Data Handling and Applications - 802.1 Chemical Plants and Equipment - 921.1 Algebra
Database:Compendex

<RECORD 241>

Title:Influence of hydrothermal temperature on the hydroxyapatite/chitosan bio-coatings on carbon/carbon composites
Authors:Li, Ying-Hua (1); Huang, Jian-Feng (1); Cao, Li-Yun (1); Zeng, Xie-Rong (2)
Author affiliation:(1) Key Lab. of Auxiliary Chemistry and Technol. for Chemical Industry of Ministry of Education, Shaanxi Univ. of Sci. and Technol., Xi'an 710021, China; (2) Key Lab. of Special Functional Materials, Shenzhen Univ., Shenzhen 518060, China
Corresponding author:Huang, J.-F.
        (huangjf@sust.edu.cn)

Abstract:Hydroxyapatite/Chitosan (HAp/CS) bio-coatings were prepared by a novel hydrothermal electrophoretic deposition on CS modified carbon/carbon (C/C) composites in isopropyl alcohol, using sonochemical process resulted HAp nanoparticles as raw material. The influences of hydrothermal temperature on the phase, microstructures and the deposition kinetics of the coatings were investigated. The HAp/CS coatings were characterized by X-ray diffraction (XRD), transmission election microscopy (TEM), Fourier transform infrared (FTIR) spectrum and scanning electron microscope (SEM) analyses. Results showed that with the increase of hydrothermal temperature, the porous structure of the coatings changed from loose combination to close combination, and the cohesive force was enhanced. Kinetics investigations showed that the deposition rate also increased with the increase of hydrothermal temperature. The deposition activation energy of HAp/CS coatings by the hydrothermal electrophoresis deposition process was calculated to be 43.58 kJ/mol.

Number of references:13

Main heading:Deposition

Controlled terms:Activation energy - Apatite - Carbon carbon composites - Chitin - Chitosan - Electrophoresis - Electrophoretic coatings - Fourier transforms - Hydroxyapatite - Infrared spectroscopy - Scanning electron microscopy - Wavelet transforms - X ray diffraction - X ray diffraction analysis - X ray microscopes

Uncontrolled terms:Carbon/carbon - Cohesive force - Deposition kinetics - Electrophoresis deposition - Electrophoretic depositions - Fourier transform infrared spectrums - HAP nanoparticle - Hydrothermal temperature - Isopropyl alcohols - Porous structures - Scanning electron microscopes - Sonochemical process - TEM

Classification code:804.1 Organic Compounds - 804.2 Inorganic Compounds - 813.1 Coating Techniques - 813.2 Coating Materials - 802.3 Chemical Operations - 921.3 Mathematical Transformations - 931.3 Atomic and Molecular Physics - 933.1.1 Crystal Lattice - 941.4 Optical Variables Measurements - 931.2 Physical Properties of Gases, Liquids and Solids - 801.4.1 Electrochemistry - 461.2 Biological Materials and Tissue Engineering - 482.2 Minerals - 539.3 Metal Plating - 701.1 Electricity: Basic Concepts and Phenomena - 415.4 Structural Materials Other Than Metal, Plastics or Wood - 741.1 Light/Optics - 801 Chemistry - 801.3 Colloid

Chemistry - 801.4 Physical Chemistry - 741.3 Optical Devices and Systems

<RECORD 242>

Title:Laser diode pumped actively Q-switched Nd:GdVO$_4$ self-Raman laser operating at 1173 nm

Authors:Wang, Zhichao (1); Du, Chenlin (1); Ruan, Shuangchen (1); Zhang, Li (1)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, 518060, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen, 518060, China
Corresponding author:Du, C.
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Abstract:A laser diode pumped actively Q-switched Nd:GdVO$_4$ self-Raman laser operating at 1173 nm is presented. The maximum output power was 2.26 W at an incident pump power of 18 W, with the corresponding optical conversion efficiency of 12.6%. Two different resonator configurations were investigated in order to achieve high output power and efficiency. © 2009.

Number of references:9
Main heading:Q switching
Controlled terms:Conversion efficiency - Neodymium - Pumping (laser)
Uncontrolled terms:Actively Q-switched - High output power - Incident pump power - Laser-diode-pumped - Maximum output power - Nd:GdVO - Nd:GdVO$_4$ crystal - Optical conversion efficiency - Resonator configuration - Self-Raman laser
Classification code:525.5 Energy Conversion Issues - 547.2 Rare Earth Metals - 744.1 Lasers, General - 744.8 Laser Beam Interactions
DOI:10.1016/j.optlastec.2009.11.014

<RECORD 243>

Authors:Pan, Minqiang (1); Zeng, Dehuai (1); Liu, Xiaoqing (1); Tang, Yong (1)
Author affiliation:(1) School of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou 510640, China; (2) School of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Pan, M.
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Abstract:Based on the principle of spinning process of micro grooves inside the circular micro heat pipe, the effects of relative position of balls and tool on the formation of micro grooves were investigated in this work. Experimental results showed that the relative position of balls and tool and ball equivalent diameter generally determined the pattern of grooves, including groove width and depth. Micro grooves could be produced when suitable value of D was chosen and the rake face of tool was near to the center of balls. In the experiment, the largest aspect ratio of micro grooves were achieved with the conditions of D= 5.56mm, d=-3.293mm and v=5.08mm/s. And the structural parameters were w=135μm, h=154μm and k=1.141.
Number of references:5
Main heading:Aspect ratio
Controlled terms:Capillary flow - Heat pipes - Machining - Pressure drop - Spheres
Uncontrolled terms:Axial micro groove - Equivalent diameter - Groove width - Micro grooves - Micro heat pipe - Rake face - Relative positions - Spinning process - Structural parameter
Classification code:931.1 Mechanics - 641.2 Heat Transfer - 631.1 Fluid Flow, General - 943

Mechanical and Miscellaneous Measuring Instruments - 631 Fluid Flow - 616.1 Heat Exchange Equipment and Components - 604.2 Machining Operations - 619.1 Pipe, Piping and Pipelines

<RECORD 244>

Title:A novel model for evaluating optimal parameters of security and quality of service
Authors:Chen, Jianyong (1); Hu, Cunying (1); Zeng, Huawang (1)
Author affiliation:(1) Department of Computer Science and Technology, Shenzhen University, 518060, China
Corresponding author:Chen, J.
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Abstract:With the development of computer network, both quality of service (QoS) and security of service are more and more concerned by customers. However, QoS may descend evidently by the deployment of security, because security mechanisms always induce extra resource consumption. In order to meet the requirement of real-time and secure multimedia applications, this paper proposes a novel model, named evaluation model with an adaptive immune algorithm to get optimal parameters of security and QoS. Simulations show that the proposed model is effective to achieve optimal balance between the security and the QoS. © 2010 ACADEMY PUBLISHER.
Number of references:17
Main heading:Mathematical models
Controlled terms:Adaptive algorithms - Computer simulation - Optimization - Quality control - Quality of service
Uncontrolled terms:Evaluation models - Immune Algorithm - Multimedia applications - Optimal balance - Optimal parameter - Resource consumption - Security assurance - Security mechanism
Classification code:921 Mathematics - 913.3 Quality Assurance and Control - 723.5 Computer Applications - 921.5 Optimization Techniques - 723 Computer Software, Data Handling and Applications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and

Television - 718 Telephone Systems and Related Technologies; Line Communications

<RECORD 245>

Title:Comprehensive evaluation of power quality considering customer demands

Authors:He, Yuqing (1); Peng, Jianchun (2); Mao, Lilin (1); Yao, Huan (1); Wen, Ming (1)
Author affiliation:(1) Hunan University, Changsha 410082, China; (2) Shenzhen University, Shenzhen 518060, China
Corresponding author:He, Y.
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Abstract:From the perspective of customers'different demands, a novel comprehensive power quality evaluating method is presented. First, the incomplete linguistic evaluation information is used to describe the emphasis and subjective evaluation of different technical power quality indices by different customers. And then, the linguistic evaluation information is considered as evidence to determine the customers'subjective evaluation of all observation points. Finally, all customers' subjective evaluation information is synthesized to grade the power quality of all observation points. In the synthesized processing procedure, the conflict degree exponent is defined to describe the conflict between customers, and the weights of different customers are determined based on conflict degree exponents. The proposed method not only considers different customer demands, but also embodies the evaluation opinion of most customers. The effectiveness of the proposed method is validated by case study. © 2010 State Grid Electric Power Research Institute Press.

<RECORD 246>

Title:Size transition of spiral waves using the pulse array method
Authors:Ling-Ling, Xie (1); Ji-Hua, Gao (1)
Author affiliation:(1) Shenzhen Key Laboratory of Special Functional Materials, College of Materials, Shenzhen University, Shenzhen 518060, China
Corresponding author:Ji-Hua, G.
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Abstract:The domain size of spiral waves is an important issue in studies of two-dimensional (2D) spatiotemporal patterns. In this work, we use the 2D complex Ginzburg-Landau equation (CGLE) as our model and find that an initially big spiral can successfully transfer to several small spirals by applying a pulse array method. The impacts of several important factors, such as array density, controlling intensity and pulsing time, are investigated. This control approach may be useful for the control of 2D spatiotemporal patterns and has potential applications in the control of some realistic systems, such as meteorological and cardiac systems. © 2010 Chinese Physical Society and IOP Publishing Ltd.

<RECORD 247>

Title:Energy estimation on crn process of fly ash as a slow-release nitrogen fertilizer

Authors:Qiu, Qi (1); Hlavacek, V. (2)
Author affiliation:(1) Shenzhen University, China; (2) State University of New York, Buffalo, United States
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Abstract:Through carbothermal reduction and nitridation (CRN) reaction, nitrogen could be fixed into fly ash up to 28 wt %. Nitrided fly ash has the potential to be a source of slow release nitrogen fertilizer. To further investigate this potential, the energy consumptions were estimated for the nitridation process of fly ash. Reactors such as parallel rotary furnaces were simulated for the heat loss of radiation and convection. Material balance was carried out to determine the dimension of the rotary furnaces. Subsequently, on the basis of the dimension of the rotary furnace, the energy balance was performed from the reaction engineering aspects of the nitridation reaction of fly ash. Ultimately, the total energy was transformed into per unit nitrogen and compared with the energy consumption of the Haber-Bosch process for ammonia synthesis. The energy balance calculation suggested that there is great potential for nitrided fly ash to be slow release nitrogen fertilizer. © 2010 American Chemical Society.

Number of references:23
Main heading:Nitrogen fertilizers
Controlled terms:Carbothermal reduction - Electric furnaces - Energy balance - Energy utilization - Fly ash - Furnaces - Nitridation - Nitrogen - Synthesis (chemical)
Uncontrolled terms:Ammonia synthesis - Energy balance calculations - Energy consumption - Energy estimation - Haber-Bosch process - Material balance - Nitridation Process - Nitridation reaction - Per unit - Radiation and convection - Reaction engineering - Rotary furnace - Slow release - Total energy
Classification code:931 Classical Physics; Quantum Theory; Relativity - 821.2 Agricultural

Chemicals - 804 Chemical Products Generally - 802.3 Chemical Operations - 802.2 Chemical Reactions - 704.2 Electric Equipment - 643.2 Space Heating Equipment and Components - 642.2 Industrial Furnaces and Components - 532.3 Electric Metallurgical Furnaces - 532 Metallurgical Furnaces - 525.3 Energy Utilization - 521.1 Fuel Combustion - 451.1 Air Pollution Sources

<RECORD 248>

Title:Novel WDM-based quasi-synchronous coherent time-spreading optical CDMA system
Authors:Ji, J. (1); Xiao, Zhengfeng (1); Luo, Zhao (1); Chen, Lin (1); Gong, Fangping (1)
Author affiliation:(1) Shenzhen University, Advanced Technology Research Center, Shenzhen 518060, China
Corresponding author:Ji, J.
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Abstract:Based on wavelength-division multiplexing (WDM) and optical code-division multiple access (OCDMA), we propose a novel WDM-based quasi-synchronous coherent time-spreading OCDMA system (WDM + QOCD-MA). In WDM + QOCDMA network, the synchronization among users using the same wavelength channel can be controlled within several chip-lengths, and beat noise (BN) and multiple access interference (MAI) can be eliminated. Simulation of four simultaneous users employing LA sequence (156, 8, 16) is demonstrated, where the fiber link consists of 10 km single-mode fiber, plus 1 km Dispersion Compensating Fiber. WDM + QOCDMA system can support sufficient number of active users for error-free transmission. Another advantage is that the near-far problem of WDM + OCDMA system can be eliminated, and complicated power control can be removed. Therefore, this scheme is a good candidate for optical access network.
Number of references:13
Main heading:Multiple access interference
Controlled terms:Code division multiple access - Dispersion compensation - Fiber optics -

Multiplexing equipment

Uncontrolled terms:Beat noise - Dispersion compensating fibers - Error free transmission - Fiber links - Near-far problem - Optical access networks - Optical CDMA - Optical code division multiple access - Quasi-synchronous - Time-spreading - Wavelength channels

Classification code:741.1.2 Fiber Optics - 741 Light, Optics and Optical Devices - 723 Computer Software, Data Handling and Applications - 722.3 Data Communication, Equipment and Techniques - 718 Telephone Systems and Related Technologies; Line Communications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television

<RECORD 249>

Title:Quantum decoherence in a hybrid atom-optical system of a one-dimensional coupled-resonator waveguide and an atom

Authors:Lu, Jing (1); Zhou, Lan (1); Fu, H.C. (2); Kuang, Le-Man (1)

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Abstract:Decoherence for a one-dimensional coupled-resonator waveguide with a two-level system inside one of the resonators, induced by their interaction with corresponding environments, is investigated. Each environment is modeled as a continuum of harmonic oscillators. By finding the eigenstates of the hybrid system, which is the dressed state of the hybrid system, we calculate the lifetime of one excitation, which characterizes the existence of quantum coherence in such hybrid systems and the basic quantum nature. © 2010 The American Physical Society.

Main heading:Quantum theory

Controlled terms:Electric grounding - Hybrid computers - Hybrid systems - Optical systems - Resonators - Waveguides

Uncontrolled terms:Decoherence - Dressed state - Eigenstates - Harmonic oscillators - Quantum coherence - Quantum decoherence - Quantum nature - Two-level system

Classification code:921 Mathematics - 752.1 Acoustic Devices - 741.3 Optical Devices and Systems - 722.5 Analog and Hybrid Computers - 931.4 Quantum Theory; Quantum Mechanics - 714.3 Waveguides - 706 Electric Transmission and Distribution - 704 Electric Components and Equipment - 701.1 Electricity: Basic Concepts and Phenomena - 714 Electronic Components and Tubes

DOI:10.1103/PhysRevA.81.062111

Database:Compendex

<RECORD 250>

Title:Cliffor manifold learning using neighbor graphs

Authors:Cao, Wenming (1); Li, Yanshan (1)

Author affiliation:(1) School of Information Engineering, Shenzhen University, Guangdong,518060, China

Corresponding author:Cao, W.

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Abstract:In the manifold learning problem one seeks to discover a smooth low dimensional surface, i.e., a manifold embedded in a higher dimensional linear vector space, based on a set of sample points on the surface. In this paper we consider the Clifford manifold theory for investigating the Multispectral image sample points. We introduced a geometric method to obtain asymptotically consistent estimates of Clifford manifold dimension. In this paper we present a simpler method based on the neighbor graph in the Clifford manifold. The algorithm is applied to standard synthetic Clifford manifolds as well as data sets consisting of Multispectral images. © 2010 IEEE.
Number of references:6
Main heading:Engineering education
Controlled terms:Computer science - Education computing - Vector spaces
Uncontrolled terms:ClIFFORD - Data sets - Geometric method - Higher-dimensional - Linear vector space - Low dimensional - Manifold learning - Manifold theory - Multispectral images - Neighbor graph   - Sample point
Classification code:721 Computer Circuits and Logic Elements - 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 901.2 Education - 921 Mathematics
DOI:10.1109/ETCS.2010.432
Database:Compendex

<RECORD 251>

Title:A forecast netting and consumption model for advanced planning and scheduling
Authors:Li, Sijie (1); Ma, Lijun (2)
Author affiliation:(1) Institute of Systems Engineering, Southeast University, Nanjing 210096, China; (2) Department of Management Science, Management School, Shenzhen University, Shenzhen, 518060, China
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Abstract:This paper features an advanced planning system (APS) in which the forecasts and customer demands are balanced to arrive at the netted forecast for the production system to produce purchase orders and production orders. The forecast process to collaborate the demand and the forecast is rarely considered in the planning and scheduling models. In this paper, a new decision support process for netting forecast is presented, which includes two processes to prepare the netted forecast for the weekly and daily production planning, respectively. The weekly forecast netting process does the netting for the weekly demand, and the daily forecast consumption process handles the daily demand. The proposed approaches are being applied in a practical application of APS system, which is implemented in Alcatel Shanghai Bell. ©2010 IEEE.
Number of references:14
Main heading:Supply chain management
Controlled terms:Decision support systems - Forecasting - Logistics - Planning - Production control - Purchasing - Scheduling - Supply chains
Uncontrolled terms:Advanced planning and scheduling - Advanced planning system - Alcatel - Customer demands - Daily production - Decision support process - Planning and scheduling - Production order - Production system - Purchase orders
Classification code:921 Mathematics - 913.2 Production Control - 913 Production Planning and Control; Manufacturing - 912.2 Management - 912 Industrial Engineering and Management - 922.2 Mathematical Statistics - 911.3 Inventory Control - 731.1 Control Systems - 723 Computer Software, Data Handling and Applications - 404.1 Military Engineering - 403 Urban and Regional Planning and Development - 911 Cost and Value Engineering; Industrial Economics
DOI:10.1109/ICLSIM.2010.5461422
Database:Compendex

<RECORD 252>

Accession number:20102312986257Title:Trust relationship establishment based on the existing trust
Authors:Chen, Jianyong (1); Wang, Yonghong (1); Zheng, Yijun (1); Gao, Hongwei (1)
Author affiliation:(1) Department of Computer Science and Technology, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Chen, J.
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Abstract:Identity management (IdM) is a fundamental technology for various services on Internet. In order to benefit aggregation of various service, it is necessary to establish trust relationship between Identity providers (IdPs) in different cycle of trust (CoT). This paper not only proposes a method to establish trust relationship between visited IdP and home IdP, but also designs an effective authentication model that can fully use existing interface without additional negotiation processes. These proposals can improve interoperability of IdM and can evidently benefit the development of Internet services. © 2010 IEEE.

<RECORD 253>

Authors:Tao, K. (1); Qiu, G. (1); Zheng, G. (1); Liu, Q. (1); Li, L. (1); Ouyang, Z. (1)
Author affiliation:(1) THz Technical Research Center of Shenzhen University, Shenzhen, 518060, China; (2) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, Shenzhen, 518060, China; (3) College of Electronic Science and Technology, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Ouyang, Z.
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Abstract:The filtering properties of a 2D square lattice made of metallic wires are investigated through the band structures and transmission spectra by the finite-difference time-domain method. All the results show that the transmission can be affected by factors such as wave polarization, incidence direction, and wire radius. It is found that the Γ-M direction and smaller radius of metal wires are preferable for a high-frequency-pass filter for TE waves, while the Γ-X direction and comparatively greater radius of metal wires are suitable for a low-frequency-pass and a wide stop-band filter for TM waves. Band edges of the filters can be tuned by adjusting the radius of wires and lattice constant. The key features of the band structure and the corresponding transmission spectrum are strongly correlated. Our work demonstrates that detailed band maps can help understanding the transmission properties, which are essential for designing wave filters. © 2010 Springer-Verlag.
Number of references:25
Main heading:Wire
Controlled terms:Band structure - Crystal lattices - Finite difference time domain method
Uncontrolled terms:2D lattice - Band edge - Filtering properties - High frequency HF - Key feature - Low frequency - Metal wires - Metallic wire - Square lattices - Stop-band filters - Subwavelength filter - TE wave - Tera Hertz - Transmission property - Transmission spectrums - Wave polarizations
Classification code:535.2 Metal Forming - 921 Mathematics - 933 Solid State Physics - 933.1.1 Crystal Lattice
DOI:10.1007/s00340-010-4090-y

<RECORD 254>

Accession number:20102212972488Title:Preparation of lead selenide nanoparticles under ultrasonic-microwave co-irradiation

Authors:Lv, Wei-Zhong (1); Weng, Wen-Jian (1)

Author affiliation:(1) Department of Material Science and Engineering, Zhejiang University, Hangzhou 310027, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Lv, W.-Z.

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Monograph title:2010 Asia-Pacific Power and Energy Engineering Conference, APPEEC 2010 - Proceedings

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Conference code:80380

Sponsor:IEEE Power and Energy Society (PES); State Grid of China; Siemens Ltd.; Sichuan University; Chongqing University

Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:The lead selenide (PbSe) nanoparticles have been synthesized under ultrasonic/microwave co-irradiation. These PbSe nanoparticles were characterized by X-ray diffraction (XRD), transmission electron microscopy (TEM) and DSC. In the new routes, pure PbSe phase was synthesized using elemental Se and lead acetate as starting materials and ethylene glycol as solvent under ultrasound of 25 kHz, 1500 W and microwave of 1000 W, 2450 MHz. ©2010 IEEE.

Number of references:18

Main heading:Microwave irradiation

Controlled terms:Ethylene - Ethylene glycol - Irradiation - Nanoparticles - Organic solvents - Scanning electron microscopy - Synthesis (chemical) - Transmission electron microscopy - Ultrasonics - X ray diffraction

<RECORD 255>

Title:Projection algorithm based image decomposition models in Besov spaces

Authors:Li, Min (1); Sun, Xiaoli (1)
Author affiliation:(1) College of Mathematics and Computational Science, Shenzhen University, Shenzhen Guangdong 518060, China
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Abstract:In this paper we present a new class of image decomposition models. Following Meyer's ideas in a total variation minimization framework, our model decomposes a given image into a sum u+v, where u is a function of Besov spaces $B_{p,p}^s$ (the structure component of f), and the noisy component v is modeled by the homogeneous Besov space $E=\dot{B}_{\infty,\infty}^{-1}$. The proposed models can be seen as generalizations of Aujol-Chambolle model. We discuss an absolute wavelet based treatment for the new models which is a continuation of Dirk A. Lorenz work in image decomposition. Finally, we present numerical results on denoising of both real and remote sensing images. © 2010 Binary Information Press.

Number of references:21

Main heading:Wavelet decomposition

Controlled terms:Banach spaces - Image reconstruction - Optimization - Remote sensing - Shrinkage - Wavelet analysis

Uncontrolled terms:Besov spaces - De-noising - Functional minimization - Image decomposition - New model - Numerical results - Projection algorithms - Remote sensing images - Structure component - Total variation minimization   - Wavelet

Classification code:731.1 Control Systems - 741 Light, Optics and Optical Devices - 921 Mathematics - 951 Materials Science

Database:Compendex

<RECORD 256>

Title:Experiment of process parameters control of high-gloss surface quality part manufactured by rapid heat cycle molding technology

Authors:Xin, Yong (1); Liu, Dong-Lei (1); Wu, Xiao-Yu (2)

Author affiliation:(1) College of Mechanical and Electrical Engineering, Nanchang University, Nanchang 330031, China; (2) College of Electro Mechanical and Control Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Xin, Y.

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Abstract:A macroscopic model was created to characterize the replication capability of plastic part to mold cavity. A high-gloss surface mold for front panel of mobile door key, as well as an auxiliary device for controlling the mold temperature, was designed and manufactured. Coupling with simulation and test, the process characteristic of rapid heat cycle molding plastic part was investigated by integrating Taguchi method and single-to-noise (S/N) theory. The weight, linear shrinkage, warpage and sink index of part were consider as estimation quality factors. And the smaller-the-better characteristic theory was used to process the sample data with the weight of each factor considered. The experimental results gave the effect tendency of parameters to quality factors and the significant order of them. And the further research revealed the most suitable

combination of process parameters.

Number of references:10

Main heading:Process control

Controlled terms:Control theory - Molding - Molds - Plastic parts - Taguchi methods

Uncontrolled terms:Auxiliary device - Estimation quality - Gloss surfaces - Heat cycle - Injection technology - Linear shrinkage - Macroscopic model - Mold cavities - Mold temperatures - Noise theory - Process characteristics - Process parameters - Quality factors - Sample data - Smaller-the-better characteristics - Warpages

Classification code:913.3 Quality Assurance and Control - 818.4 Rubber Factories and Machinery - 818.3 Rubber and Elastomer Processing - 817.1 Polymer Products - 816.2 Plants and Machinery for Plastics and Other Polymers - 922.2 Mathematical Statistics - 816.1 Processing of Plastics and Other Polymers - 731.1 Control Systems - 731 Automatic Control Principles and Applications - 535.2.1 Metal Forming Machines - 535.2 Metal Forming - 812.3 Glass

Database:Compendex

<RECORD 257>

Title:Phase transformation and electrical properties of Bi$_2$O$_3$-based ZnO varistor doped with WO$_3$

Authors:Wan, Shuai (1); Lu, Wenzhong (1); Liu, Wen (2)

Author affiliation:(1) Department of Electronic Science and Technology, Huazhong University of Science and Technology, Wuhan 430074, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Wan, S.

Abstract:The effects of WO$_3$ additive on the phase transformation, microstructure, varistor properties, and capacitance-voltage (C-V) characteristics of a Bi$_2$O$_3$-based ZnO varistor were investigated. A series of Bi$_2$W$_y$O$_{3(1+y)}$ (0 $\le$ y $\le$ 2=7) interstitial solid solutions were formed at the ZnO grain boundary when WO3 content (x) was in the range of 0-0.3 mol %, while the plate-like Bi$_2$WO$_6$ phases presented for further addition. The phase transformation between Bi$_2$W$_y$O$_{3(1+y)}$

(0 $\le y \le 2=7$) solid solutions and the Bi$_2$WO$_6$ phase at the ZnO grain boundary affects the microstructure and electrical properties of the varistor ceramic. WO$_3$, involved in the formation of interfacial states or deep bulk traps at grain boundaries in the range of $0 \le \times \le 0.3$, provides large potential barriers to enhance the nonlinearity of a varistor ceramic. However, for $x \ge 0.7$, the present of the low resistive Bi$_2$WO$_6$ at the ZnO grain boundary results in a lowering of potential barriers and the deterioration of nonlinearity. The varistor ceramics for $x = 0.3$ mol% exhibited the best performance: voltage gradient E$_{1mA}$ = 54.2V/mm, nonlinear coefficient α = 36, and leakage current IL = 0.8 mA, but changed to ohmic behavior for $x = 1.1$ mol %. © 2010 The Japan Society of Applied Physics.

Number of references:18
Main heading:Electric properties
Controlled terms:Ceramic materials - Crystallization - Grain boundaries - Grain size and shape - Microstructure - Nuclear physics - Solid solutions - Solidification - Varistors - Zinc oxide
Uncontrolled terms:Bulk traps - Capacitance-voltage characteristics - Electrical property - Interfacial state - Non-Linearity - Nonlinear coefficient - Ohmic behavior - Phase transformation - Potential barriers - Varistor ceramics   - Voltage gradient - ZnO - ZnO varistors
Classification code:951 Materials Science - 933.1.1 Crystal Lattice - 933.1 Crystalline Solids - 933 Solid State Physics - 932.2 Nuclear Physics - 931.2 Physical Properties of Gases, Liquids and Solids - 812.1 Ceramics - 804.2 Inorganic Compounds - 802.3 Chemical Operations - 801.4 Physical Chemistry - 714.2 Semiconductor Devices and Integrated Circuits - 701.1 Electricity: Basic Concepts and Phenomena - 531.2 Metallography
DOI:10.1143/JJAP.49.061102
Database:Compendex

<RECORD 258>

Title:A new scheme of coded ultrasound using Golay codes
Authors:Jin, Cheng (1); Chen, Si-Ping (1); Qin, Zheng-Di (1); Wang, Tian-Fu (1)
Author affiliation:(1) School of Medicine, Shenzhen University, Shenzhen 518060, China; (2) School of Biomedical Engineering, Instrument Science, Zhejiang University, Hangzhou 310027, China
Corresponding author:Chen, S.-P.
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Abstract:Golay codes are the most practical code in coded ultrasound imaging systems. But the trade-off for perfect range sidelobe cancellation is the requirement for two firings, thus resulting in motion-dependent decoding errors. In view of this, we propose a new scheme using the simultaneous emission of code pairs. The code pair is allocated to different elements of an aperture and transmitted simultaneously. The process of separating the code pair from the echo received is based on the orthogonality of the code pair. At last the autocorrelation functions of the individual Golay codes are added together. The simultaneous emission of code pairs instead of two firings recovers the frame rate loss, and eliminates the motion-dependent decoding error. Our theoretical analysis and simulations show that the scheme can be used to eliminate the tissue motion effects. © 2010 Zhejiang University and Springer-Verlag Berlin Heidelberg.

Number of references:18

Main heading:Ultrasonics

Controlled terms:Decoding - Imaging systems - Regression analysis - Tissue - Ultrasonic imaging

Uncontrolled terms:Analysis and simulation - Autocorrelation functions - Coded ultrasound - Coded ultrasound imaging - Decoding errors - Frame rate - Golay code - Motion-dependent - Orthogonality - Range sidelobes   - Tissue motion

Classification code:753.3 Ultrasonic Applications - 753.1 Ultrasonic Waves - 746 Imaging Techniques - 922.2 Mathematical Statistics - 741 Light, Optics and Optical Devices - 716.1 Information Theory and Signal Processing - 461.2 Biological Materials and Tissue Engineering - 723.2 Data Processing and Image Processing

DOI:10.1631/jzus.C0910353

Database:Compendex

<RECORD 259>

Accession number:20102513021488Title:A new crosslinked sulfonated polystyrene for proton exchange fuel cell membrane

Authors:Xu, Jing (1); Yu, Jianjia (1); Guan, Rong (1); Li, Cuihua (2); Sun, Lingna (2); Fang, Jianhua (3)

Author affiliation:(1) College of Chemistry and Chemical Engineering, Hubei University, Wuhan, 430062, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China; (3) School of Chemistry and Chemical Technology, Shanghai Jiao Tong University, Shanghai, 200240, China

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Source title:High Performance Polymers

Abbreviated source title:High Perform Polym

Volume:22

Abstract:A series of crosslinked sulfonated polystyrene (SPS) membranes with different degree of sulfonation (DS) were prepared in the presence of phosphorous pentoxide-methanesulfonic acid (PPMA) in the ratio of 1:10 by weight via the condensation reaction between the sulfonic acid groups and the activated hydrogen atoms of SPS. The crosslinking reaction was confirmed by ^{1}H-NMR and Fourier transform infrared spectrometry. In comparison with uncrosslinked SPS membrane, the crosslinked one showed much higher thermal stability as the degradation temperature increased from about 200 to 300 $A\circ\deg$C, lower but enough ion exchange capacity (IEC), lower water uptake, and lower swelling ratio. Moreover, the crosslinked SPS membranes still maintained high proton conductivity (3.3g$\circ$&euro"6.1-10^{-2} S cm^{-1}) and keep good shape at room temperature in 100% relative humidity. The relationships among crosslinking time, crosslinking ratio, DS and membrane properties are discussed. © 2010 SAGE Publications.

<RECORD 260>

Accession number:20102212960656Title:A cloud model inference system based alpha-beta filter for tracking of maneuvering target

Authors:Huang, Jianjun (1); Zhong, Jiali (1); Li, Pengfei (2)
Author affiliation:(1) ATR Key Lab., Shenzhen University, Shenzhen, 518060, China; (2) Air Defense Forces Command Academy, Zhengzhou , 450052, China
Corresponding author:Huang, J.
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Abstract:An adaptive alpha-beta filter based on cloud model inference is presented for maneuvering target tracking. The proposed tracker incorporates cloud model in a conventional alpha-beta filter by using the rule bank based on cloud model, which utilizes the residue error and the change of residue error in the last prediction to determine the values of alpha and beta, then track the maneuverable target accurately. The experiment results show that the algorithm is satisfactory and effective. © 2010 IEEE.
Number of references:8
Main heading:Target tracking
Controlled terms:Information science - Information technology - Targets
Uncontrolled terms:Alpha-beta filter - Cloud models - Maneuverable targets - Maneuvering target tracking - Maneuvering targets - Mode inference - Residue error
Classification code:654.1 Rockets and Missiles - 656.1 Space Flight - 716.2 Radar Systems and Equipment - 723.5 Computer Applications - 903 Information Science - 932.1.1 Particle Accelerators
DOI:10.1109/IITSI.2010.119

<RECORD 261>

Title:Growth and morphology of carbon nanostructures by microwave-assisted pyrolysis of methane
Authors:Zeng, Xierong (1); Fu, Dongju (2); Sheng, Hongchao (2); Xie, Shenghui (1); Li, Xiaohua (1); Hu, Qiang (2); Zou, Jizhou (1)
Author affiliation:(1) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (2) School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an, Shannxi 710072, China; (3) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen 518060, China
Corresponding author:Zeng, X.
        (zengxier@szu.edu.cn)

Abstract:Both carbon nanospheres and CNTs with different morphologies were synthesized without any catalyst by microwave pyrolysis chemical vapor deposition using methane as carbon source and nitrogen as diluted gas. The morphology and structure of the products were characterized by field-emission scanning electron microscopy, high resolution transmission electron microscopy and Raman spectroscopy. The experimental results demonstrated that reaction temperature, gas ratio of methane to nitrogen and total gas flow rate strongly influenced the nature of various nanocarbon materials. Raman spectra indicated that the carbon nanospheres and CNTs possess relatively low degree of graphitization. © 2010 Elsevier B.V. All rights reserved.
Number of references:26
Main heading:High resolution transmission electron microscopy
Controlled terms:Chemical vapor deposition - Cracking (chemical) - Electrons - Methane - Morphology - Nanospheres - Raman scattering - Raman spectroscopy - Scanning electron microscopy
Uncontrolled terms:Carbon nanosphere - Carbon Nanostructures - Carbon source - Diluted gas - Field emission scanning electron microscopy - Gas flowrate - Gas ratio - Low degree - Microwave pyrolysis - Microwave-assisted   - Nano-carbon material - Raman spectra - Raman spectroscopy

and scattering - Reaction temperature

<RECORD 262>

Title:Effect of super heat treatment on crystallization behavior and magnetic properties of $Nd_{4.5}Fe_{77}B_{18.5}$ nanocomposites

Authors:SHENG, Hongchao (1); ZENG, Xierong (2); ZOU, Jizhao (2); XIE, Shenghui (1)
Author affiliation:(1) School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an, 710072, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen, 518060, China; (3) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, 518060, China
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Abstract:Melt-spun $Nd_{4.5}Fe_{77}B_{18.5}$ ribbons were prepared under various superheat temperatures. The microstructure characteristics, crystallization behavior, and subsequent magnetic properties of $Fe_3B/Nd_2Fe_{14}B$ nanocomposite magnets were investigated using X-ray diffraction, differential thermal analysis, and vibrating sample magnetometry. It was shown that melt spinning at different quenching temperatures caused the as-quenched ribbons to have distinctive crystallization behavior. Depending on superheat temperature, phase transformation of the ribbons during annealing may take place in one of the following sequences: (1) amorphous phase $(Am) \rightarrow Am' + Fe_3B \rightarrow Fe_3B +$

$Nd_2Fe_{23}B_3 \rightarrow Fe_3B + Nd_2Fe_{14}B$, or (2) amorphous phase$(Am) \rightarrow Am' + Fe_3B \rightarrow Fe_3B + Nd_2Fe_{14}B$. For the latter, the ribbon after optimal annealing exhibited single-phase magnetic behavior. In the first case, magnetic properties of the optimally heat treated ribbons deteriorated and an apparent kink could be seen along the demagnetization curves near the zero field. © 2010 The Chinese Society of Rare Earths.

Number of references:15

Main heading:Iron alloys

Controlled terms:Amorphous alloys - Crystallization - Demagnetization - Differential thermal analysis - Magnetic materials - Magnetic properties - Magnets - Melt spinning - Nanocomposites - Nanocrystalline alloys   - Neodymium - Neodymium compounds - Rare earths - X ray diffraction - X ray diffraction analysis

Uncontrolled terms:Amorphous phase - Crystallization behavior - Demagnetization curves - Heat-treated ribbons - Magnetic behavior - Melt-spun - Microstructure characteristics - Nanocomposite magnets - Optimal annealing - Phase transformation   - Quenching temperatures - Superheat treatment - Vibrating sample magnetometry - Zero fields

Classification code:761 Nanotechnology - 801 Chemistry - 802.3 Chemical Operations - 804.1 Organic Compounds - 933.2 Amorphous Solids - 804.2 Inorganic Compounds - 933 Solid State Physics - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 931.3 Atomic and Molecular Physics - 708.4 Magnetic Materials - 704 Electric Components and Equipment - 481.2 Geochemistry - 531 Metallurgy and Metallography - 531.2 Metallography - 535.2.2 Metal Forming Practice - 545.2 Iron Alloys - 545.3 Steel - 547.2 Rare Earth Metals - 701.2 Magnetism: Basic Concepts and Phenomena

DOI:10.1016/S1002-0721(09)60131-9

Database:Compendex

<RECORD 263>

Title:High-speed spectrally resolved multifocal multiphoton microscopy

Authors:Shao, Y. (1); Qu, J. (1); Li, H. (1); Wang, Y. (1); Qi, J. (1); Xu, G. (1); Niu, H. (1)

Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education, Guangdong Province Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China

Corresponding author:Qu, J.
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Abstract:We present a spectrally resolved multifocal multiphoton microscopy that is capable of performing fast 2-dimensional (2-D) spectral measurements of fluorescent samples with optical sectioning. One galvanometer mirror is used to scan the array of excitation foci across the sample along one direction (x) for two-photon excitation. Fluorescence emission from the excited lines on the sample is spectrally fanned out with a prism along the y direction, and a CCD array is used to acquire the spectrally resolved image. Another galvanometer mirror scans the excitation foci lines along the y direction step by step to obtain 3-dimensional (3-D) spectral data cube of the sample. A proof-of-principle experiment is performed with fluorescent microspheres of different colors. Spectrally resolved images of 512 × 512 pixels can be obtained by acquiring only 128 raw images when a 4 × 4 excitation foci array is used. © Springer-Verlag 2010.

<RECORD 264>

Accession number:20103313160929Title:Room temperature plastic deformation behavior of ZrCuNiAl bulk metallic glasses
Authors:Tao, Ping-Jun (1); Yang, Yuan-Zheng (1); Bai, Xiao-Jun (2); Xie, Zhi-Wei (1); Chen, Xian-Chao (1)
Author affiliation:(1) Faculty of Materials and Energy, Guangdong University of Technology, Guangzhou 510006, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Yang, Y.-Z.
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Source title:International Journal of Minerals, Metallurgy and Materials
Abbreviated source title:Int. J. Miner. Metall. Mater.

Abstract:The Zr$_{62.55}$Cu$_{17.55}$Ni$_{9.9}$Al$_{10}$ bulk metallic glass (BMG) was prepared by using copper-mold suction-casting. X-ray diffraction and differential scanning calorimetry were utilized to determine its structure and thermal stability. Uniaxial compression and Rockwell indentation tests were adopted to study the plastic deformation behavior at room temperature. The results show that the glass transition temperature and the onset temperature of exothermic reaction of the BMG are 651.5 and 748 K, respectively. During the compression test, the BMGs undergo an engineering strain of about 2.5%, i.e., true strain of 2.8%, and then fracture. The BMGs deform via the formation and propagation of shear bands. Under indentation loading, the BMGs deform through the formation of radiation-like and circular shear bands. The circular shear bands form earlier than the radiation-like ones. The formation mechanism of shear bands in the BMGs was analyzed and discussed. © University of Science and Technology Beijing and Springer-Verlag Berlin Heidelberg 2010.

Number of references:16

Main heading:Metallic glass

Controlled terms:Compression testing - Differential scanning calorimetry - Glass - Glass transition - Plastic deformation - Plastics - Shear bands - X ray diffraction - Zirconium

Uncontrolled terms:Bulk metallic glass - Compression - Compression tests - Engineering strains - Formation mechanism - Glass transition temperature - Onset temperature - Plastic deformation behavior - Rockwell indentation tests - Room temperature - Thermal stability - True strain - Uni-axial compression

Classification code:943 Mechanical and Miscellaneous Measuring Instruments - 931.3 Atomic and Molecular Physics - 817.1 Polymer Products - 815.1 Polymeric Materials - 812.3 Glass - 801 Chemistry - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 531 Metallurgy and Metallography - 421 Strength of Building Materials; Mechanical Properties

DOI:10.1007/s12613-010-0313-9

Database:Compendex

<RECORD 265>

Accession number:20103413184586Title:Multiwavelength erbium-doped fiber ring laser using a LINBO$_3$ multifunction chip for fiber gyroscope

Authors:Zhou, K.J. (1); Zhang, X.L. (2)

Author affiliation:(1) Department of Electronic Engineering, Zhejiang University, Zhejiang,

310027, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Zhou, K. J.
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Abstract:We present a novel configuration of multiwavelength erbium-doped fiber ring laser (MW-EDFL) using a LiNbO$_3$ multifunction chip for fiber gyros at room temperature. The polarizer incorporating a piece of high-birefringence fiber in the input port of the Y-type chip forms the Lyot periodic filter at intervals of 0.5 nm wavelength. One of two modulators inserted in the ring cavity has been used as frequency shifter by applying a sawtoothed signal, while the output port of the other is used as the output port of the laser. Simul-taneous multiwavelength lasing is experimentally demonstrated by applying a sawtoothed signal with the order of 10 kHz to the phase modulator to prevent single-wavelength oscillation. The MW-EDFL output is linearly polarization light that meets the requirement of external modulation for wavelength-division-multi-plexing applications. © Pleiades Publishing, Ltd., 2010.

Number of references:29
Main heading:Fibers
Controlled terms:Birefringence - Erbium - Gyroscopes - Modulators - Ring lasers
Uncontrolled terms:Erbium doped fiber ring lasers - External modulation - Fiber gyro - Frequency shifters - High-birefringence fibers - Input port - Multiwavelength - Multiwavelength lasing - Output ports - Periodic filters - Phase modulator - Ring cavities - Room temperature - Single wavelength
Classification code:943.1 Mechanical Instruments - 817 Plastics and Other Polymers: Products and Applications - 812 Ceramics, Refractories and Glass - 744 Lasers - 741.1 Light/Optics - 713.3 Modulators, Demodulators, Limiters, Discriminators, Mixers - 547.2 Rare Earth Metals
DOI:10.1134/S1054660X1011037X
Database:Compendex

<RECORD 266>

Accession number:20101412822785Title:The keyed optical Hash function based on cascaded

phase-truncated Fourier transforms

Authors:He, Wenqi (1); Peng, Xiang (1); Qin, Wan (1); Meng, Xiangfeng (1)

Author affiliation:(1) College of Optoelectronics Engineering, Shenzhen University, Key Laboratory of Optoelectronic Devices and Systems, Shenzhen, 518060, China

Corresponding author:Peng, X.

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Abstract:An approach for constructing keyed optical Hash function (KOHF) is proposed, which is based on cascaded phase-truncated Fourier transforms (CPTFTs). The KOHF is created from a two-step one-way encryption process with a secret key imbedded. The non-linearity and one-way functionality is introduced by cascaded optical Fourier transforms with the phase-truncation operations, which could be implemented either digitally or optically. Once two 64-bit keyed Hash values are obtained in the two-step one-way encryption processes, respectively, they are then combined to form a final 128-bit keyed Hash value, which can also be regarded as a message authentication code (MAC). Moreover, the avalanche effect is also evaluated to show the performance of constructed KOHF with a set of numerical experiments. © 2009.

Number of references:17

Main heading:Fourier transforms

Controlled terms:Electric grounding - Hash functions - Hybrid computers - Hybrid systems - Image processing - Imaging systems - Optical data processing - Optical systems

Uncontrolled terms:Avalanche effects - Hash value - Message authentication codes - Non-Linearity - Numerical experiments - Optical Fourier transforms - Optical system design - Optical system designs - Secret key

Classification code:921.3 Mathematical Transformations - 921 Mathematics - 746 Imaging Techniques - 741.3 Optical Devices and Systems - 741 Light, Optics and Optical Devices - 723.2 Data Processing and Image Processing - 723 Computer Software, Data Handling and Applications - 722.5 Analog and Hybrid Computers - 706 Electric Transmission and Distribution - 704 Electric Components and Equipment - 701.1 Electricity: Basic Concepts and Phenomena

DOI:10.1016/j.optcom.2009.11.060

Database:Compendex

<RECORD 267>

Authors:Yang, Jun-Bo (1); Yang, Jian-Kun (1); Li, Xiu-Jian (1); Liu, Ju (1); Su, Xian-Yu (2); Xu, Ping (3)
Author affiliation:(1) Tech-physical Research Center, College of Science National University of Defense Technology, Changsha 410073, China; (2) Department of Optoelectronics, College of Electronic Information Sichuan University, Chengdu 610064, China; (3) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Yang, J.-B.
        (yangjunbo008@sohu.com)

Abstract:A novel algorithm is proposed and designed to route and process the optical signals of a crossover network. Firstly, based on the link rule and function principle of the crossover network, the corresponding processing matrixes are achieved to denote and illustrate the relative signal operating and control and to establish the relation between input and output signals. According to the performing matrixes and the orders of input/output signal arrays, the node controlling and signal routing are determined. Finally, the signals are routed and controlled. It is shown that the proposed algorithm can not only be used in the routing control for a 8×8 crossover optical interconnection network, but also can be used in those for 16×16, 32×32 and 64×64 networks. Furthermore, it also has excellent transplant ability and compatibility for perfect shaffle networks and Banyan networks. These results indicate that the routing algorithm is useful for optical switching applications, optical computing, and optical information processing in the future.

Number of references:36
Main heading:Optical communication
Controlled terms:Algorithms - Interconnection networks - Optical data processing - Optical interconnects
Uncontrolled terms:Banyan networks - Crossover network - Input and outputs - Input/output - matrix - Novel algorithm - Optical computing - Optical information processing - Optical interconnection network - Optical signals - Optical switching applications - Routing control -

Signal array - Signal routing

<RECORD 268>

Title:A failure criterion for anisotropic soils

Authors:Su, Dong (1)
Author affiliation:(1) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory for Durability of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Su, D.
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Abstract:Soil in nature is usually anisotropic, but most of the classical failure criteria can only take isotropic behaviors into account. A modified deviatoric stress tensor is defined, combining the stress tensor and the fabric tensor describing the characteristics of anisotropic materials. Based on the invariants of the modified deviatoric stress tensor, a failure criterion for anisotropic soils is proposed. Failure surfaces in the general stress space for the anisotropic and cross-anisotropic materials under coaxial conditions, as described by the criterion, and the relationships between the coefficient of intermediate principal stress b and friction angle in different sectors are presented. Their characteristics are analyzed and compared with those for isotropic materials. By comparing with the experimental data from true triaxial tests, the capability of the criterion in modeling the failure of anisotropic material is demonstrated.

Experimental data - Fabric tensors - Failure criteria - Failure surface - Friction angles - Intermediate principal stress - Invariant - Isotropic behaviors - Isotropic materials - Stress space - Stress tensors - True triaxial tests

Classification code:933.1 Crystalline Solids - 931.2 Physical Properties of Gases, Liquids and Solids - 921.1 Algebra - 819.4 Fiber Products - 951 Materials Science - 741.1 Light/Optics - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties - 412.1 Cement - 483.1 Soils and Soil Mechanics

Database:Compendex

<RECORD 269>

Title:Effect of rare earth elements on the glass-forming abilities of FeCrMoCB alloys

Authors:Tao, Ping-Jun (1); Yang, Yuan-Zheng (1); Bai, Xiao-Jun (2); Mao, Jie (1)

Author affiliation:(1) Faculty of Materials and Energy, Guangdong University of Technology, Guangzhou 510006, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Yang, Y.-Z.

Abstract:In recent years, with the continue breakthroughs being made in the preparation dimensions of the Fe-based amorphous alloys, the development and researches of non-magnetic amorphous steels have attracted increasingly widespread attention. However, the glass-forming abilities of $Fe_{50}Cr_{15}Mo_{14}C_{15}B_6$ amorphous steel families are limited, of which the maximum diameter is only 1.5 mm. In present paper, the copper-mold suction casting method was adopted to study the effect of rare earth elements, Y, Pr, Gd and Tb, on the glass-forming abilities of $Fe_{48}Cr_{15}Mo_{14}C_{15}B_6M_2$ (M=RE) alloys. The experimental results showed that substituting 2at% of Fe in the $Fe_{50}Cr_{15}Mo_{14}C_{15}B_6$ with Y, Pr, Gd and Tb, respectively, a series of $Fe_{48}Cr_{15}Mo_{14}C_{15}B_6M_2$(M=RE) amorphous steel rods can be prepared. The maximum diameters of $Fe_{48}Cr_{15}Mo_{14}$

$C_{15}B_6M_2$ (M=Pr, Y, Gd, Tb) amorphous steel rods can be enhanced up to 3, 8, 12 and 12mm, respectively.

<RECORD 270>

Title:An improved ARED algorithm for congestion control of network transmission
Authors:Chen, Jianyong (1); Hu, Cunying (1); Ji, Zhen (1)
Author affiliation:(1) Shenzhen City Key Laboratory of Embedded System Design, College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Chen, J.
        (cjyok2000@hotmail.com)

Abstract:In order to achieve high throughput and low average delay in computer network, it is necessary to stabilize the queue length and avoid oscillation or chaos phenomenon. In this paper, based on Adaptive Random Early Detection (ARED), an improved algorithm is proposed, which dynamically changes the range of maximum drop probability p max according to different network scenarios and adjusts p max to limit average queue size q ave in a steady range. Moreover, exponential averaging weight w is adjusted based on linear stability condition to stabilize q ave. A number of simulations show that the improved ARED algorithm can effectively stabilize the

queue length and perform better than other algorithms in terms of stability and chaos control. Copyright © 2010 Jianyong Chen et al.

<RECORD 271>

Title:Broadband Frequency Invariant Beamformer

Authors:Xie, Ning (1); Wang, Hui (1); Liu, Hongwei (1)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen, 518060, China; (2) National Mobile Communications Research Laboratory, Southeast University, Nanjing, 210096, China
Corresponding author:Xie, N.
    (kensouren@yahoo.com.cn)

Abstract:In the broadband signal processing, the array has different relative aperture for the different frequency bins, which results in waveform distortion. Moreover, the greater the bandwidth is, the more serious the distortion becomes. It is valuable to study the Frequency-invariant beam patterns (FIBPs) for receiving broadband signals without distortion. Based on the array dimensions, this paper will summarize some new methods to design a broadband beamformer with an FIBP. There will be two categories: One-dimensional arrays and Multi-dimensional arrays. For one-dimensional array, there are sampling rate method, minimax frequency invariant beamforming, etc. For multi-dimensional array, there are Bessel function method, Bessel function and phase mode method, and so on. Finally, we will discuss the pros and

cons of every method. © 2010 Springer Science+Business Media, LLC.

Number of references:15

Main heading:Beamforming

Controlled terms:Bessel functions - Harmonic analysis - Signal processing

Uncontrolled terms:Array dimensions - Beam formers - Broadband frequency - Broadband signal - Different frequency - Frequency invariant - Frequency invariant beamforming - Minimax - Mode method - Multidimensional arrays - One-dimensional arrays - Pros and cons - Sampling rates - Waveform distortions

Classification code:713 Electronic Circuits - 716.1 Information Theory and Signal Processing - 731 Automatic Control Principles and Applications - 732 Control Devices - 921 Mathematics - 921.6 Numerical Methods

DOI:10.1007/s11277-010-0015-7

Database:Compendex

<RECORD 272>

Authors:Guo, Chunyu (1); Ruan, Shuangchen (1); Yan, Peiguang (1); Pan, Erming (1); Wei, Huifeng (2)

Author affiliation:(1) School of Electronic Science and Technology, Shenzhen University, Shenzhen, Guangdong, 518060, China; (2) Yangtze Optical Fibre and Cable Company Ltd., Wuhan, Hubei, 430073, China

Corresponding author:Guo, C.

Abstract:We realize the flattening and extending of a CW-pumped supercontinuum with a high spectral intensity peak at the pump region. It is achieved by cascading a long zero-dispersion wavelength high-nonlinearity fiber with the output photonic crystal fiber, in order to improve the conversion efficiency of residual pump energy to long-wavelength continuum based on the effect of cascaded stimulated Raman scattering. Compared with the non-flattened continuum of 10.3 W with 3 dB bandwidth of 62 nm and 10 dB bandwidth of 360 nm, a flat continuum of 8 W with 3 dB spectral range of 340 nm and 10 dB spectral range of 420 nm is obtained. The spectral peak at

the pump region decreases more than 5 dB, below the level of long-wavelength spectral intensity. Also, the long-wavelength edge has been extended by 60 nm. © 2010 Optical Society of America.

Number of references:18

Main heading:Pumping (laser)

Controlled terms:Continuous wave lasers - Conversion efficiency - Nonlinear optics - Photonic crystal fibers - Photonic crystals - Pumps

Uncontrolled terms:3 dB bandwidth - Long wavelength - Non-Linearity - Pump energies - Spectral intensity - Spectral peak - Spectral range - Supercontinuum - Supercontinuum generations - Zero-dispersion wavelength

Classification code:933.1 Crystalline Solids - 744.1 Lasers, General - 741.3 Optical Devices and Systems - 951 Materials Science - 741.1.2 Fiber Optics - 618.2 Pumps - 525.5 Energy Conversion Issues - 741.1.1 Nonlinear Optics

DOI:10.1364/OE.18.011046

Database:Compendex

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<RECORD 273>

Accession number:20102012935054Title:A 2D barcode extraction method based on texture direction analysis

Authors:Hu, Huaqiao (1); Xu, Wenhuan (1); Huang, Qiang (1)

Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, 518060, China

Corresponding author:Hu, H.
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United States

Abstract:Barcode extraction is an essential step in the 2D barcode reading architecture. This paper presents the development and evaluation of a new approach toward the design of 2D barcode extraction based on texture direction analysis. This new approach can be detailed as: i) threshold a gray-level image; ii) analyze the texture direction of a window which is selected within the barcode area in the image; iii) roughly locate the barcode using the proposed texture direction analysis; iv) precisely locate the barcode by applying Hough transform; iv) rectify the barcode using inverse perspective transformation and bilinear interpolation methods; v) apply various types of barcode decoder. The experimental result showed this approach is applicable to most of the 2D barcode decoders. © 2009 IEEE.

<RECORD 274>

Title:Hybrid genetic algorithm and support vector regression in cooling load prediction

Authors:Li, Xuemei (1); Ding, Lixing (2); Li, Yan (2); Xu, Gang (3); Li, Jibin (4)
Author affiliation:(1) School of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou, 510640, China; (2) School of Mechanical and Electrical Engineering, Zhongkai University of Agriculture and Engineering, Guangzhou, 510225, China; (3) School of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, 518060, China; (4) Shenzhen Key Lab of Mould Advanced Manufacturing, Shenzhen University, China
Corresponding author:Li, X.

Conference name:3rd International Conference on Knowledge Discovery and Data Mining, WKDD 2010

Conference date:January 9, 2010 - January 10, 2010

Conference location:Phuket, Thailand

Conference code:80211

Sponsor:Institute of Electrical and Electronics Engineers; IEEE Computational Intelligence Society; Intelligent Inf. Technol. Appl. Res. Assoc.

Publisher:IEEE Computer Society, 445 Hoes Lane - P.O.Box 1331, Piscataway, NJ 08855-1331, United States

Abstract:This study develops a novel methodology hybridizing genetic algorithms (GAs) and support vector regression (SVR) and implements this model in a problem forecasting hourly cooling load . The aim of this study is to examine the feasibility of SVR in building cooling load forecasting by comparing it with back-propagation neural networks (BPNN) and the autoregressive integrated moving average (ARIMA) model. To build an effective SVR model with predictive accuracy and generalization ability, real value GAs are adopted to automatically determine the optimal hyper-parameters for SVR. The experimental results demonstrate that the hybrid model provides better prediction capability than the BPNN and ARIMA models, and therefore is considered as a promising alternative method for forecasting building hourly cooling load. © 2010 IEEE.

Number of references:21

Main heading:Electric load forecasting

Controlled terms:Air conditioning - Cooling - Data flow analysis - Data mining - Genetic algorithms - Neural networks - Parameter estimation - Regression analysis - Structural optimization - Vectors

Uncontrolled terms:Alternative methods - ARIMA models - Autoregressive integrated moving average models - Back-propagation neural networks - Cooling load - Generalization ability - Hybrid genetic algorithms - Hybrid model - In-buildings - Novel methodology - Parameter optimization - Prediction capability - Predictive accuracy - Real values - Support vector regressions

Classification code:723.4 Artificial Intelligence - 731.1 Control Systems - 802.3 Chemical Operations - 921 Mathematics - 921.1 Algebra - 921.5 Optimization Techniques - 922.2 Mathematical Statistics - 723.3 Database Systems - 461.1 Biomedical Engineering - 641.2 Heat Transfer - 643.3 Air Conditioning - 706.1 Electric Power Systems - 723 Computer Software, Data Handling and Applications - 723.1 Computer Programming - 723.2 Data Processing and Image Processing

DOI:10.1109/WKDD.2010.136

Database:Compendex

<RECORD 275>

Accession number:20102012932184Title:Identification of full and partial class relevant genes

Authors:Zhu, Zexuan (1); Ong, Yew-Soon (2); Zurada, Jacek M. (3)

Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen

University, 345 Administration Building, Shenzhen, 518060, China; (2) School of Computer Engineering, Nanyang Technological University, Block N4, Nanyang Avenue, Singapore 639798, Singapore; (3) Department of Electrical and Computer Engineering, Computational Intelligence Laboratory, University of Louisville, Louisville, KY 40292, United States
Corresponding author:Zhu, Z.
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Abstract:Multiclass cancer classification on microarray data has provided the feasibility of cancer diagnosis across all of the common malignancies in parallel. Using multiclass cancer feature selection approaches, it is now possible to identify genes relevant to a set of cancer types. However, besides identifying the relevant genes for the set of all cancer types, it is deemed to be more informative to biologists if the relevance of each gene to specific cancer or subset of cancer types could be revealed or pinpointed. In this paper, we introduce two new definitions of multiclass relevancy features, i.e., full class relevant (FCR) and partial class relevant (PCR) features. Particularly, FCR denotes genes that serve as candidate biomarkers for discriminating all cancer types. PCR, on the other hand, are genes that distinguish subsets of cancer types. Subsequently, a Markov blanket embedded memetic algorithm is proposed for the simultaneous identification of both FCR and PCR genes. Results obtained on commonly used synthetic and real-world microarray data sets show that the proposed approach converges to valid FCR and PCR genes that would assist biologists in their research work. The identification of both FCR and PCR genes is found to generate improvement in classification accuracy on many microarray data sets. Further comparison study to existing state-of-the-art feature selection algorithms also reveals the effectiveness and efficiency of the proposed approach. © 2006 IEEE.
Number of references:54
Main heading:Feature extraction
Controlled terms:Algorithms - Bioinformatics - Classification (of information) - Computer aided diagnosis - Genes
Uncontrolled terms:Cancer diagnosis - Classification accuracy - Comparison study - Feature selection - Feature selection algorithm - Markov blanket - Markov Blankets - Memetic algorithms - Microarray data - Microarray data sets - Multi-class - Multi-class cancer classification - Real-world - Simultaneous identification

Classification code:903.1 Information Sources and Analysis - 903 Information Science - 751.1 Acoustic Waves - 741.1 Light/Optics - 723.5 Computer Applications - 921 Mathematics - 723 Computer Software, Data Handling and Applications - 716 Telecommunication; Radar, Radio and Television - 461.8.2 Bioinformatics - 461.2 Biological Materials and Tissue Engineering - 461.1 Biomedical Engineering - 716.1 Information Theory and Signal Processing

<RECORD 276>

Accession number:20102012929739Title:A novel hybrid approach of KPCA and SVM for building cooling load prediction

Authors:Li, Xuemei (1); Ding, Lixing (1); Lu, Jinhu (2); Xu, Gang (3); Li, Jibin (4)
Author affiliation:(1) Institute of Built Environment and Control, Zhongkai University of Agriculture and Engineering, Guangzhou, 510225, China; (2) School of Mechanical and Electrical Engineering, Zhongkai University of Agriculture and Engineering, Guangzhou, 510225, China; (3) School of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, 518060, China; (4) Shenzhen Key Lab. of Mould Advanced Manufacturing, Shenzhen University, China
Corresponding author:Ding, L.
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Abstract:In this paper, a novel building cooling load forecasting approach combining kernel

principal component analysis (KPCA) and support vector machine (SVM) is proposed. KPCA is an improved PCA, which possesses the property of extracting optimal features by adopting a nonlinear kernel function method. The original inputs are firstly transformed into nonlinear principal components using KPCA. These new features are then used as the inputs of SVR to solve the load forecasting problem. The theoretical analysis and the simulation results show that KPCA can efficiently extract the nonlinear feature of initial data. KPCA- SVR has powerful learning ability, good generalization ability and low dependency on sample data compared with PCA-SVR and SVR. It also indicates that the integration of KPCA and SVR forecast cooling load effectively and can be used in building cooling load prediction. © 2010 IEEE.

Number of references:14

Main heading:Principal component analysis

Controlled terms:Air conditioning - Cooling - Data mining - Electric load forecasting - Feature extraction - Nonlinear analysis - Support vector machines

Uncontrolled terms:Building cooling load - Cooling load - Generalization ability - Hybrid approach - In-buildings - Kernel principal component analysis - Learning abilities - Load forecasting - Nonlinear features - Nonlinear kernel functions - Principal Components - Sample data - Simulation result

Classification code:723.5 Computer Applications - 731.1 Control Systems - 741.1 Light/Optics - 751.1 Acoustic Waves - 802.3 Chemical Operations - 921 Mathematics - 922.2 Mathematical Statistics - 723.3 Database Systems - 641.2 Heat Transfer - 643.3 Air Conditioning - 703.1.1 Electric Network Analysis - 706.1 Electric Power Systems - 716 Telecommunication; Radar, Radio and Television - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing

DOI:10.1109/WKDD.2010.137

Database:Compendex

<RECORD 277>

Title:Catalytic hydrodechlorination of 4-Chlorophenol in an aqueous solution with pd/ni catalyst and formic acid

Authors:Wang, Shu (1); Yang, Bo (1); Zhang, Tingting (1); Yu, Gang (1); Deng, Shubo (1); Huang, Jun (1)

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Corresponding author:Yu, G.
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Abstract:Palladized foam nickel (Pd/Ni) catalyst was prepared by replacement deposition and employed to hydrodechlorinate 4-chlorophenol (4-CP) with formic acid (FA). 4-CP was rapidly transformed to phenol by means of hydrogenolysis. Major factors that may influence the 4-CP conversion rate, including the Pd loading amount, FA dosage, and solution pH value, were investigated. A moderate Pd loading amount (1.0 wt %), an excess of FA dosage (FA/4-CP ratio of 51.4:1), and a relatively low pH (4.0) were found to be the optimal operational conditions under which 4-CP was degraded up to 96.2% within 2 h and the catalytic activity of Pd/Ni reduced negligibly after three recycles. The dechlorination pathway is postulated as follows: (1) HCOOH (or HCOO-) decomposed on Pd particles with atomic hydrogen ([H]) generated; (2) [H] served as the direct reducing agent in the hydrodechlorination of 4-CP adsorbed on both Pd particles and Ni substrate, through the radical mechanism. Pd/Ni is found to be a promising catalyst in the elimination of organochlorines. © 2010 American Chemical Society.

<RECORD 278>

Title:Vickers indentation tests in a Zr$_{62.55}$Cu$_{17.55}$Ni$_{9.9}$Al$_{10}$ bulk amorphous alloy
Authors:Tao, P.J. (1); Yang, Y.Z. (1); Bai, X.J. (2)
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Corresponding author:Yang, Y.Z.

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Abstract:Vickers indentation tests were conducted on a $Zr_{62.55}Cu_{17.55}Ni_{9.9}Al_{10}$ bulk amorphous alloy to investigate the evolution of shear bands and its plastic deformation dimension via a bonded interface technique. Under all indentation loads, the plastic deformation is accommodated through semi-circular and radial shear bands. The plastic deformation dimension increases with increasing the indentation loads. A simplified $\lambda = C(P)^{0.5}$ model was put forward to predict and estimate the plastic deformation dimension characterized by shear bands in the subsurface. For the $Zr_{62.55}Cu_{17.55}Ni_{9.9}Al_{10}$ amorphous alloy, C is about 15.314 $\mu m/N^{0.5}$. The normalized shear band zone is independent to the indentation load. © 2010 Elsevier B.V. All rights reserved.

Number of references:12
Main heading:Plastics
Controlled terms:Aluminum - Amorphous alloys - Cerium alloys - Copper alloys - Mechanical properties - Metallurgy - Plastic deformation - Shear bands - Vickers hardness testing - Zirconium
Uncontrolled terms:Bonded interface - Bulk amorphous alloys - Indentation load - Metals and alloys - Predict and estimate - Radial shear - Vickers indentation test - X-ray techniques
Classification code:933.2 Amorphous Solids - 931.1 Mechanics - 817.1 Polymer Products - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 547.2 Rare Earth Metals - 951 Materials Science - 544.2 Copper Alloys - 531.1 Metallurgy - 531 Metallurgy and Metallography - 422.2 Strength of Building Materials : Test Methods - 421 Strength of Building Materials; Mechanical Properties - 541.1 Aluminum
DOI:10.1016/j.matlet.2010.01.071
Database:Compendex

<RECORD 279>

Accession number:20101912915631Title:A high-speed widely tunable olc-type flat-top filter based on the dual transverse Pockels effect
Authors:Zheng, Guoliang (1); Ouyang, Zhengbiao (1); Xu, Shixiang (1)

Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, Shenzhen 518060, China
Corresponding author:Zheng, G.
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Abstract:A high-speed widely tunable olc-type flat-top filter based on the dual transverse Pockels effect is presented. The filter employs single-domain LiNbO$_3$ (LN) with two pairs of transverse electrodes, where the one along the y-axis is periodic and the other one along the z-axis is continual. The periodic electrode provides periodic electro-optic modulation along the light propagation direction, which results in a folded olc-type filter. The continual electrode giving a uniform electric field is in charge of tuning the transmitted central wavelength of the filter. Compared to a conventional PPLN olc-type filter, our setup has double electro-optic tuning efficiency and a much broader operating range of intensity of the control electric field. In a safe region of electric field intensity, the transmitted central wavelength can extend from 1488 to 1562nm. Since the tuning is via the Pockels effect, it has very fast response time (tens of nanoseconds). © 2010 IOP Publishing Ltd.
Number of references:25
Main heading:Matched filters
Controlled terms:Electric fields - Fiber optic sensors - Tuning
Uncontrolled terms:Central wavelength - Electric field intensities - Electro-optic modulation - Electro-optics - Fast response time - Filter-based - Flat-top - High-speed - Operating ranges - Periodic electrodes - Pockels effect - Quasi-phase-matched - Safe region - Single domains - Tunable optical filters - Uniform electric fields - Widely tunable
Classification code:741.1.2 Fiber Optics - 732.2 Control Instrumentation - 716.4 Television Systems and Equipment - 744.1 Lasers, General - 716.3 Radio Systems and Equipment - 703.2 Electric Filters - 701.1 Electricity: Basic Concepts and Phenomena - 713 Electronic Circuits
DOI:10.1088/2040-8978/12/3/035213
Database:Compendex

<RECORD 280>

Authors:Zhao, Lingling (1); Chen, Danni (1); Qi, Jing (1); Qu, Junle (1)
Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems, Institute of Optoelectronics, Shenzhen University, 3688 Nanhai Road, Shenzhen, 518060, China
Corresponding author:Zhao, L.

Abstract:In this paper, we present our investigation on multispectral autofluorescence lifetime imaging of RPE cells using two-photon excitation. Morphological characters of RPE cells are obtained with high spatial resolution. Different autofluorescence lifetime parameters have been compared at different emission bands. Spatial distribution of dominant endogenous fluorophores in RPE cells, such as FAD, A2E and AGE etc have been obtained by the analysis of τm and a1/a2 ratio in the whole emission spectrum. © 2010 Copyright SPIE - The International Society for Optical Engineering.

<RECORD 281>

Authors:Wu, Yingcai (1); Qu, Huamin (1); Chung, Ka-Kei (1); Chan, Ming-Yuen (1); Zhou, Hong (2)
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Abstract:With the rapid development in graphics hardware and volume rendering techniques, many volumetric datasets can now be rendered in real time on a standard PC equipped with a commodity graphics board. However, the effectiveness of the results, especially direct volume rendered images, is difficult to validate and users may not be aware of ambiguous or even misleading information in the results. This limits the applications of volume visualization. In this paper, we introduce four quantitative effectiveness measures: distinguishability, contour clarity, edge consistency, and depth coherence measures, which target different effectiveness issues for direct volume rendered images. Based on the measures, we develop a visualization system with automatic effectiveness assessment, providing users with instant feedback on the effectiveness of the results. The case study and user evaluation have demonstrated the high potential of our system. ©2010 IEEE.

Number of references:25
Main heading:Computer graphics

Controlled terms:Standardization - Visualization - Volume rendering

Uncontrolled terms:Distinguishability - Effectiveness assessment - Effectiveness measure - Graphics board - Graphics hardware - High potential - I.3.6 [computer graphics]: methodology and techniques - Misleading informations - Rapid development - Real time - Rendered images - User evaluations - Visualization system - Volume visualization - Volumetric data sets

Classification code:723.2 Data Processing and Image Processing - 723.5 Computer Applications - 902.1 Engineering Graphics - 902.2 Codes and Standards - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory

<RECORD 282>

Title:Erbium-doped photonic crystal fiber laser with 49 mW

Authors:Yang, Haili (1); Ruan, Shuangchen (1); Yu, Yongqin (2); Zhou, Hang (1)

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Abstract:We have demonstrated a continuous-wave (CW) all fiber laser operation at 1558.4 nm of a diode-pumped erbium-doped PCF laser based on 9.6 m erbium-doped PCF. The maximum output power and the threshold of the fiber laser are 49.4 mW and 6.67 mW, respectively. We show that it is possible to achieve a high stability and beam quality laser, which has a great application potential in optical communication field in future. © 2010 Elsevier B.V. All rights reserved.

Number of references:17

Main heading:Photonic crystal fibers

Controlled terms:Crystal whiskers - Erbium - Fiber lasers - Fibers - Mirrors - Nonlinear optics - Optical communication - Optical resonators - Photonic crystals - Pumping (laser)

<RECORD 283>

Title:Artemisinin induces ROS-mediated caspase3 activation in ASTC-a-1 cells
Authors:Xiao, Feng-Lian (1); Chen, Tong-Sheng (1); Qu, Jun-Le (3); Liu, Cheng-Yi (2)
Author affiliation:(1) MOE Key Laboratory of Laser Life Science, Institute of Laser Life Science, South China Normal University, Guangzhou 510631, China; (2) Laboratory of Laser Sports Medicine, South China Normal University, Guangzhou 510631, China; (3) Institute of Optoelectronics, Shenzhen University, Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Shenzhen 518060, China
Corresponding author:Chen, T.-S.
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Abstract:Artemisinin (ART), an antimalarial phytochemical from the sweet wormwood plant or a naturally occurring component of Artemisia annua, has been shown a potential anticancer activity by apoptotic pathways. In our report, cell counting kit (CCK-8) assay showed that treatment of human lung adenocarcinoma (ASTC-a-1) cells with ART effectively increase cell death by

inducing apoptosis in a time- and dose-dependent fashion. Hoechst 33258 staining was used to detect apoptosis as well. Reactive oxygen species (ROS) generation was observed in cells exposed to ART at concentrations of 400 μM for 48 h. N-acetyl-L-cysteine (NAC), an oxygen radical scavenger, suppressed the rate of ROS generation and inhibited the ART-induced apoptosis. Moreover, AFC assay (Fluorometric assay for Caspase3 activity) showed that ROS was involved in ART-induced caspase3 acitvation. Taken together, our data indicate that ART induces ROS-mediated caspase3 activation in a time-and dose-dependent way in ASCT-a-1 cells. © 2010 Copyright SPIE - The International Society for Optical Engineering.

Number of references:15

Main heading:Cell death

Controlled terms:Acoustic fields - Immunology - Oxygen

Uncontrolled terms:Anticancer activities - Apoptosis - Apoptotic pathways - Artemisia annua - Artemisinin - Caspase-3 - Caspase-3 activation - Cell counting - Dose-dependent - Fluorometric assay - Hoechst 33258 - Human lung - In-cell - Induced apoptosis - N-acetyl-L-cysteine - Naturally occurring - Oxygen radical - Reactive oxygen species

Classification code:461.9 Biology - 461.9.1 Immunology - 751 Acoustics, Noise. Sound - 804 Chemical Products Generally - 941.2 Acoustic Variables Measurements

DOI:10.1117/12.839551

Database:Compendex

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<RECORD 284>

Title:Hysteresis and bistability in periodically paced cardiac tissue

Authors:Huang, Xiaodong (1); Qian, Yu (2); Zhang, Xiaoming (3); Hu, Gang (1)

Author affiliation:(1) Department of Physics, Beijing Normal University, Beijing 100875, China; (2) Nonlinear Research Institute, Baoji University of Arts and Sciences, Baoji 721007, China; (3) College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China

Corresponding author:Huang, X.

Abstract:Hysteresis in periodically paced cardiac tissue is an important issue due to its relevance to cardiac arrhythmias. In the present paper, the mechanism of hysteresis formation and the related properties are interpreted by numerically investigating the phase I Luo-Rudy model. A formula calculating the width of hysteresis is proposed and well confirmed by numerical simulations. We also find that hysteresis in cardiac tissue shows several characteristics due to couplings among cardiac cells which are absent in a single cell. The influences of the physiological parameters are studied in detail. The model dependence of hysteresis is elucidated by considering a number of well-known models of excitable media. Moreover, the influence of bistability on controlling arrhythmias is revealed. © 2010 The American Physical Society.
Number of references:41
Main heading:Hysteresis
Controlled terms:Computer simulation - Heart - Physiological models
Uncontrolled terms:Bi-stability - Cardiac arrhythmia - Cardiac cell - Cardiac tissues - Excitable media - Luo-Rudy model - Numerical simulation - Phase I - Physiological parameters - Single cells
Classification code:461.1 Biomedical Engineering - 461.2 Biological Materials and Tissue Engineering - 701.2 Magnetism: Basic Concepts and Phenomena - 723.5 Computer Applications - 931.2 Physical Properties of Gases, Liquids and Solids - 961 Systems Science
DOI:10.1103/PhysRevE.81.051903
Database:Compendex

<RECORD 285>

Title:Towards a memetic feature selection paradigm
Authors:Zhu, Zexuan (1); Jia, Sen (1); Ji, Zhen (1)
Author affiliation:(1) Shenzhen University, China
Corresponding author:Zhu, Z.
Abstract:Feature selection has become the focus of many real-world application oriented developments and applied research in recent years. With the rapid advancement of computer and database technologies, problems with hundreds and thousands of variables or features are now

ubiquitous in pattern recognition, data mining, and machine learning [1], [2]. In this article, we consider two real-world feature selection applications: gene selection in cancer classification based on microarray data and band selection for pixel classification using hyperspectral imagery data. © 2010 IEEE.

<RECORD 286>

Authors:Yang, Jun-Bo (1); Liu, Ju (1); Yang, Jian-Kun (1); Li, Xiu-Jian (1); Su, Xian-Yu (2); Xu, Ping (3)
Author affiliation:(1) Tech.-Physical Research Center, National University of Defense Technology, Changsha 410073, China; (2) Department of Optoelectronics, Sichuan University, Chengdu 610064, China; (3) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Yang, J.-B.
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Abstract:Based on the matured polarization control technology to realize routing and switching of signal beams, a novel odd ports and asymmetrical optical switch including 2×3 and 3×3 switch elements is proposed by using phase spatial light modulator(PSLM). It has the advantages of compact structure, efficient performance, small size, low energy loss, and polarization-independent due to exploiting the building block pattern. The theoretical analysis and preliminary experimental parameters show that the functional experimental prototype with large number of input/output ports should be helpful in the optimization of large-scale optical switch matrix.
Number of references:22
Main heading:Light modulators
Controlled terms:Energy dissipation - Light modulation - Optical communication - Optical data processing - Optical switches - Polarization - Switching circuits
Uncontrolled terms:Optical computing - Optical network - Optical networks - Phase spatial light modulator - Polarizing beam splitters
Classification code:741.1 Light/Optics - 723.2 Data Processing and Image Processing - 721.3 Computer Circuits - 717.2 Optical Communication Equipment - 741.3 Optical Devices and Systems - 717.1 Optical Communication Systems - 711.1 Electromagnetic Waves in Different Media - 701.1 Electricity: Basic Concepts and Phenomena - 525.4 Energy Losses (industrial and residential) - 713.4 Pulse Circuits
Database:Compendex

<RECORD 287>

Title:Study on real-time imaging of single stretched DNA molecules by total internal reflection fluorescence microscopy
Authors:Lin, Dan-Ying (1); Liu, Xiao-Chen (1); Wang, Peng-Fei (1); Ma, Wan-Yun (1)
Author affiliation:(1) Key Laboratory for Atomic and Molecular Nanosciences of Ministry of Education, Department of Physics, Tsinghua University, Beijing 100084, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education/Guangdong Province, Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China
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Document type:Journal article (JA)

Abstract:Total internal reflection fluorescence microscopy (TIRF) is a powerful tool for single molecule study, since only a thin layer of about 200 nanometers is excited by the evanescent wave, resulting in high sensitivity of detection and high signal-to-noise ratio of images. Molecular combing is a convenient and efficient way to stretch DNA molecules with the help of the binding force between DNA molecule and solid surface, as well as the lateral force introduced by ambient fluid flow. In the present paper, real-time fluorescence imaging of single DNA molecules was carried out with these two techniques. Clear images of single stretched DNA were obtained, while photocleavage of DNA-YOYO-1complex was found to be naturally avoided under TIRF imaging conditions. Photobleaching of the complexes was investigated in real-time, and was greatly reduced by synchronizing the excitation of light (laser) and the exposure of detector (ICCD). The method optimized the experimental conditions for long-lasting real-time observation and imaging of single stretched DNA molecules, so as to lay a foundation for visually studying the kinetic processes of interactions between DNA and proteins.

Number of references:20

Main heading:Genes

Controlled terms:Complexation - DNA - Fading (radio) - Flow of fluids - Fluorescence - Fluorescence microscopy - Laser excitation - Molecules - Photobleaching - Reflection - Refractive index - Signal to noise ratio

Uncontrolled terms:Ambient fluids - Binding forces - DNA molecules - Evanescent wave - Experimental conditions - High sensitivity - High signal-to-noise ratio - Kinetic process - Lateral force - Long lasting - Molecular combing - Photocleavages - Real-time fluorescence imaging - Real-time observation - Realtime imaging - Single DNA molecules - Single molecule - Single-molecule studies - Solid surface - Thin layers - TIRF imaging - Total internal reflection fluorescence - Total internal reflection fluorescence microscopy

Classification code:801.2 Biochemistry - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 801 Chemistry - 931.1 Mechanics - 931.4 Quantum Theory; Quantum Mechanics - 941.3 Optical Instruments - 931.3 Atomic and Molecular Physics - 744.9 Laser Applications - 461.9 Biology - 461.9.1 Immunology - 631.1 Fluid Flow, General - 461.2 Biological Materials and Tissue Engineering - 711 Electromagnetic Waves - 716.3 Radio Systems and Equipment - 741.1 Light/Optics - 716.1 Information Theory and Signal Processing

<RECORD 288>

Title:Development of enzyme linked immunoassay for the simultaneous detection of carbaryl and metolcarb in different agricultural products

Authors:Sun, Jingwei (1); Dong, Tingting (1); Zhang, Yan (1); Wang, Shuo (1)
Author affiliation:(1) Key Laboratory of Food Nutrition and Safety, Ministry of Education of China, Tianjin University of Science and Technology, Tianjin 300457, Switzerland; (2) College of

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Abstract:A direct competitive enzyme linked immunosorbent assay in multi-enzyme tracers format for the simultaneous analysis of carbaryl and metolcarb in agricultural products is described in this study. The concentrations of coating antibodies and enzyme tracer were studied. Under the optimum conditions, the limits of detection of carbaryl and metolcarb were $0.15\mu gL^{-1}$ and $1.2\mu gL^{-1}$, respectively. Determination of carbaryl and metolcarb in fruit juices and vegetables was accomplished by simple, rapid and efficient extraction methods. Recoveries of spiked samples were great than 70%. Validation of the immunosorbent assay was conducted by comparison of results from high performance liquid chromatography (HPLC). The correlations between the data obtained using multi-enzyme tracers enzyme linked immunosorbent assay and high performance liquid chromatography were good. Results indicated that the new strategy for developing immunoassay for simultaneous quantitative determination of carbaryl and metolcarb residues was suitable in this study. © 2010.

<RECORD 289>

Title:Overview of DNA sequence data compression techniques

Authors:Ji, Zhen (1); Zhou, Jia-Rui (1); Jiang, Lai (1); Wu, Q.H. (2)
Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, Guangdong 518060, China; (2) Department of Electrical and Electronics Engineering, The University of Liverpool, Liverpool, L69 3GJ, United Kingdom

Corresponding author:Ji, Z.
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Abstract:DNA data features based encoding algorithms are employed in DNA compression techniques for efficiency improvement. In this paper, an overview of DNA data compression techniques is presented including basic concept and data features of DNA sequence, general description of DNA compression techniques, typical DNA compression algorithms, and compression evaluation standards. Future investigations on DNA compression techniques are also discussed.
Number of references:36
Main heading:Data compression
Controlled terms:Algorithms - DNA - Encoding (symbols) - Genes - Standards
Uncontrolled terms:Basic concepts - Data feature - DNA compression - DNA data - DNA sequence data - Efficiency improvement - Encoding algorithms - Evaluation standard - General description
Classification code:902.2 Codes and Standards - 801.2 Biochemistry - 723.2 Data Processing and Image Processing - 921 Mathematics - 723 Computer Software, Data Handling and Applications - 716.1 Information Theory and Signal Processing - 461.2 Biological Materials and Tissue Engineering - 722.3 Data Communication, Equipment and Techniques
Database:Compendex

<RECORD 290>

Title:Spectrally resolved multifocal multiphoton microscopy using microlens array and galvo mirror scanning

Authors:Li, Heng (1); Shao, Yonghong (2); Wang, Yan (2); Qu, Junle (2); An, Ying (1); Niu, Hanben (2)
Author affiliation:(1) College of Opt-Electro Engineering, Xi'an Technological University, Xi'an, Shaanxi 710032, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Institute of Optoelectronics, Shenzhen University, Shenzhen, Guangdong 518060, China
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Abstract:We present a novel spectrum-resolved multifocal multiphoton microscopy (SR-MMM) that is capable of performing fast 2-dimensional (2D) spectral measurements of fluorescent samples with optical sectioning. Fluorescence emission from the excited lines on the sample is spectrally dispersed with a prism, and a CCD array is used to acquire the spectrally resolved image. Spectrally resolved images of 512 pixel × 512 pixel can be obtained by acquiring only 128 raw images when a 4 × 4 excitation foci array is used. Multi-color fluoresent beads, sample slide of a stained lily and pollen particles are used for spectrally resolved imaging experiment. The spectral measurement range is from 450 nm to 700 nm, and the spectral resolution is less than 3 nm.
Number of references:20
Main heading:Fluorescence
Controlled terms:Fluorescence microscopy - Fluorescence spectroscopy - Pixels
Uncontrolled terms:Biophotonics - CCD arrays - Fluorescence emission - Micro-lens arrays - Multi-colors - Multi-photon microscopy - Multifocal - Multiphoton excitation - Optical sectioning - Pollen particles   - Raw images - Spectral measurement - Spectrally resolved imaging
Classification code:941.3 Optical Instruments - 931.4 Quantum Theory; Quantum Mechanics - 742.2 Photographic Equipment - 741.3 Optical Devices and Systems - 941.4 Optical Variables Measurements - 741.1 Light/Optics - 722.2 Computer Peripheral Equipment - 461.9.1 Immunology - 461.9 Biology - 723.5 Computer Applications

<RECORD 291>

Authors:Lian, Jiarong (1); Zhou, Xiang (1)
Author affiliation:(1) State Key Laboratory of Optoelectronic Materials and Technologies, Sun Yat-Sen University, Guangzhou, Guangdong 510275, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Shenzhen University, Shenzhen, Guangdong 518060, China
Corresponding author:Zhou, X.

(stszx@mail.sysu.edu.cn)

Abstract:Here the performance dependence of the organic light-emitting devices (OLEDs) on the location of a 0.5 nm LiF interlayer had been investigated, of which the thin LiF layer was used as a hole blocking and exciton confining layer. It was found that all the OLEDs exhibited improved efficiency when the LiF interlayer was used. When the LiF interlayer located 20-40 nm distance to the interface of TPD/Alq$_3$, OLEDs showed peak electroluminescence efficiencies of around 4.5 cd/A, which is around 1.8 times of that in control device without LiF layer. Meanwhile, the current density of the devices increased when reducing the distance between LiF interlayer and cathode interface. The LiF interlayer was used to block the unrecombined holes at the interface between the recombination region and LiF interlayer, so that the electric field inside electron transport region increased, leading to a better electron transport and injection, improved charge balance and recombination probability in the recombination region. LiF interlayer may also confine the excitons in the recombination region and suppress the exciton quenching by the metal cathode.

Number of references:14
Main heading:Light
Controlled terms:Current density - Electric fields - Electron transitions - Electron transport

properties - Excitons - Luminescence - Optical devices - Optical instruments

<RECORD 292>

Title:Characterization of biocompatible CdTe/ZnTe quantum dots and its application in cell labeling

Authors:Liu, Xia (1); Chen, Dan-Ni (1); Qu, Jun-Le (1); Yang, Jian-Tai (2); Luo, Yong-Xiang (2); Indrajit, Roy (2); Wang, Xiao-Mei (3); Lin, Xiao-Tan (3); Zhong, Lei (3); Paras, Prasad N (2); Xu, Gai-Xia (1); Niu, Han-Ben (1)

Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronics Engineering, Shenzhen University, Shenzhen 518060, China; (2) Institute for Lasers, Photonics and Biophotonics, The State University of New York at Buffalo, Buffalo, NY 14260-3000, United States; (3) Shenzhen Key Laboratory of Biomedical Engineering, College of Medicine, Shenzhen University, Shenzhen 518060, China

Corresponding author:Niu, H.-B.
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Abstract:Water-soluble CdTe/ZnTe core-shell quantum dots (QDs) coated with L-cysteine were synthesized in low-temperature aqueous-phase one-pot approach. The authors measured the spectral characteristics of QDs at different pH in various buffer solutions and under different excitation laser powers. The primary results show that the absorption spectra of QDs approximately overlap and the fluorescence spectra peaks have no shift in different pH solution.

The fluorescence intensity increased linearly with increasing pH. With the incubation time in borate buffer solution, the fluorescence intensity decreased a little. Under strong power laser, the QDs were photobleached rapidly. However, QDs are strongly anti-photobleaching under appropriate laser power (<100 μW). Thus, such QDs have good biological stability and optical stability. By conjugating the QDs with transferrin protein and constructing the targeted fluorescent nanoparticles, the authors labelled the HeLa cell successfully. Photobleaching experiments in vivo show that microenvironment inside cells affect the stability and accelerate the photobleaching of QDs.

Number of references:16

Main heading:Fluorescence

Controlled terms:Labeling - Laser excitation - Laser optics - Photobleaching - Semiconductor quantum dots - Synthesis (chemical)

Uncontrolled terms:Biological stability - Borate buffer solutions - Buffer solutions - CdTe/ZnTe - Cell labeling - Core-shell quantum dots - Excitation lasers - Fluorescence intensities - Fluorescence spectra - Fluorescent nanoparticles - HeLa cell - In-cell - In-vivo - Incubation time - L-cysteine - Laser power - Low temperatures - Microenvironments - One pot - Optical stability - Power lasers - Quantum Dot - Spectral characteristics

Classification code:801.4 Physical Chemistry - 801 Chemistry - 744.9 Laser Applications - 802.2 Chemical Reactions - 744.1 Lasers, General - 714.2 Semiconductor Devices and Integrated Circuits - 694.1 Packaging, General - 741.1 Light/Optics

DOI:10.3964/j.issn.1000-0593(2010)05-1290-05

Database:Compendex

<RECORD 293>

Title:Study of topological structure and signal routing of the asymmetrical omega network

Authors:Yang, Jun-Bo (1); Liu, Ju (1); Yang, Jian-Kun (1); Li, Xiu-Jian (1); Su, Xian-Yu (2); Xu, Ping (3)

Author affiliation:(1) Tech.-Physical Research Center, National University of Defense Technology, Changsha 410073, China; (2) Department of Optoelectronics, Sichuan University, Chengdu 610064, China; (3) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China

Corresponding author:Yang, J.-B.
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Abstract:An especial type of multistage optical network (i.e. the asymmetrical multistage omega network) has been proposed for solving the problem of complicated topological structure, high hardware cost of crossbar network, and the complexity of optical implementation of the rearrangeable nonblocking multistage network, such as banyan+banyan[-1] and omega[-1]+omega network. Its topological structure has been discussed and analyzed in detail, and the corresponding routing algorithm has also been proposed and improved to fulfill the input signal routing of the new version network discussed here. The analysis and discussion also show this multistage omega network, which is sufficient for realization of all permutations of input signals, takes the advantages of simple structure, operation flexibility, lower power loss, effective routing processing, and high scalability. It can be widely used in optical communication and optical information processing.
Number of references:19
Main heading:Optical communication
Controlled terms:Interconnection networks - Optical data processing - Optical interconnects - Topology
Uncontrolled terms:Crossbar networks - Hardware cost - Input signal - Multistage networks - Operation flexibility - Optical implementations - Optical information processing - Optical interconnection network - Optical networks - Perfect shuffle - Power-losses - Rearrangeable nonblocking - Signal routing - Simple structures - Topological structure
Classification code:921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 913.3 Quality Assurance and Control - 741.3 Optical Devices and Systems - 723.2 Data Processing and Image Processing - 721 Computer Circuits and Logic Elements - 717.1 Optical Communication Systems - 703.1 Electric Networks
Database:Compendex

<RECORD 294>

Accession number:20100812730817Title:Low temperature coefficient of resistivity induced by magnetic transition and lattice contraction in Mn_3NiN compound
Authors:Sun, Ying (1); Wang, Cong (1); Chu, Lihua (1); Wen, Yongchun (1); Nie, Man (1); Liu, Fusheng (2)
Author affiliation:(1) Center for Condensed Matter and Materials Physics, School of Physics, Beihang University, Beijing, 100083, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Wang, C.
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Abstract:We report the low temperature coefficient of resistivity (TCR) of antiperovskite Mn_3NiN compound for the first time. Interestingly, the resistivity remained almost constant with temperature from 250 K. The $d\rho/dT$ value and the TCR were determined to be about 7.17×10^{-8} Ω cm K^{-1} and 12.3×10^{-5} K^{-1}, respectively. It was found that the low TCR behavior was related to the magnetic transition and large lattice contraction. The origin of low TCR behavior was further analyzed based on the Labbé-Jardin tight-binding approximation model. © 2010 Acta Materialia Inc.
Number of references:20
Main heading:Electric reactors
Controlled terms:Manganese - Manganese compounds - Nickel compounds - Thermal conductivity of solids
Uncontrolled terms:Antiperovskite - Lattice contraction - Low temperature coefficients - Magnetic transitions - Tight-binding approximations
Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 804.2 Inorganic Compounds - 804.1 Organic Compounds - 933 Solid State Physics - 704.1 Electric Components - 641.1 Thermodynamics - 543.2 Manganese and Alloys - 641.2 Heat Transfer
DOI:10.1016/j.scriptamat.2010.01.027
Database:Compendex

<RECORD 295>

Accession number:20101112769522Title:SiC nanowire-toughened $MoSi_2$-SiC coating to protect carbon/carbon composites against oxidation

Authors:Fu, Qian-Gang (1); Li, He-Jun (1); Zhang, Zheng-Zhong (1); Xie-Rong, Zeng (2); Li, Ke-Zhi (1)
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Abstract:To protect carbon/carbon (C/C) composites against oxidation, a SiC nanowire-toughened MoSi$_2$-SiC coating was prepared on them using a two-step technique of chemical vapor deposition and pack cementation. SiC nanowires obtained by chemical vapor deposition were distributed random-orientedly on C/C substrates and MoSi$_2$-SiC was filled in the holes of SiC nanowire layer to form a dense coating. After introduction of SiC nanowires, the size of the cracks in MoSi$_2$-SiC coating decreased from 18 ± 2.3 to 6 ± 1.7 μm, and the weight loss of the coated C/C samples decreased from 4.53% to 1.78% after oxidation in air at 1500 °C for 110 h. © 2010 Elsevier Ltd. All rights reserved.
Number of references:17
Main heading:Silicon carbide
Controlled terms:Carbon carbon composites - Carbon silicon carbide composites - Ceramic materials - Chemical vapor deposition - Coatings - Intermetallics - Nanowires - Oxidation
Uncontrolled terms:A. Ceramic matrix composites - A. Intermetallics - C. Oxidation - Carbon/carbon - Dense coating - Pack cementation - SiC coatings - SiC nanowire - Two-step technique - Weight loss
Classification code:933 Solid State Physics - 813.2 Coating Materials - 813.1 Coating Techniques - 812.2 Refractories - 812.1 Ceramics - 804.2 Inorganic Compounds - 802.2 Chemical Reactions - 761 Nanotechnology - 539 Metals Corrosion and Protection; Metal Plating - 531.1 Metallurgy - 415.4 Structural Materials Other Than Metal, Plastics or Wood
DOI:10.1016/j.corsci.2010.01.031
Database:Compendex

<RECORD 296>

Accession number:20101612855237Title:Isothermal section of the Nd-Co-Ti ternary system at 500 °C
Authors:Yan, J.L. (1); Wei, X.X. (1); Hu, S.L. (1); Gao, C. (1); Zhuang, Y.H. (1); Li, J.Q. (2)
Author affiliation:(1) College of Materials Science and Engineering, Guangxi University, Key Laboratory of Nonferrous Metal Materials and New Processing Technology, Nanning, Guangxi

530004, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, 518060, China

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Abstract:The isothermal section of the Nd-Co-Ti system at 500 °C has been investigated by means of XRD and SEM/EDS techniques. Compound Nd_2Co_3 was observed to exist at 500 °C with the orthorhombic La_2Ni_3-type structure, space group Cmca and unit cell parameters a = 0.4986(2) nm, b = 1.0000(2) nm, c = 0.7546(2) nm. One ternary compound $NdTi_xCo_{12-x}$ with the tetragonal $ThMn_{12}$-type structure (space group I4/mmm) was found with a homogeneity range of $1.43 \le x \le 1.82$, i.e. 11-14 at.% Ti. The structure of $NdTi_{1.7}Co_{10.3}$ was determined by Rietveld refinement method with the unit cell parameters a = 0.84616 (1) nm, c = 0.47447 (1) nm. The maximum solid solubilities of Ti in Nd_2Co_{17}, Nd_2Co_7, $NdCo_3$, $NdCo_2$, and Nd_3Co are 6, 1.5, 2, 4 and 2 at.%, respectively. © 2010 Elsevier B.V. All rights reserved.

Number of references:20

Main heading:Crystal structure

Controlled terms:Isotherms - Neodymium - Phase diagrams - Rare earth alloys - Rare earths - Rietveld method - Rietveld refinement - Ternary alloys - Ternary systems - X ray diffraction

Uncontrolled terms:Isothermal sections - Rare-earth alloys and compounds - Rietveld refinement method - SEM - SEM/EDS - Solid solubilities - Space Groups - Ternary compounds - Type structures - Unit cell parameters   - XRD

Classification code:801 Chemistry - 801.4 Physical Chemistry - 804.2 Inorganic Compounds - 933.1.1 Crystal Lattice - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 931.3 Atomic and Molecular Physics - 933.1 Crystalline Solids - 931.2 Physical Properties of Gases, Liquids and Solids - 701 Electricity and Magnetism - 641.1 Thermodynamics - 481.2 Geochemistry - 482.1 Mineralogical Techniques - 531 Metallurgy and Metallography - 531.1 Metallurgy - 531.2 Metallography - 547.2 Rare Earth Metals

DOI:10.1016/j.jallcom.2010.02.104

Database:Compendex

<RECORD 297>

Authors:Li, L. (1); Shan, C.X. (1); Li, B.H. (1); Zhang, J.Y. (1); Yao, B. (1); Shen, D.Z. (1); Fan, X.W. (1); Lu, Y.M. (3)
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Abstract:Owing to the low doping concentration of nitrogen and strong compensation of intrinsic donors, the attainment of highly conductive p-type ZnO films remains one of the largest challenges for the application of ZnO. An approach has been proposed to increase the doping concentration of nitrogen in ZnO by exposing the ZnO:N films in the ambient of nitrogen plasma periodically in this paper. Hall measurements and photoluminescence spectroscopy indicate that this approach is effective in improving the hole concentration in ZnO films. Under the optimized conditions, a p-type ZnO film with a hole concentration of $1.68\ \times\ 10^{18}$ cm^{-3} has been achieved. © 2010 Springer Science+Business Media, LLC.

Number of references:26
Main heading:Hole concentration
Controlled terms:Concentration (process) - Conductive films - Metallic films - Nitrogen - Nitrogen plasma - Photoluminescence spectroscopy - Zinc oxide
Uncontrolled terms:Acceptor concentrations - Doping concentration - Hall measurements - Optimized conditions - P-type ZnO film - ZnO - ZnO films
Classification code:531 Metallurgy and Metallography - 539 Metals Corrosion and Protection; Metal Plating - 701.1 Electricity: Basic Concepts and Phenomena - 708.2 Conducting Materials - 741.3 Optical Devices and Systems - 802.3 Chemical Operations - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 932.3 Plasma Physics
DOI:10.1007/s10853-010-4497-1

<RECORD 298>

Authors:Zeng, Xierong (1); Fu, Dongju (2); Sheng, Hongchao (2); Xie, Shenghui (1); Li, Xiaohua (1); Hu, Qiang (2); Zou, Jizhou (1)
Author affiliation:(1) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (2) School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an, Shannxi 710072, China; (3) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen 518060, China
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Abstract:Both carbon nanospheres and CNTs with different morphologies were synthesized without any catalyst by microwave pyrolysis chemical vapor deposition using methane as carbon source and nitrogen as diluted gas. The morphology and structure of the products were characterized by field-emission scanning electron microscopy, high resolution transmission electron microscopy and Raman spectroscopy. The experimental results demonstrated that reaction temperature, gas ratio of methane to nitrogen and total gas flow rate strongly influenced the nature of various nanocarbon materials. Raman spectra indicated that the carbon nanospheres and CNTs possess relatively low degree of graphitization. © 2010 Elsevier B.V. All rights reserved.
Main heading:High resolution transmission electron microscopy
Controlled terms:Chemical vapor deposition - Cracking (chemical) - Methane - Morphology - Nanospheres - Nitrogen - Raman scattering - Raman spectroscopy - Scanning electron microscopy
Uncontrolled terms:Carbon nanosphere - Carbon Nanostructures - Carbon source - Diluted gas - Field emission scanning electron microscopy - Gas flowrate - Gas ratio - Low degree - Microwave pyrolysis - Microwave-assisted   - Nano-carbon material - Raman spectra - Reaction temperature
Classification code:522 Gas Fuels - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 802.2 Chemical Reactions - 804 Chemical Products Generally - 933 Solid State Physics - 951 Materials Science
DOI:10.1016/j.physe.2010.04.002

<RECORD 299>

Title:Research on stamping of aluminum alloy hemispherical components based on numerical simulation and experiments

Authors:Han, Chengjun (1); Lin, Xinbo (1); Li, Yanbo (1)
Author affiliation:(1) College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Han, C.
        (hanchenghua@yahoo.com.cn)

Abstract:Experimental research on stamping of wrought aluminum alloy has been an important issue at home and abroad. In this paper, taking stamping of aluminum alloy hemispherical components for example, the effects of blank holder force (BHF) on stamping forming process of aluminum alloy are explored by methods of experiments and numerical simulation. Through experiments, the forming laws of hemispherical components are found out. The research shows that the BHF has significant effects on the quality of stamping components and reasonable BHF can greatly improve the formability of hemispherical components. Additionally, by applying simulation software in stamping, the development circle of product and its moulds can be shortened, and product quality and its competitiveness in the market can be improved. © (2010) Trans Tech Publications.
Number of references:9
Main heading:Stamping
Controlled terms:Aluminum - Aluminum alloys - Aluminum metallurgy - Competition - Computer simulation - Computer software - Experiments - Numerical methods

<RECORD 300>

Title:The study of mechanical properties of structural lightweight concrete
Authors:Cui, H.Z. (1); Xing, F. (1)
Author affiliation:(1) Shenzhen Durability Center for Civil Engineering, College of Civil Engineering, Shenzhen University, 518060, China
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Abstract:Many investigations have been conducted on compressive strength of lightweight aggregate concretes (LWAC), but there are few experimental studies on the relationship between compressive strength, bond strength and elastic modulus of LWAC. In this paper, the specimens of twenty kinds of LWACs with different mix proportions were made. Properties of compressive

strength, bond strength and modulus of elasticity of the LWACs were tested. Based on the testing resulting, equations for relationship between bond strength and compressive strength of the LWAC were established. For LWAC modulus of elasticity, the experimental results of this study can fit well with predicted equation of ACI 318. © (2010) Trans Tech Publications.

Number of references:7

Main heading:Compressive strength

Controlled terms:Aggregates - Bond strength (materials) - Elastic moduli - Elasticity - Mechanical properties

Uncontrolled terms:Bond strength - Experimental studies - Light-weight aggregate concrete - Mix proportions - Modulus of elasticity

Classification code:951 Materials Science - 931.1 Mechanics - 422.2 Strength of Building Materials : Test Methods - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties - 412.2 Concrete Reinforcements - 406 Highway Engineering

DOI:10.4028/www.scientific.net/AMR.97-101.1620

Database:Compendex

<RECORD 301>

Title:Effects of Bi-NTO complex on thermal behaviors, nonisothermal reaction kinetics and burning rates of NG/TEGDN/NC propellant

Authors:Yi, Jian-Hua (1); Zhao, Feng-Qi (1); Hong, Wei-Liang (2); Xu, Si-Yu (1); Hu, Rong-Zu (1); Chen, Zhi-Qun (1); Zhang, La-Ying (1)

Author affiliation:(1) Xi'an Modern Chemistry Research Institute, Xi'an, Shaanxi 710065, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China

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Abstract:A bismuth 3-nitro-1,2,4-triazol-5-one (Bi-NTO) complex was prepared and characterized, and its effects on the thermal behaviors, non-isothermal decomposition reaction kinetics, and

burning rates of the double-base (DB) propellant containing the mixed ester of triethyleneglycol dinitrate (TEGDN) and nitroglycerin (NG) with Bi-NTO complex as a ballistic modifier were investigated by thermogravimetry and derivative thermogravimetry (TG-DTG), and differential scanning calorimetry (DSC). The results show that Bi-NTO complex can increase the decomposition heat by 140 J g^{-1}, and it can change the decomposition reaction mechanism function, the kinetic parameters and kinetic equation of the propellant under 0.1 MPa. Combustion experiment shows that Bi-NTO complex can increase the burning rate and reduce the pressure exponent of the NG/TEGDN/NC propellant effectively, with the increase of the catalysis efficiency by 40%. Crown Copyright © 2009.

Number of references:20

Main heading:Combustion

Controlled terms:Association reactions - Bismuth - Differential scanning calorimetry - Esters - Explosives - Gravimetric analysis - Integral equations - Nitrates - Propellants - Reaction rates - Spacecraft propulsion

Uncontrolled terms:Ballistic modifiers - Burning rate - Combustion experiments - Decomposition reaction - Derivative thermogravimetry - Kinetic equations - Mixed esters - Non-isothermal decomposition - Non-isothermal kinetic - Nonisothermal reactions - Pressure exponents - Thermal behaviors - Thermogravimetry

Classification code:655.1 Spacecraft, General - 656.1 Space Flight - 801 Chemistry - 801.4 Physical Chemistry - 944.6 Temperature Measurements - 802.2 Chemical Reactions - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 921.2 Calculus - 804 Chemical Products Generally - 654.2 Rocket Engines - 654 Rockets and Rocket Propulsion - 404.1 Military Engineering - 405.2 Construction Methods - 502.2 Mine and Quarry Equipment - 521.1 Fuel Combustion - 523 Liquid Fuels - 524 Solid Fuels - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 641.1 Thermodynamics

DOI:10.1016/j.jhazmat.2009.11.021

Database:Compendex

<RECORD 302>

Title:Structural and magnetic properties of Dy$_{1-x}$Nd$_x$Co$_4$Ga compounds

Authors:Ao, W.Q. (1); Zhang, W.H. (1); Li, J.Q. (1); Yu, Y.J. (1); Liu, F.S. (1)

Author affiliation:(1) College of Materials Science and Engineering, Shenzhen University, Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, 518060, China

Corresponding author:Li, J.Q.

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Abstract:The structural and magnetic properties of $Dy_{1-x}Nd_xCo_4Ga$ compounds with x = 0, 0.2, 0.4, 0.6, 0.8 and 1.0, have been investigated by X-ray diffraction and magnetic measurements. Powder X-ray diffraction analysis revealed that the $Dy_{1-x}Nd_xCo_4Ga$ compounds form in single phase with a hexagonal $CaCu_5$-type structure (space group P6/mmm) for all the composition range. The substitution of Dy by Nd in the compound increases its lattice parameters a, c and cell volume V, but decreases the rare earth 4f-sublattice moment and reduces the 3d-3d exchange interaction. As result, the Curie temperatures of $Dy_{1-x}Nd_xCo_4Ga$ decreases from 498 K for x = 0 to 410 K for x = 1.0. The compensation temperatures T_{comp} decrease from 286 K for x = 0 to 178 K for x = 0.2, and even lower than 100 K for the samples with x = 0.4 to x = 1. The spin-reorientation transitions decreases from 403 K for x = 0 to 303 K for x = 1.0. The maximum magnetic entropy change ($-\Delta S_M$) are 0.91 J kg^{-1} K^{-1} at 301 K for the spin-reorientation (SR) transition and 0.62 J kg^{-1} K^{-1} at 405 K for FM-PM transition in the compound $NdCo_4Ga$ in the magnetic field change of 1.5 T. © 2010 Elsevier B.V. All rights reserved.

Number of references:12

Main heading:Dysprosium compounds

Controlled terms:Crystal structure - Gallium - Magnetic fields - Magnetic materials - Magnetic properties - Neodymium - Rare earth alloys - Rare earths - Spin dynamics - Structural properties - X ray diffraction - X ray diffraction analysis

Uncontrolled terms:Cell volume - Compensation temperature - Composition ranges - Lattice parameters - Magnetic entropy change - Magnetic measurements - Powder X ray diffraction - Rare-earth alloys and compounds - Single phase - Space Groups - Spin reorientation transitions - Spin-reorientation - Structural and magnetic properties - Sub-lattices - Type structures

Classification code:801.4 Physical Chemistry - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 931.3 Atomic and Molecular Physics - 932.1 High Energy Physics - 933.1.1 Crystal Lattice - 951 Materials Science - 801 Chemistry - 408 Structural Design - 481.2 Geochemistry - 531.2 Metallography - 547.2 Rare Earth Metals - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 701.2 Magnetism: Basic Concepts and Phenomena - 708.4 Magnetic Materials

DOI:10.1016/j.jallcom.2010.01.122

Database:Compendex

<RECORD 303>

Accession number:20102413003535Title:Image segmentation based on geometric active contour model

Authors:Chen, Bo (1); Dai, Qiu-Ping (2)
Author affiliation:(1) College of Mathematics and Computational Science, Shenzhen University, Shenzhen 518060, China; (2) Institute of Hydroelectric Power, Hebei University of Engineering, Handan 056021, China
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Abstract:A geometric active contour model is proposed to reduce the influence of noise on image segmentation. The corresponding partial differential equations evolved by the level set curve are got through variational principle. Prior information of the regions and boundaries of the image is considered in this model and the statistical information of the image is considered as well. Moreover, a penalized term is used as an internal energy term to avoid the time-consuming re-initialization process. To verify the efficiency of the proposed model, a segmentation instance based on simple Gauss probability density function is given, and the additive operator splitting (AOS) scheme which is efficient and unconditionally stable is employed. Experimental results show that the proposed model has high accuracy, efficiency and noisy resistance.

Number of references:12
Main heading:Image segmentation
Controlled terms:Differential equations - Digital image storage - Drop breakup - Level measurement - Mathematical operators - Probability density function - Variational techniques
Uncontrolled terms:Active contour model - Additive operator splitting - Geometric active contours - Internal energies - Level Set - Prior information - Reinitialization - Segmentation levels - Statistical information - Unconditionally stable   - Variational principles
Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 922.1 Probability Theory - 921.2 Calculus - 921 Mathematics - 943.2 Mechanical Variables Measurements - 741.3 Optical Devices and Systems - 723.2 Data Processing and Image Processing - 722.4 Digital Computers and Systems - 722.1 Data Storage, Equipment and Techniques - 741.1 Light/Optics
Database:Compendex

<RECORD 304>

Title:The adiabatic temperature rise in a poly-crystalline titanium under dynamic tensile load

Authors:Huang, Wen (1); Huang, Zhong-Wei (1)
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Abstract:Wave absorbers were added to a dynamic tensile apparataus to eliminate the reflected wave in the input and output bars in a dynamic tensile experiment, so that the dynamic load-unload technique was realized. Based on this technique, the dynamic tensile recovery technique was developed, and the dynamic isothermal stress-strain curve of titanium was obtained. Using the John-Cook model to describe the thermal softening effect, the effect of adiabatic temperature rise was characterized by comparing the isothermal stress-strain curve with the adiabatic one. About 60% of plastic work was converted to heat during dynamic plastic deformation.
Number of references:7
Main heading:Titanium
Controlled terms:Dynamic loads - Elastic waves - Recovery - Stress-strain curves
Uncontrolled terms:Adiabatic temperature rise - Aeronautical material - Dynamic tension - Stress wave - Tensile recovery
Classification code:921 Mathematics - 751.1 Acoustic Waves - 622.5 Radioactive Wastes - 931.1 Mechanics - 542.3 Titanium and Alloys - 421 Strength of Building Materials; Mechanical Properties - 408.1 Structural Design, General - 531 Metallurgy and Metallography
Database:Compendex

<RECORD 305>

Accession number:20101412825310Title:Integration of experiment and hydrostatic fluid-structure finite element analysis into dynamic characteristic prediction of a hydraulically damped rubber mount

Authors:Wang, L.R. (1); Lu, Z.H. (2); Hagiwara, I. (3)
Author affiliation:(1) Institute of Advanced Integration Technology, Shenzhen Institutes of Advanced Technology, Chinese Academy of Science, Shenzhen 518060, China; (2) Department of Automotive Engineering, State Key Laboratory of Automotive Safety and Energy, Tsinghua University, Beijing 100084, China; (3) Department of Mechanical Science and Engineering, Tokyo Institute of Technology, Tokyo 152-8522, Japan
Corresponding author:Wang, L. R.
       (lrwang@mails.tsinghua.edu.cn)

Abstract:Hydraulically damped rubber mount (HDM) can effectively attenuate vibrations transmitted between an automotive powertrain and body/chassis and reduce interior noise in the car compartment. Predicting the dynamic characteristics of a HDM faces challenges due to fluid-structure interactions between the rubber spring and fluid in the chambers, nonlinear material properties of the rubber parts and turbulent flow in the chambers and fluid track linking chambers. In this paper, an experimental analysis and hydrostatic finite element (FE) modeling technique are integrated in a numerical simulation approach to modeling the dynamic characteristics of a HDM with a lumped-parameter HDM model. The dynamic characteristics of a typical HDM with a fixed decoupler are predicted and compared with experimental results, which verify the effectiveness of the proposed approach. Moreover, a parametric effect analysis is performed to demonstrate parameter influence on dynamic characteristic, which provides a concise design guideline for the parameter adjustments necessary for a HDM to meet the vibration isolation requirements of a powertrain mount system. © 2010 The Korean Society of Automotive Engineers and Springer-Verlag Berlin Heidelberg.

Number of references:28
Main heading:Finite element method
Controlled terms:Automobile parts and equipment - Computer simulation - Dynamic analysis - Fluid structure interaction - Fluids - Hydraulics - Hydrodynamics - Mountings - Rubber - Vibration analysis

Uncontrolled terms:Decouplers - Design guidelines - Dynamic characteristics - Engine mount - Experimental analysis - Finite Element - Finite element analysis - Finite element modeling - Fluid-structures - Hydraulically damped rubber mounts - Interior noise - Lumped-parameter - Mount system - Nonlinear material properties - Numerical simulation - ON dynamics - Parametric effects - Rubber parts - Rubber springs - Vibration isolations

<RECORD 306>

Title:Electrodeposition and characterization of rare-earth element filled thermoelectric material $CoSb_3Sm_x$ and $CoSb_3Pr_x$

Authors:Gong, Xiao-Zhong (1); Tian, Peng (2); Zhou, Zhi (1); Zhong, Qi-Ming (1); Tang, Jiao-Ning (2)
Author affiliation:(1) Shenzhen Key Laboratory of Functional Polymers, College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory of Special Functional Materials, College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Tang, J.-N.
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Abstract:Sm, Pr-filled Skutterudite was prepared by electrodeposition in ionic liquid at the room temperature. The optimum processing conditions for preparing Skutterudite filled with a variety of

rare-earth elements, were investigated. Methods of equipment analysis, such as scanning electron microscopy, energy dispersive spectrometer, and X-ray diffraction, were employed to characterize the morphologies, the compositions, and the crystal structure of the above Skutterudites. Under the optimized reaction conditions, the amount of rare-earth element reached maximum with the composition of the alloy thin film as $Sm_{0.32}CoSb_3$ or $Pr_{0.30}CoSb_3$. Three-phase alloy thin film was composed of body-centered cubic $CoSb_3$ and the hexagonal element Sm.

Number of references:16

Main heading:Crystal structure

Controlled terms:Electrochemistry - Electrodeposition - Fused salts - Heterojunctions - Ionic liquids - Ionization of liquids - Scanning electron microscopy - Thermoelectric equipment - Thin films - X ray diffraction - X ray diffraction analysis

Uncontrolled terms:Body-centered cubic - Energy dispersive spectrometers - Filled-skutterudite - Hexagonal elements - Low temperatures - Optimized reaction conditions - Optimum processing - Phase alloys - Pulsed electrodeposition - Room temperature - Skutterudites - Thermoelectric material

Classification code:802.2 Chemical Reactions - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 801.4.1 Electrochemistry - 813.1 Coating Techniques - 931.3 Atomic and Molecular Physics - 933.1.1 Crystal Lattice - 931.2 Physical Properties of Gases, Liquids and Solids - 801.4 Physical Chemistry - 539.3.1 Electroplating - 615.4 Thermoelectric Energy - 704.2 Electric Equipment - 531.2 Metallography - 712.1 Semiconducting Materials - 741.1 Light/Optics - 801 Chemistry - 714.2 Semiconductor Devices and Integrated Circuits

Database:Compendex

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<RECORD 307>

Accession number:20102413002961Title:Improved shuffled frog leaping algorithm for solving TSP

Authors:Luo, Jian-Ping (1); Li, Xia (1)

Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Li, X.

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Abstract:A novel shuffled frog-leaping algorithm (SFLA) was proposed for solving traveling salesman problem (TSP) based on the technique of exchanging order. The data structure of moving distance and position of frog and the local information exchange strategy for the SFLA were redefined. In order to improve the local search ability, the power law extremal optimization (τ-EO) was incorporated into the SFLA. The fitness for the component of a solution was carefully designed. Simulated annealing (SA) and the 2-opt move technique were used to generate neighboring solutions in the improved τ-EO. In the shuffling process of the SFLA, a diversity control scheme was presented for the local best solution in each memeplex. Experimental results show that the performance of the proposed algorithm to solve TSP is satisfatory.
Number of references:15
Main heading:Simulated annealing
Controlled terms:Algorithms - Annealing - Cellular automata - Data structures - Ground state - Intelligent computing - Traveling salesman problem
Uncontrolled terms:Extremal optimization - Shuffled frog leaping - Shuffled frog leaping algorithm - Swarm Intelligence
Classification code:932 High Energy Physics; Nuclear Physics; Plasma Physics - 931.3 Atomic and Molecular Physics - 921.5 Optimization Techniques - 921 Mathematics - 912.3 Operations Research - 933 Solid State Physics - 723.4 Artificial Intelligence - 723.2 Data Processing and Image Processing - 723 Computer Software, Data Handling and Applications - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 537.1 Heat Treatment Processes - 723.3 Database Systems
Database:Compendex

<RECORD 308>

Accession number:20102112958409Title:Influence of sputtering power on the structure, optoelectronic properties and thermal stability of ZnO:Al films
Authors:Ma, Xiao-Cui (1); Ye, Jia-Cong (1); Cao, Pei-Jiang (1); Liu, Wen-Jun (1); Jia, Fang (1); Zhu, De-Liang (1); Lu, You-Ming (1)
Author affiliation:(1) Shenzhen Key laboratory of Special Functional Materials, College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Lu, Y.-M.
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Abstract:Al-doped ZnO (AZO) film has high transmittance in the visible region, low resistance and better stability, so AZO films have been actively investigated for potential applications in a variety of opto-electronic devices, such as solar cells, flat panel displays, transparent heat mirrors and organic light-emitting diodes. The properties of ZnO film are critically dependent on various deposition parameters, such as radio-frequency power, working gas pressure, and substrate temperature, and so on, Among these factors, the study of influence of rf power on film properties is important to build on the understanding of the relationship between film properties and process conditions. In this paper, using ZnO mixed with Al_2O_3(2%) as target, thin AZO films were prepared on glass substrates by radio frequency magnetron sputtering at different rf powers of 40, 80, 120, 160 and 200 W. The influence of sputtering power on structure, optoelectronic properties, thickness and thermal stability of thin AZO films were investigated by XRD, UV-Vis spectrophotometer, four point probe and instrument level. It was found that the AZO thin films with hexagonal wurtzite structure have a (002) c-axis preferential orientation, and the intensity of the (002) peak increase as the increase of RF power. For all of the AZO thin films, the average transmittance of the visible light is above 80%. The sheet resistance decreases as the increase of RF power. The films deposited at 160 and 200 W show good thermal stability, which change of sheet resis-tance before and after heat treatment is about 13%. This high thermal stability indicated that AZO films can replace thin Sn-doped In_2O_3 (ITO) films applying in the touch screen.

Number of references:10

Main heading:ITO glass

Controlled terms:Aluminum - Electric resistance - Flat panel displays - Heat resistance - Light emitting diodes - Metallic films - Optical films - Optoelectronic devices - Organic light emitting diodes (OLED) - Radio - Radio waves - Substrates - Thermodynamic stability - Thermogravimetric analysis - Thin films - Tin - Zinc oxide - Zinc sulfide

Uncontrolled terms:Al-doped ZnO - AZO films - AZO thin films - Before and after - Deposition Parameters - Film properties - Four point probe - Glass substrates - Heat mirrors - Hexagonal wurtzite structure - High thermal stability - High transmittance - Low resistance - Opto-electronics - Optoelectronic properties - Potential applications - Preferential orientation - Process condition - Radio frequency magnetron sputtering - Radio-frequency power - Rf-power - Sn-doped - Sputtering power - Substrate temperature - Thermal stability - Touch screen - UV-Vis spectrophotometers - Visible light - Visible region - Working gas pressure - XRD - ZnO - ZnO films - ZnO:Al films

Classification code:717.2 Optical Communication Equipment - 722.2 Computer Peripheral Equipment - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 716.3 Radio Systems and Equipment - 801 Chemistry - 812.3 Glass - 813.1 Coating Techniques - 931.2 Physical Properties of Gases, Liquids and Solids - 804.2 Inorganic Compounds - 714.2 Semiconductor Devices and

Integrated Circuits - 461 Bioengineering and Biology - 531 Metallurgy and Metallography - 539 Metals Corrosion and Protection; Metal Plating - 541.1 Aluminum - 423 Non Mechanical Properties and Tests of Building Materials - 546.2 Tin and Alloys - 701.1 Electricity: Basic Concepts and Phenomena - 711 Electromagnetic Waves - 712.1 Semiconducting Materials - 641.1 Thermodynamics

Database:Compendex

<RECORD 309>

Title:Preparation of rare earth elements(REE)-stuffed pyroelectric materials $Bi_2Sb_3Ce_x$ and $Bi_2Sb_3Nd_x$ and research on their conductivity

Authors:Gong, Xiaozhong (1); Zeng, Yanfang (1); Ye, Dongjun (1); Tian, Peng (1); Luo, Zhiyu (2); Tang, Jiaoning (1)

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Abstract:$Bi_2Sb_3Ce_x$ and $Bi_2Sb_3Nd_x$ alloy films were prepared by PRC method (Pulse Reverse Current) in carbamide-NaBr-KBr-methanamide system. Their chemical composition was determined by EDS and the crystalline structure was analyzed by XRD. Under the optimal processing condition, there is a maximum filling quantity of the REE and the alloy films are composed of $Bi_2Sb_3Ce_2$ and $Bi_2Sb_3Nd_{0.1}$, which are rhombic hexahedral BiSb and tetrahedral cubic monoplasmatic Ce and Nd. The conductivity of Bi-Sb semiconductor pyroelectric materials stuffed by different REEs was also discussed.

Number of references:7

Main heading:Cerium

Controlled terms:Cerium compounds - Film preparation - Geochemistry - Metallic films - Neodymium - Rare earths

Uncontrolled terms:Alloy film - Carbamide - Chemical compositions - Crystalline structure - Non-aqueous system - Optimal processing - Pyroelectric materials - Reverse currents - XRD

Classification code:804.2 Inorganic Compounds - 804.1 Organic Compounds - 712.1 Semiconducting Materials - 813.1 Coating Techniques - 547.2 Rare Earth Metals - 531 Metallurgy and Metallography - 481.2 Geochemistry - 539 Metals Corrosion and Protection; Metal Plating

Database:Compendex

<RECORD 310>

Title:Image quality assessment based on human visibility threshold theory and structural similarity

Authors:Hu, Yuan-Yuan (1); Niu, Xia-Mu (1)

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Abstract:In the experiment on images with just noticeable distortion (JND), it was found that the influences of the luminance adaptation and contrast masking on visual perception were not taken into consideration in the image measure of structural similarity (SSIM). To overcome such limitation, the visibility threshold SSIM (VTSSIM) algorithm was proposed in the paper. First, the prototype image was divided into smooth, detailed and common image blocks according to its local standard deviations. Then, two extreme regions, i.e., the luminance adaptation extreme regions for smooth blocks and contrast masking extreme regions for detailed blocks, were determined by the JND profile. Finally, the SSIM maps of the extreme regions together with those of the remaining blocks were weighted to get the ultimate quality assessment of VTSSIM. Experimental results show that VTSSIM is consistent with the judgments of human observers than

SSIM, especially for the images with less distortion.

<RECORD 311>

Title:Synthesis of nano-structured $CePO_4$ films

Authors:Zhou, Xiao-Ming (1); Xin, Hong (1); You, Zhi-Jun (1); Chen, Yan-Mei (1); Zhang, Pei-Xin (1)
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Abstract:The nanostructured $CePO_4$ films were prepared through the water bath aging and hydrothermal process in glass slide substrate. The effects of different water environment, different reaction time on the morphology of $CePO_4$ nanostructures were discussed. The $CePO_4$ nanostructures were characterized by scanning electron microscope (SEM), X-ray diffratometer (XRD), and thermogravimetry-differential scanning calorimetry (TG-DSC). These results indicate that the nanostructured $CePO_4$ films present different patterns in different aquatic environments. The crystal structure, the length and diameter of $CePO_4$ nanowires have been changed. Reaction time is an important factor influencing the patterns of nanostructured $CePO_4$ films.

Number of references:13
Main heading:Crystal structure
Controlled terms:Differential scanning calorimetry - Nanowires - Plasma interactions - Scanning electron microscopy - Synthesis (chemical) - Thermogravimetric analysis - X ray microscopes
Uncontrolled terms:Aquatic environments - $CePO_4$ - Glass slides - Hydrothermal methods - Hydrothermal process - Nano-structured - Nanoporous Materials - Reaction time - Scanning electron microscopes - Thermogravimetry - Water baths - Water environments - XRD
Classification code:944.6 Temperature Measurements - 933.1.1 Crystal Lattice - 933 Solid State Physics - 932.3 Plasma Physics - 931.2 Physical Properties of Gases, Liquids and Solids - 802.2 Chemical Reactions - 801.4 Physical Chemistry - 801 Chemistry - 761 Nanotechnology - 741.3 Optical Devices and Systems - 741.1 Light/Optics - 641.1 Thermodynamics - 531.2 Metallography
Database:Compendex
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<RECORD 312>

Title:The effect of trifluoroethanol on tyrosinase activity and conformation: Inhibition kinetics and computational simulations
Authors:Lü, Zhi-Rong (1); Shi, Long (1); Wang, Jun (2); Park, Daeui (3); Bhak, Jong (3); Yang, Jun-Mo (4); Park, Yong-Doo (1); Zhou, Hong-Wei (1); Zou, Fei (1)
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Corresponding author:Zhou, H.-W.
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Abstract:We studied the inhibitory effects of trifluoroethanol (TFE) on the activity and conformation of tyrosinase. TFE increased the degree of secondary structure of tyrosinase, which directly resulted in enzyme inactivation. A reciprocal study showed that TFE inhibited tyrosinase

in a slope-parabolic mixed-type inhibition manner (K $_I$=0.5±0.096 M). Time-interval kinetic studies showed that the inhibition was best described as first order with biphasic processes. Intrinsic and 1-anilinonaphthalene-8-sulfonate-binding fluorescences were also measured to gain more insight into the supposed structural changes; these showed that TFE induced a conspicuous tertiary structural change in tyrosinase by exposing hydrophobic surfaces. We also predicted the tertiary structure of tyrosinase and simulated its docking with TFE. The docking simulation was successful with significant scores (binding energy for Autodock4=-4.75 kcal/mol; for Dock6=-23.07 kcal/mol) and suggested that the TRP173 residue was mainly responsible for the interaction with TFE. Our results provide insight into the structure of tyrosinase and allow us to describe a new inhibition strategy that works by inducing conformational changes rather than targeting the active site of the protein. © 2009 Humana Press.

Number of references:37

Main heading:Ethanol

Controlled terms:Binding energy - Docking - Hydrophobicity - Surface chemistry

Uncontrolled terms:Active site - Biphasic process - Computational simulation - Conformational change - Docking simulations - Enzyme inactivation - First order - Hydrophobic surfaces - Inhibition kinetics - Inhibitory effect - Kinetic study - Secondary structures - Structural change - Tertiary structures - Trifluoroethanol

Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 804.1 Organic Compounds - 801.4 Physical Chemistry - 674.1 Small Marine Craft - 672 Naval Vessels - 655.1 Spacecraft, General - 523 Liquid Fuels

DOI:10.1007/s12010-009-8730-9

Database:Compendex

Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 313>

Accession number:20102212974640Title:Effects of doping Zr^{4+} on the electrochemical performances and micro-defect of $LiFePO_4$

Authors:Zhang, Pei-Xin (1); Lin, Mu-Chong (1); Zhang, Dong-Yun (2); Yuan, Qiu-Hua (1); Ren, Xiang-Zhong (1)

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Source title:Gongneng Cailiao/Journal of Functional Materials

Abbreviated source title:Gongneng Cailiao

Volume:41

Issue:4

Issue date:April 2010

Publication year:2010

Pages:726-729

Language:Chinese

Abstract:Zr^{4+}-doped cathode materials $Li_{1-x}Zr_xFePO_4$(x=0, 0.005, 0.01, 0.02, 0.03, 0.04) were prepared by high temperature solid phase method. The structure, morphology, electrochemical performance and micro-defects of the materials were investigated by using the technique of X-ray diffraction(XRD), scanning electron microscope(SEM), constant current charge-discharge, AC impedance (ACI) and positron annihilation lifetime spectrum(PALS). The results showed that all samples had the same solely olivine structure, and the morphology and particle size had little changes; additionally, $Li_{0.99}Zr_{0.01}FePO_4$ exhibited the best electrochemical performances at 0.1C discharge rate among all the samples, its first specific capacity of discharge was up to 141.6mAh/g, which was much higher than that of pure $LiFePO_4$ (107.4mAh/g);and after 30 charge/discharge cycles, the capacity retention rates of $Li_{0.99}Zr_{0.01}FePO_4$ was measured as 75.8%. Finally, the research of AC impedance spectroscopy showed that the impedance of charge transfer reaction had been de decreased greatly due to doped Zr^{4+} while lithium ion embedded into the cathode material; and positron annihilation lifetime spectrum showed that the internal crystal lattice could cause vacant defect because of doping Zr^{4+}, so that the positron annihilation lifetime would be increased, and the electrical conductivity of materials would be improved.

Number of references:15

Main heading:Lithium

Controlled terms:Cathodes - Charge transfer - Defects - Doping (additives) - Electric conductivity - Electric discharges - Electric impedance - Electrochemical electrodes - Electrons - Ion exchange - Ions - Iron compounds - Lithium compounds - Materials - Morphology - Olivine - Positron annihilation - Positron annihilation spectroscopy - Scanning electron microscopy - Silicate minerals   - X ray diffraction - X ray diffraction analysis - Zirconium

Uncontrolled terms:Ac impedance spectroscopy - AC-impedance - Capacity retention - Cathode material - Cathode materials - Charge-transfer reactions - Charge/discharge cycle - Constant current - Discharge rates - Electrical conductivity - Electrochemical performance - High temperature - LiFePO - Lithium ions - Lithium iron phosphates - Micro-defects - Olivine structures - Positron annihilation lifetime spectrum - Positron annihilation lifetimes - Scanning electron microscopes   - Solid-phase method - Specific capacities

Classification code:801 Chemistry - 801.4.1 Electrochemistry - 802.1 Chemical Plants and Equipment - 802.2 Chemical Reactions - 804.1 Organic Compounds - 951 Materials Science - 804.2 Inorganic Compounds - 931.3 Atomic and Molecular Physics - 932.1 High Energy Physics - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 931.2 Physical Properties of Gases, Liquids and Solids - 741.1 Light/Optics - 714.2 Semiconductor Devices and Integrated Circuits - 423 Non Mechanical Properties and Tests of Building Materials - 482.2 Minerals - 531.2 Metallography - 542.4 Lithium and Alloys - 549.1 Alkali Metals - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 701.1 Electricity: Basic Concepts and Phenomena - 704.1 Electric Components - 712.1 Semiconducting Materials - 714.1 Electron Tubes

<RECORD 314>

Authors:Gong, Yan-Ping (1); Peng, Jian-Chun (2)
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Abstract:Fixed transmission cost is divided into fixed capacity utilization cost and fixed reliability cost. Fixed capacity utilization cost is allocated according to the utilizing extent of line active power flow by individual transaction; fixed reliability cost is allocated according to the contribution of individual transaction to the reliability in which the impacts of line power flow variation, outage probability and outage time are taken into account. The proposed method is suitable for such electricity market in which the pool and bilateral transaction coexist. The proposed method can either satisfy circuital law or give good economical signal. Simulation results verify the effectiveness of the proposed method.
Number of references:22
Main heading:Costs
Controlled terms:Electric power transmission - Light transmission - Outages - Reliability
Uncontrolled terms:Active power - Capacity utilization - Fixed capacity utilization cost - Reliability costs - Transmission costs - Transmission reliability margin
Classification code:913.5 Maintenance - 913.3 Quality Assurance and Control - 911 Cost and Value Engineering; Industrial Economics - 922.2 Mathematical Statistics - 741.1 Light/Optics - 706.1 Electric Power Systems - 421 Strength of Building Materials; Mechanical Properties - 706.1.1 Electric Power Transmission

<RECORD 315>

Title:Influence of field evaporation treatment on the field emission properties of carbon nanotubes array

Authors:Bai, Xin (1); Zhang, Wen-Jing (2); Zhang, Gengmin (2)
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Abstract:Field evaporation was used in the post-fabrication treatment of a carbon nanotubes (CNTs) array and effectively modified the CNTs morphology in favor of the field emission under a moderate field. After the field evaporation treatment, the uniformity of the emission site distribution improved but the onset voltage rose. Using the Fowler-Nordheim theory, the actual onset field and the evaporation field around the CNT were calculated to be -4.6-5 and 9-12 V/nm, respectively. These values are close to those obtained from the individual CNT samples. The above results have provided an alternative to modify the configuration of an array sample and demonstrated the feasibility of tackling the problem of the disparity in the field emission capability of different CNTs in an array. Crown Copyright © 2010.
Number of references:27
Main heading:Carbon nanotubes
Controlled terms:Evaporation - Field emission - Vapors
Uncontrolled terms:A-carbon - Emission site distributions - Field emission property - Field evaporation - Fowler-Nordheim theory - Onset voltages - Post-fabrication
Classification code:933.1 Crystalline Solids - 932 High Energy Physics; Nuclear Physics; Plasma Physics - 931.4 Quantum Theory; Quantum Mechanics - 804 Chemical Products Generally - 802.3 Chemical Operations - 761 Nanotechnology - 714.2 Semiconductor Devices and Integrated

<RECORD 316>

Title:Both hydrolytic and transesterification activities of Penicillium expansum lipase are significantly enhanced in ionic liquid [BMIm][PF$_6$]
Authors:Yang, Zhen (1); Zhang, Kai-Pei (1); Huang, Ying (1); Wang, Zhi (1)
Author affiliation:(1) College of Life Sciences, Shenzhen University, Nanshan District, Shenzhen 518060, Guangdong, China
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Abstract:Both hydrolytic and transesterification activities of Penicillium expansum lipase (PEL) were investigated in the ionic liquid [BMIm][PF$_6$] as well as in organic solvents such as hexane. The initial rate of PEL-catalyzed hydrolysis of p-nitrophenyl palmitate (pNPP) was 12-fold enhanced in the ionic liquid. The optimal water content required by PEL in [BMIm][PF$_6$] was 10 times higher relative to that in hexane due to the greater polarity of the ionic liquid. Direct addition of salt hydrates into the two nonaqueous reaction media showed different impacts on the enzyme activity, which could be related to the dual functions of the salt hydrates, i.e., the water buffering effect, and the specific ion effect (Hofmeister effect). The transesterification activity of PEL was reflected by the yield of producing fatty acid methyl esters (FAMEs) in the methanolysis of corn oil for 25 h, which was 69.7% in [BMIm][PF$_6$], as compared to 19.4%, 14.0%, and 1.0% obtained in tert-butanol, solvent-free system, and hexane, respectively. The high production yield of FAMEs obtained in [BMIm][PF$_6$] demonstrates the potential use of ionic liquids as the reaction media for PEL-catalyzed biodiesel production. © 2009 Elsevier B.V. All rights reserved.

Hydration - Ionic liquids - Ions - Organic solvents - Transesterification - Vegetable oils - Viscosity - Water content

Uncontrolled terms:Hofmeister effect - Hofmeister effects - Penicillium expansum - Penicillium expansum lipase - Viscosity B coefficients - Water activity

Classification code:931.3 Atomic and Molecular Physics - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 822.3 Food Products - 931.2 Physical Properties of Gases, Liquids and Solids - 801 Chemistry - 631.1 Fluid Flow, General - 523 Liquid Fuels - 512.2.2 Natural Gas Deposits: Development Operations - 461.9 Biology - 444 Water Resources - 701.1 Electricity: Basic Concepts and Phenomena

<RECORD 317>

Title:Terahertz transmission properties of Cr ion implantation glass

Authors:Su, Hong (1); Zhou, Hang (1); Wang, Shixing (2); Chen, Qiongzhou (1); Liang, Huawei (1); Ruan, Shuangchen (1)

Author affiliation:(1) Shenzhen Key Laboratory of Laser Engineering, College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Academy of Aerospace Technology, Shenzhen 518057, China

Corresponding author:Su, H.
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Abstract:Cr ion implantations in glass with the different doses of $D=1.493 \times 10^{17}$ and 4.976×10^{17} ion/cm^2 are obtained by metal vapor vacuum arc (MEVVA). The effects of the different Cr ion implanted doses on terahertz (THz) transmission property are analyzed from THz time-domain spectroscopy. The results show that the more the Cr ion implanted dose in the micro-area implantation glasses, the larger the THz transmission except the larger absorption at 0.24 THz. This is an effect attributed to the coupling of plasmas on both the implantation and the implantation affected zones of the Cr ion

implantation glass. © 2010 Chinese Optics Letters.

<RECORD 318>

Authors:Li, Ming (1); Chen, Wen-Sheng (2); Han, Lixin (3)
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Abstract:The stationarity test of long-range dependent (LRD) traffic remains a challenge problem in the field of traffic engineering. Due to the importance of traffic theory in the Internet, to find a solution to that problem is greatly desired. This paper presents a method of the weak stationar-ity test of a single history LRD traffic series of finite length. How to apply this method to testing the stationarity of real traffic is demonstrated. The results in this paper suggest that there may be no general conclusion that traffic is either stationary or non-stationary since the stationarity of traffic

is observation-scale dependent. Some of the investigated real-traffic traces that are stationary in an observation scale may be non-stationary in a larger observation scale. © Springer Science + Business Media, LLC 2009.

<RECORD 319>

Title:Critical mole ratios of nitrite and chloride in reinforced concrete

Authors:Liu, Junzhe (1); Xing, Feng (2); He, Zhimin (1); Ding, Zhu (2)
Author affiliation:(1) School of Civil Engineering, Ningbo University, Ningbo 315211, China; (2) Shenzhen Key Lab on Durability of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Liu, J.
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Abstract:In accelerated steel corrosion test of reinforced concrete containing various quantities of

calcium chloride and calcium nitrite, the critical mole ratio of $n(NO_2^-)/n(Cl^-)$ that inhibs reinforcing bars from corrosion was determined by visual observations, anodic polarization, half-cell potentials, mass loss and corroded area. The results indicate that there are significant differences in the critical value of $n(NO_2^-)/n(Cl^-)$. When using different corrosion evaluating methods, the ratios of mass loss and corrosion area can be a good assessment of the extent of corrosion of reinforced pit; The inhibiting effect of nitrite from reinforcement corrosion is not obvious and sometimes speed up the macro-cell corrosion when critical value of $n(NO_2^-)/n(Cl^-)$ in reinforced concrete is less than 0.4. However the passive state of reinforcements can be adequately preserved in the experimental condition when $n(NO_2^-)/n(Cl^-)$ is above 1.2. The simultaneous results show that the critical value of $n(NO_2^-)/n(Cl^-)$ in the synthetic concrete pore solution is less than that in the real concrete.

Number of references:12

Main heading:Photoresists

Controlled terms:Calcium - Calcium chloride - Concrete buildings - Reinforced concrete - Reinforcement - Steel corrosion

Uncontrolled terms:Concrete pore - Corrosion area - Critical value - Evaluating method - Experimental conditions - Half-cell potential - Inhibiting effect - Macro-cell corrosion - Mass loss - Mole ratio - Reinforcement corrosion - Reinforcing bar - Speed-ups - Visual observations

Classification code:951 Materials Science - 714.2 Semiconductor Devices and Integrated Circuits - 741.1 Light/Optics - 745.1 Printing - 804.2 Inorganic Compounds - 813.2 Coating Materials - 816.1 Processing of Plastics and Other Polymers - 549.2 Alkaline Earth Metals - 539.1 Metals Corrosion - 415 Metals, Plastics, Wood and Other Structural Materials - 412.2 Concrete Reinforcements - 412 Concrete - 402 Buildings and Towers - 545.3 Steel

Database:Compendex

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<RECORD 320>

Accession number:20102413002964Title:Diffusion of chloride ions into concrete in salt spray environment

Authors:Liu, Jun (1); Xing, Feng (2); Dong, Bi-Qin (2); Ding, Zhu (2); Ma, Hong-Yan (3)
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Source title:Shenzhen Daxue Xuebao (Ligong Ban)/Journal of Shenzhen University Science and Engineering
Abbreviated source title:Shenzhen Daxue Xuebao (Ligong Ban)

Abstract:A diffusion model of chloride ions in concrete with different materials mixtures was discussed by experiment and improved Fick's second law. The concrete samples were tested in a salt-fog box in which was controlled automatically, simulating the seashore salt-fog environments. The diffusion of chloride ions is different from the result calculated by the Fick's second law. Therefore, the Fick's second law was modified by introduced an environmental factor to make the calculated result conforming to the experimental data. The diffusion of chloride ions in reinforced concrete structure under real atmospheric environment was studied by drilling cylinder cores in some typical positions. The environmental factors in the practical concrete structures were ascertained according to the service environment of concrete structures. The application and significance of the environmental factor in real concrete structures were reviewed.

Number of references:15

Main heading:Environmental regulations

Controlled terms:Atmospheric structure - Chlorine compounds - Diffusion - Durability - Ions - Reinforced concrete - Structural health monitoring

Uncontrolled terms:Chloride - Coastal environments - Diffusion model - Fick's second law - Salt spray

Classification code:931.1 Mechanics - 804.2 Inorganic Compounds - 804.1 Organic Compounds - 801 Chemistry - 701.1 Electricity: Basic Concepts and Phenomena - 931.3 Atomic and Molecular Physics - 454.2 Environmental Impact and Protection - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties - 412 Concrete - 401.1 Bridges - 443.1 Atmospheric Properties

Database:Compendex

<RECORD 321>

Accession number:20101612853600Title:Cryptanalysis of a Hierarchical Identity-Based Encryption scheme

Authors:Weng, Jian (1); Chen, Min-Rong (3); Chen, Kefei (4); Deng, Robert H. (2)

Author affiliation:(1) Department of Computer Science, Jinan University, Guangzhou 510632, China; (2) School of Information Systems, Singapore Management University, 178902 Singapore, Singapore; (3) College of Information Engineering, Shenzhen University, Shenzhen 518060, China; (4) Department of Computer Science and Engineering, Shanghai Jiao Tong University, Shanghai 200240, China

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Abstract:Hierarchical Identity-Based Encryption (HIBE) is a generalization of identity-based encryption that mirrors an organizational hierarchy, and allows the root Private Key Generator (PKG) to distribute the workload of key generations to lower-level PKGs. In Indocrypt'08, Ren and Gu proposed a new HIBE scheme, and claimed that their scheme is fully chosen-ciphertext secure in the standard model. However, by giving a concrete attack, we show that Ren-Gu's HIBE is even not chosen-plaintext secure. Copyright © 2010 The Institute of Electronics, Information and Communication Engineers.
Number of references:15
Main heading:Cryptography
Controlled terms:Security of data
Uncontrolled terms:Chosen ciphertext attack - Chosen-plaintext attack - Ciphertexts - Hierarchical identity-based encryptions - Identity Based Encryption - Key generation - Plaintext - Private key generators - The standard model
Classification code:716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing
DOI:10.1587/transfun.E93.A.854
Database:Compendex
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<RECORD 322>

Accession number:20102413002962Title:The research of lidar imaging based on picosecond streak tube camera
Authors:Yue, Mei (1); Guo, Bao-Ping (1); Hu, Tao (3); Guo, Xuan (3)
Author affiliation:(1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of

Education, Shenzhen University, Shenzhen 518060, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Guangdong Province, Shenzhen University, Shenzhen 518060, China; (3) College of Optoelectronics Science and Engineering, Huazhong Univ. of Sci. and Technol., Wuhan 430074, China
Corresponding author:Guo, B.-P.
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Abstract:A new type imaging laser radar system based on picosecond streak tube camera was discussed. The picosecond streak tube camera and the picosecond YAG LASER were used as receiver and lamphouse respectively. The parameters of picosecond streak tube camera, i. e., sweep speed and nonlinearity were calibrated by tunable delay generator and a set of etalons. Experimental results show that the temporal resolution of this system is less than 2 ps, and the nonlinearity of this system is less than 2%. The system has high temporal resolution, short measurement time and wide range of spectral characteristics of measurement. The minor error between the calculated distance and the actual distance has demonstrated that this proposed imaging method is feasible and provides a theoretical and experimental reference for the new type of imaging laser rader.

Number of references:11
Main heading:Radar imaging
Controlled terms:Cameras - Optical radar - Radar - Radar systems - Speed - Streak cameras - Tubes (components)
Uncontrolled terms:Laser radars - Picoseconds - Scannerless imaging - Streak tubes - Sweep speed - Temporal resolution
Classification code:931.1 Mechanics - 742.2 Photographic Equipment - 741.3 Optical Devices and Systems - 716.2 Radar Systems and Equipment - 619.1 Pipe, Piping and Pipelines - 616.1 Heat Exchange Equipment and Components - 511.2 Oil Field Equipment
Database:Compendex

<RECORD 323>

Accession number:20102413002960Title:Beam profile and frequency distribution characterization of broadband terahertz wave

Authors:Su, Hong (1); Zhou, Hang (1); Chen, Qiong-Zhou (1); Yang, Hai-Li (1)
Author affiliation:(1) Shenzhen Key Laboratory of Laser Engineering, College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Su, H.
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Abstract:Beam profile and axial intensity-distribution of pulse terahertz (THz) wave were measured by the knife-edge method in a transmission-type THz time domain spectroscopy system. By fast-Fourier-transform, the frequency distribution of pulse THz wave could also be obtained. The results show that the intensity of the pulse THz beam fits the Gaussian distribution. The size of the measured THz spot is nearly in agreement with the theoretical analysis, which proved that the knife-edge method can be used to characterize the beam profile of broadband laser beam. This work will also provide the experimental data for THz imaging technology.

Number of references:17
Main heading:Terahertz spectroscopy
Controlled terms:Gaussian beams - Plasmons - Reflectometers - Spectrophotometers - Terahertz waves - Time domain analysis - Wavelet transforms
Uncontrolled terms:Axial intensity - Beam profiles - Broadband lasers - Broadband terahertz - Edge method - Experimental data - Frequency distributions - Terahertz spectra - Terahertz time domain spectroscopy - THz imaging   - THz time domain spectroscopy - THz waves
Classification code:932.3 Plasma Physics - 931.3 Atomic and Molecular Physics - 931.1 Mechanics - 921.3 Mathematical Transformations - 921 Mathematics - 941.3 Optical Instruments - 801 Chemistry - 731.1 Control Systems - 712.1 Semiconducting Materials - 711 Electromagnetic Waves - 703.1.1 Electric Network Analysis - 741.3 Optical Devices and Systems
Database:Compendex

<RECORD 324>

Authors:Xia, Li-Xin (1); Yan, Hao (2); Tang, Mu-Jin (3); Zhu, Hai (3); Liu, Zhi-Gang (1)

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Abstract:The allergens Ara h2 and Ara h6 are the most clinically relevant allergens of peanut allergies. Ara h2 can completely inhibit the IgE binding ability of Ara h6 while Ara h6 can only partially inhibit IgE epitope of Ara h2. Comparison between the primary and tertiary structures of Ara h2 and Ara h6 is carried out for the exploration of this mechanism. Ara h2 contains a unique fragment (from 60 to 73) which includes two of the three major linear IgE epitopes of Ara h2. A 3-D structure of Ara h2 is obtained by homology modeling with Ara h6 as the template. When the structure of Ara h2 and Ara h6 are superposed, an extra outstretched anti-parallel (3-sheet linked a loop (from 58 to 72) is found within the structure of Ara h2. It also contains the sequence encoding the above-mentioned two IgE epitopes. This study gives a explanation for the difference of Ara h2 and Ara h6 by comparison of primary and tertiary structures of Ara h2 and Ara h6. The explanation lays down the foundation for understanding of the mechanisms of peanut allergies and future development of hypoallergic vaccines.

<RECORD 325>

Title:System optimization of 4f-based planar-integrated hybrid-optoelectronic correlator

Authors:Xu, Haidong (1); Xu, Ping (1); Qi, Senlin (1); Liang, Qian (1); Zhang, Xulin (1); Huang, Jiefeng (1); Huang, Haixuan (1)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, Guangdong 518060, China
Corresponding author:Xu, P.
        (xuping@szu.edu.cn)

Abstract:The folded optical structure used in 4f-based planar-integrated opto-electronic hybrid correlator system, increases aberration and reduces the system's recognition ability. The phase modulation function of micro-optical lens is determined, by using the theory of oblique incidence corrdinates to analyse planar integrated optical correlator structure. Then the system aberration is reduced and thereby the recognition ability is enhanced, by analysing the phase function of micro-optical lens elements and using Zemax software optimization system. The optimized system's maximum optical path difference is less than λ/4 and the system attains diffraction limited performance. The contrastive and quantitating analysis is simulated by Matlab, the result show that the optimized system's recognition performance has been improved by 0.8 times. It shows that the aberration has been improved well, the system's recognition ability has been significantly enhanced.
Number of references:26
Main heading:Quality control
Controlled terms:Aberrations - Image quality - Light - MATLAB - Optical data processing - Optical instrument lenses - Pattern recognition - Shape optimization - Structural optimization
Uncontrolled terms:Aberration analysis - Binary optics - Image quality evaluation - Optical pattern recognition - Structure optimization
Classification code:941.4 Optical Variables Measurements - 941.3 Optical Instruments - 921.5 Optimization Techniques - 921 Mathematics - 913.3 Quality Assurance and Control - 751.1

Acoustic Waves - 741.3 Optical Devices and Systems - 741.1 Light/Optics - 741 Light, Optics and Optical Devices - 723.5 Computer Applications - 723.2 Data Processing and Image Processing - 723.1.1 Computer Programming Languages - 716 Telecommunication; Radar, Radio and Television

<RECORD 326>

Title:Heavily Mg-doped hexagonal phase thin ZnO films prepared by pulsed laser deposition
Authors:Zhu, De-Liang (1); Chen, Ji-Xing (1); Cao, Pei-Jiang (1); Jia, Fang (1); Liu, Wen-Jun (1); Ma, Xiao-Cui (1); Lu, You-Ming (1)
Author affiliation:(1) Shenzhen Key Laboratory of Special Functional Materials, College of Materials Science and Engineering Shenzhen University, Shenzhen University, Shenzhen 518060, China
Corresponding author:Lu, Y.-M.
        (ymlu@szu.edu.cn)

Abstract:As an important candidate material for photoelectric devices such as ultraviolet detector, thin $Mg_xZn_{1-x}O$ films (MZO) have been recently given extensive attention. Most studies have been focused on changing target compositions to prepare MZO with absorption edge in the solar-blind region (220~280 nm). However, the mix phases of hexagonal ZnO and cubic MgO appear when the Mg concentration increases to certain percentage. For different growing technologies and parameters, different limits of Mg concentration have been reported to keep MZO single hexagonal phase. Besides, the Mg content in the prepared thin films often deviates from the targets according to most studies. In this paper, a series of thin MZO films were prepared with different growing pressure on the Si(111) and quartz substrates by using $Mg_{0.2}Zn_{0.8}O$ target and pulsed laser deposition (PLD) method in order to adjust the Mg content in the prepared MZO samples. The crystal structures, micro-morphologies and optical properties were characterized by X-ray diffraction (XRD), scanning electron

microscopy (SEM), X-ray energy dispersion spectra (EDS) and ultraviolet-visible absorption spectra. The EDS results showed that the Mg concentrations in the prepared samples change from 44.5% to 48.5% with the growing pressure from 5.2×10^{-4} Pa to 0.3 Pa, much higher than that in the target. But all the thin films still show single hexagonal phase according to the XRD results. We suggested that the increase of Mg content in the thin films is due to the stronger binding force of Mg-O compared to Zn-O in the oxygen-deficient growing environment. The band-gap of the thin films increases from 3.83 eV to 4.05 eV with the increasing Mg content, which can be estimated from the transmittance spectra. Among all the MZO samples, the 48.5% Mg sample has the shortest absorption edge which is close to 300 nm, quite near the solar-blind region. This work would be helpful for the preparation of solar-bind thin MZO films with single phase.

Number of references:11

Main heading:Film preparation

Controlled terms:Absorption - Deposition - Film growth - Optical films - Optical properties - Oxide minerals - Oxygen - Pulsed laser deposition - Pulsed lasers - Quartz - Scanning electron microscopy - Targets - Thin films - X ray diffraction - Zinc - Zinc oxide

Uncontrolled terms:Absorption edges - Band gaps - Binding forces - Candidate materials - Hexagonal phase - Mg concentrations - Mg content - Mg-doped - MgZnO thin film - MgZnO thin films - Quartz substrate - SEM - Si (1 1 1) - Single phase - Solar blind region - Target composition - Transmittance spectra - Ultraviolet-visible absorption spectrum - X-ray energy dispersions - XRD   - ZnO - ZnO films

Classification code:804 Chemical Products Generally - 804.2 Inorganic Compounds - 813.1 Coating Techniques - 802.3 Chemical Operations - 931.2 Physical Properties of Gases, Liquids and Solids - 932.1.1 Particle Accelerators - 933.1.1 Crystal Lattice - 931.3 Atomic and Molecular Physics - 744.9 Laser Applications - 539.3 Metal Plating - 546.3 Zinc and Alloys - 712.1 Semiconducting Materials - 482.2 Minerals - 714.2 Semiconductor Devices and Integrated Circuits - 741.3 Optical Devices and Systems - 744.1 Lasers, General - 741.1 Light/Optics

Database:Compendex

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<RECORD 327>

Accession number:20101812913336Title:Compact and widely tunable terahertz source based on a dual-wavelength intracavity optical parametric oscillation

Authors:Geng, Y. (1); Tan, X. (2); Li, X. (1); Yao, J. (2)

Author affiliation:(1) College of Physics Science and Technology, Shenzhen Key Laboratory of Sensor Technology, Shenzhen University, Shenzhen 518060, China; (2) College of Precision Instrument and Optoelectronics Engineering, Institute of Laser and Optoelectronics, Tianjin University, Tianjin 300072, China

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Abstract:In this paper, a continuously tunable terahertz (THz) source is obtained using a compact intracavity pumped dual-wavelength optical parametric oscillation operating around 2.1 μm as difference-frequency generation pump source. The tuning range of the THz-wave frequency covers from 0.147 THz to 3.651 THz. Based on the collinear difference-frequency generation in the GaSe crystal, the experiment result shows that our schematic is a good option to construct a compact and portable terahertz source with widely tunable range. © 2009 Springer-Verlag.
Number of references:13
Main heading:Terahertz waves
Uncontrolled terms:Difference-frequency generation - Dual-wavelength - GaSe crystals - Intracavities - Optical parametric oscillations - Pump sources - Terahertz - Terahertz sources - Tuning ranges - Wave frequencies   - Widely tunable
Classification code:711 Electromagnetic Waves
DOI:10.1007/s00340-009-3786-3
Database:Compendex

<RECORD 328>

Accession number:20102413002955Title:Anti-tarnish and Nickel release of low nickle white gold alloy with Fe addition
Authors:Xiang, Xiong-Zhi (1); Bai, Xiao-Jun (1); Yao, Yong-Gang (2); Chen, Peng-Xu (2)
Author affiliation:(1) Shenzhen Key Laboratory of Special Functional Materials, College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (2) G. A. T Precious Metal Co. Ltd., Guangdong Zhongshan 528429, China
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Abstract:Effect of iron on the Nickel release and anti-tarnish properties of white gold alloy with Nickel partly replaced by Iron in different ratios was investigated. Low nickel ratio leads to the Nickel release dropping when Nickel is partly replaced by Iron. While the nickel ratio dropped below 2.5%, the nickel release ratio rose because of the bankrupt of the nickel passive film. Iron has weak bleaching effect than nickel has. Iron also weakens the anti-tarnish property of gold alloys. Homogenizing annealing does not contribute to the anti-tarnish properties of gold alloy. Nickel release reduces after annealing due to the elimination of alloy segregation.
Number of references:9
Main heading:Nickel
Controlled terms:Alloys - Cerium alloys - Gold - Gold alloys - Nickel alloys
Uncontrolled terms:Alloy casting - Alloy castings - Cutaneous hypersensitivity - Fe additions - Homogenizing annealing - Nickel release - Passive films
Classification code:531.1 Metallurgy - 547.1 Precious Metals - 547.2 Rare Earth Metals - 548.1 Nickel - 548.2 Nickel Alloys
Database:Compendex

<RECORD 329>

Title:The effect of absorption on the quasi-phase-matched linear electro-optic effect
Authors:Zheng, Guo-Liang (1); Ouyang, Zheng-Biao (1); Xu, Shi-Xiang (1)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, Shenzhen 518060, China
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Document type:Journal article (JA)

Abstract:The effect of absorption on the quasi-phase-matched (QPM) linear electro-optic effect was investigated. The wave coupling equations for the QPM linear electro-optic effect in absorbent materials were derived, and the general solution to the resultant equations was obtained. Numerical results demonstrate that the absorption not only reduces the intensity of the light but also influences the electro-optic coupling. When the o- and e-ray experience different absorption in a crystal, the total output intensity changes with the external field due to the electro-optic coupling. The study would be useful for the design of electro-optic device made of absorbent QPM material.

Number of references:19

Main heading:Absorption

Controlled terms:Design - Electrooptical devices - Electrooptical effects - Nonlinear optics - Numerical analysis - Optical materials - Photoelectric devices - Photoelectricity - Wave equations

Uncontrolled terms:Absorbent materials - Electro-optic coupling - Electrooptic devices - External fields - General solutions - Linear electro-optic effect - Numerical results - Output intensity - Quasi-phase-matched - Wave coupling   - Wave coupling theory

Classification code:921.6 Numerical Methods - 921.2 Calculus - 902.1 Engineering Graphics - 802.3 Chemical Operations - 741.3 Optical Devices and Systems - 931.2 Physical Properties of Gases, Liquids and Solids - 741.1.1 Nonlinear Optics - 714.2 Semiconductor Devices and Integrated Circuits - 714 Electronic Components and Tubes - 701.1 Electricity: Basic Concepts and Phenomena - 408 Structural Design - 741.1 Light/Optics

Database:Compendex

<RECORD 330>

Accession number:20102513031294Title:Numerical simulation and design of aluminum compression members with plain and lipped channel sections

Authors:Zhu, Jihua (1); Wang, Ping (2); Liu, Tiejun (2)

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Corresponding author:Zhu, J.

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Abstract:This paper describes the numerical simulation and design of aluminum axial compression members with plain and lipped channel sections. Based on 28 tests of aluminum extruded columns, a non-linear finite element model of plain and lipped channel sections was created using ABAQUS. Overall and local geometric imperfections were considered. The numerical results were compared with the test results, and it is shown that the numerical model can accurately predict the structural behavior of aluminum columns with plain and lipped channel sections. The design rules using direct strength method were proposed. The experimental and numerical results were compared with the design strengths calculated using the proposed design rules and Chinese code for aluminum structures. It is shown that the design rules given by the Chinese code are conservative. Two different relative slenderness ratios are specified. It is also shown that the proposed design rules are accurately predicted the column strengths. It is recommended that one relative slenderness ratio should be used in the Chinese code. Reliability analysis was performed to check the reliabilities of different design rules.
Number of references:16
Main heading:Structural design
Controlled terms:Aluminum - Aluminum alloys - Axial compression - Columns (structural) - Computer simulation - Finite element method - Mathematical models - Reliability analysis
Uncontrolled terms:Aluminum structures - Chinese codes - Column strengths - Compression member - Design rules - Design strength - Direct strength methods - Finite element modeling - Geometric imperfection - Lipped-channel section   - Non-linear finite element model - Numerical models - Numerical results - Numerical simulation - Slenderness ratios - Structural behaviors - Test results
Classification code:921 Mathematics - 913 Production Planning and Control; Manufacturing - 723.5 Computer Applications - 541.2 Aluminum Alloys - 921.6 Numerical Methods - 541.1 Aluminum - 421 Strength of Building Materials; Mechanical Properties - 408.2 Structural Members and Shapes - 408.1 Structural Design, General - 422.2 Strength of Building Materials : Test Methods
Database:Compendex

<RECORD 331>

Accession number:20102413002956Title:Shapes of even-even Ba nuclei at ground states
Authors:Wang, Nan (1)
Author affiliation:(1) College of Physics Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Wang, N.
       (wangnan@szu.edu.cn)

Abstract:The binding energies, quadrupole deformations, octupole deformations and charge radii of even-even Ba nuclei were investigated systematically. The calculated results are in good agreement with the available experimental data. It is found that the shapes for the nuclei change from prolates shape to near-spherical shapes, then to prolate shape again with the increase of the mass number (A=126~174). It is also found that the octupole deformations may exist mainly in region A=144~154. The dependence of nuclear charge radii on the mass number was also investigated. At A=138, the slope of the charge radii as a function of the mass number changes significantly because of the existence of the neutron number N=82.
Number of references:14
Main heading:Binding energy
Controlled terms:Barium - Deformation - High energy physics - Mean field theory - Nuclear energy - Nuclear physics - Potential energy - Relativity
Uncontrolled terms:Nuclear charges - Nuclear deformation - Nuclear deformations - Relativistic mean field model - Relativistic mean fields
Classification code:932.2 Nuclear Physics - 932.1 High Energy Physics - 931.5 Gravitation, Relativity and String Theory - 931.1 Mechanics - 922.2 Mathematical Statistics - 801.4 Physical Chemistry - 622.3 Radioactive Material Applications - 621 Nuclear Reactors - 549.2 Alkaline Earth Metals - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties
Database:Compendex

<RECORD 332>

Accession number:20101712883542Title:A slice-based data acquisition system for long duration discharges of EAST
Authors:Ying, Liu (1); Jiarong, Luo (2); Guiming, Li (4)
Author affiliation:(1) Shen Zhen University, College of Physics Science and Technology, Shenzhen, 518060, China; (2) Department of Physics, Dong Hua University, Shanghai, China; (3) Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, 200051, China; (4) Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, 230031, China

Corresponding author:Ying, L.

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Abstract:Pulse of up to 1000 seconds with 0.5 MA plasma current is the main objective of EAST (Experimental Advanced Superconducting Tokamak) [S.Wu, "An Overview of the EAST Project," Fusion Eng. Des., vol. 82, pp. 463-471, Oct. 2007] discharge experiments. For long duration discharge, real-time diagnostics is indispensable. To meet the requirement, a slice-based data acquisition system for long duration discharge has been designed and developed. This paper gives an overview of this system. The slice-based data acquisition system is based on time slice mechanism, which divides continuous experimental data into slices. And the slice data are transferred, stored, published in real-time during collecting. Moreover, the introduction of multi-stage storage and time window greatly enhanced the speed of mass data access. The slice-based data acquisition system has been reliably operated in the EAST experimental campaigns. © 2010 IEEE.

Number of references:7

Main heading:Aerospace vehicles

Controlled terms:Fusion reactors

Uncontrolled terms:Data acquisition system - Experimental campaign - Experimental data - Long duration - Mass data - Multi-stage - ON time - Plasma currents - Real-time diagnostics - Slice data - Superconducting tokamak - Time windows

Classification code:621.2 Fusion Reactors - 652.1 Aircraft, General - 655.1 Spacecraft, General - 932.2.1 Fission and Fusion Reactions

DOI:10.1109/TNS.2009.2036350

Database:Compendex

<RECORD 333>

Accession number:20102413002971Title:Effect of lanthanum citrate on anoikis resistance in human hepatoma cells HepG2

Authors:Su, Xiang-E (1); Zheng, Xiao-Na (1)

Author affiliation:(1) College of Life Science, Shenzhen University, Shenzhen 518060, China

Corresponding author:Su, X.-E.

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Abstract:Effect of lanthanum citrate on the anoikis of human hepatoma (HepG2) cells was investigated in this study. Polyhydroxyethylmethacrylate (Poly-HEMA) was used to establish the non-attachment culture model by cell-contact blocking. HepG2 cells were treated with 0.1, 0.01 and 0.001 mmol/L lanthanum citrate under attachment condition and non-attachment condition. Cell cycles and apoptosis of HepG2 under attachment condition were detected by PI (propidium iodide) staining. Anoikis and mitochondrial membrane potential of HepG2 under non-attachment condition was measured by Annexin V-PI double staining and JC-1 (5, 5′, 6, 6′-tetrachloro-1, 1′, 3, 3′-tetraethyl-imidacarbocyanine iodide) fluorescence microscope method respectively. Results showed that lanthanum citrate treatment brought no difference in cell cycle and anoikis to HepG2 under attachment condition but increased the anoikis and decreased mitochondrial membrane potential of HepG2 under non-attachment condition. These results implied that rare earth elements may have the potential as a new cancer treatment medicine.

Number of references:14

Main heading:Cell culture

Controlled terms:Cell death - Cell membranes - Lanthanum - Lanthanum alloys - Liver - Magnesium printing plates - Rare earths - Tumors

Uncontrolled terms:Anoikis - Cell biology - HepG2 cell - HepG2 cells - Liver cancer cells - Mitochondrial membrane potential

Classification code:805.1.1 Biochemical Engineering - 804.2 Inorganic Compounds - 801.2 Biochemistry - 745.1.1 Printing Equipment - 549.2 Alkaline Earth Metals - 547.2 Rare Earth Metals - 542.2 Magnesium and Alloys - 481.2 Geochemistry - 461.9 Biology - 461.8 Biotechnology - 461.2 Biological Materials and Tissue Engineering

Database:Compendex

<RECORD 334>

Authors:Liu, Wen-Jun (1); Cai, Shao-Min (1); Xie, Hong-Si (1); Cao, Pei-Jiang (1); Jia, Fang (1); Zhu, De-Liang (1); Ma, Xiao-Cui (1); Lu, You-Ming (1)
Author affiliation:(1) Shenzhen Key laboratory of Special Functional Materials, College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Lu, Y.-M.
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Abstract:It is important to control the orientation of ZnO film because many properties of ZnO film vary with its preferred orientation. Most of ZnO films ever reported are orientated towards c-axis. However, in the light-emitting application, nonpolar or semipolar ZnO films grown not along with c-axis are much preferable because the luminous efficiency of the c-axis orientated ZnO film is low due to the quantum confined Stark effect. Thus, the study of ZnO film grown along with other than c-axis is necessary. In this paper, ZnO films were fabricated on 304 stainless steel substrates by the cathodic electrodeposition in $Zn(NO)_3$ aqueous solution, and the influences of Zn^{2+} concentration and the current density on the preferred orientation of the ZnO film were studied. X-ray diffraction results showed that as Zn^{2+} concentration and the current density increases, the preferred orientation of ZnO film changes from (002) to (101) gradually. When Zn^{2+} concentration is 0.005 mol·L^{-1} and the current density is 2.0 mA·cm^{-2}, or Zn^{2+} concentration is 0.05 mol·L^{-1} and the current density is 0.5 mA·cm^{-2}, the prepared ZnO films are (002) preferred orientation. When Zn^{2+} concentration is 0.05 mol·L^{-1} and the current density is 2.0 mA·cm^{-2}, the prepared ZnO film is (101) preferred orientation. The phenomenon can be explained based on the two-dimensional nuclei theory. When Zn^{2+} concentration or the current density is low, the supersaturation of ZnO around substrate is also low and the nucleation activation energy of two-dimensional (002) nuclei is lower than that of (101) nuclei, therefore ZnO film is (002) preferred orientation. When Zn^{2+} concentration and the current density is high, the supersaturation of ZnO is also

high and the nucleation activation energy of (002) nuclei is higher than that of (101) nuclei, therefore ZnO film is (101) preferred orientation. The results suggested that orientation-controllable growth of the cathodically electrodeposited ZnO films can be achieved by adjusting Zn^{2+} concentration and the current density.

Number of references:15

Main heading:Zinc oxide

Controlled terms:Activation energy - Concentration (process) - Corrosion - Current density - Electrodeposition - Film preparation - Metallic films - Nucleation - Spectroscopy - Stainless steel - Substrates - Supersaturation - Two dimensional - X ray diffraction - Zinc

Uncontrolled terms:304 stainless steel - Aqueous solutions - Cathodic electrodeposition - Controllable growth - Luminous efficiency - Non-polar - Nucleation activation energy - Preferred orientations - Quantum confined stark effect - Semipolar   - ZnO - ZnO films

Classification code:933.1.2 Crystal Growth - 801 Chemistry - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.2 Inorganic Compounds - 813.1 Coating Techniques - 902.1 Engineering Graphics - 931.3 Atomic and Molecular Physics - 932.2 Nuclear Physics - 933.1.1 Crystal Lattice - 723.5 Computer Applications - 461 Bioengineering and Biology - 531 Metallurgy and Metallography - 539 Metals Corrosion and Protection; Metal Plating - 539.1 Metals Corrosion - 714.2 Semiconductor Devices and Integrated Circuits - 539.3.1 Electroplating - 546.3 Zinc and Alloys - 701.1 Electricity: Basic Concepts and Phenomena - 712.1 Semiconducting Materials - 545.3 Steel

Database:Compendex

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<RECORD 335>

Title:Particle swarm optimization-based LS-SVM for building cooling load prediction

Authors:Xuemei, Li (1); Ming, Shao (1); Lixing, Ding (2); Gang, Xu (3); Jibin, Li (4)

Author affiliation:(1) School of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou, 510640, China; (2) Institute of Built Environment and Control, Zhongkai University of Agriculture and Engineering, Guangzhou 510225, China; (3) School of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, 518060, China; (4) Shenzhen Key laboratory of mould advanced manufacture, Shenzhen, 518060, China

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Abstract:Accurate predicting of building cooling load has been one of the most important issues in the energy-saving building, which provides an approach to integrate and optimize the heating, ventilating, and air-conditioning (HVAC) system cooling supply system efficiently. Because of the remarkable nonlinear mapping capabilities of forecasting, artificial neural networks have played a crucial role in forecasting building cooling load, but suffer from the phenomena of local minimum and over-fitting. This paper investigates the feasibility of using Least Squares Support vector regression (LS-SVR) to forecast building cooling load. LS-SVR is a novel type of learning machine, which has been successfully employed to solve nonlinear regression and time series problems. Due to the importance of parameters optimization in LS-SVR model, particle swarm optimization (PSO) was used to optimize the model parameters. The experiment results show that PSO can quickly obtain the optimal parameters satisfying the precision requirement with a simple calculation, which solves the problem of complex calculation and empiricism in conventional methods. The evaluation on the testing cases shows the SVR model with PSO has a good generalization performance and can be a promising alternative for building cooling load prediction. © 2010 Academy Publisher.

Number of references:23

Main heading:Particle swarm optimization (PSO)

Controlled terms:Air conditioning - Cooling - Electric load forecasting - Energy conservation - Intelligent buildings - Load testing - Neural networks - Parameter estimation - Time series

Uncontrolled terms:Artificial Neural Network - Building cooling load - Conventional methods - Energy-saving buildings - Generalization performance - Heating , Ventilating , and Air-Conditioning - Learning machines - Least squares support vector regression - Local minimums - Model parameters - Non-linear regression - Nonlinear mappings - Optimal parameter - Overfitting - Parameter identification - Parameters optimization - Particle swarm optimizers - Supply system - System cooling - Testing case

Classification code:723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 723.5 Computer Applications - 731.1 Control Systems - 802.3 Chemical Operations - 921.5 Optimization Techniques - 922.2 Mathematical Statistics - 706.1 Electric Power Systems - 402 Buildings and Towers - 422.2 Strength of Building Materials : Test Methods - 461.1 Biomedical Engineering - 483.1 Soils and Soil Mechanics - 525.2 Energy Conservation - 641.2 Heat Transfer - 643.3 Air Conditioning

DOI:10.4304/jcp.5.4.614-621

Database:Compendex

<RECORD 336>

Accession number:20102413002973Title:Design of multi-parameter monitor with OMAP3530

Authors:Zeng, Qi-Ming (1); Liao, Jiang-Hai (1); Ji, Zhen (1)

Author affiliation:(1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Ji, Z.

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Abstract:A new multi-parameter monitor with Texas Instruments latest dual-core processor OMAP3530 was presented. The monitor is for detecting and processing five life parameters, i.e., electrocardiograph, oxygen saturation, blood pressure, respiration and body temperature. An algorithm based on wavelet transform for detecting electrocardiograph signal was discussed in detail. The brief introduction of other parameter acquisition modules in the monitor was also included. Experiment results have demonstrated that the performance of the monitor is desirable and the detection accurary of five life parameters satisfies the design requirement.

Number of references:10

Main heading:Wavelet transforms

Controlled terms:Blood pressure - Nanotechnology - Oxygen - Physiology - Signal detection - Signal processing

Uncontrolled terms:Body temperature - Design requirements - Dual core-processors - Medical monitor - Multiparameters - OMAP3530 dual-cote processor - Oxygen saturation - Parameter acquisition - Tele-monitoring - Texas Instruments

Classification code:933.1 Crystalline Solids - 921.3 Mathematical Transformations - 804 Chemical Products Generally - 761 Nanotechnology - 716.1 Information Theory and Signal Processing - 714.2 Semiconductor Devices and Integrated Circuits - 461.9 Biology

<RECORD 337>

Accession number:20102413002970Title:Multi-objective optimization model of dynamic vehicle routing problem

Authors:Hu, Ming-Wei (1); Tang, Hao (2)

Author affiliation:(1) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China; (2) FedEx Express Corporation, Memphis TN 38125, United States

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Abstract:A dynamic vehicle routing problem (DVRP) related to courier mail services is studied. A multi-objective optimization model is proposed, and a heuristic framework is introduced for its solution. The model includes three objectives: maximization of the number of serviced customers, minimization of customer waiting, and minimization of total travel time. The solution algorithms are based on the lexicographic vectormin approach, and a revised Or-opt local search is developed. With the comprehensive simulation experiments conducted on data sets derived from benchmark problem instances, the multi-objective optimization approach is demonstrated to be efficient and effective. The proposed multi-objective model is able to offer excellent computational results as compared with single-objective models. It can reduce the rejected on-call customers and waiting time distinctly with increased total travel time.
Number of references:10
Main heading:Multiobjective optimization
Controlled terms:Customer satisfaction - Dynamic models - Intelligent systems - Intelligent vehicle highway systems - Routing algorithms - Sales - Vehicles
Uncontrolled terms:Benchmark-problem instances - Computational results - Data sets - Dynamic vehicle routing problems - Intelligent transportation systems - Local search - Mail services - Multi-objective optimization models - Multiobjective models - Objective models - Simulation experiments - Solution algorithms - Travel time - Waiting-time
Classification code:921.5 Optimization Techniques - 921 Mathematics - 912 Industrial Engineering and Management - 911.4 Marketing - 723.5 Computer Applications - 723.4 Artificial Intelligence - 723 Computer Software, Data Handling and Applications - 432 Highway Transportation - 406.1 Highway Systems
Database:Compendex

<RECORD 338>

Accession number:20102112958410Title:Influence of oxygen flow rate on the morphology and

the optical properties of thin ZnO films grown by pulsed laser deposition

Authors:Cao, Pei-Jiang (1); Lin, Chuan-Qiang (1); Zeng, Yu-Xiang (1); Liu, Wen-Jun (1); Jia, Fang (1); Zhu, De-Liang (1); Ma, Xiao-Cui (1); Lu, You-Ming (1)
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Abstract:ZnO is an interesting wide-band-gap semiconductor material with a direct band gap of 3.37 eV at room temperature and it makes more attention to the ultraviolet (UV) optoelectronic devices, such as UV laser, optical waveguide, and exciton-related devices. Usually, an insufficient supply of oxygen in ZnO during growth precludes various applications. In order to overcome these difficulties and obtain a strong ultraviolet near band edge emission and a much weaker emission band correlated with deep-level defects, it is necessary to prepare a high-quality thin ZnO film. In this paper, different oxygen flow rates (30, 50 and 70 sccm) are introduced into the vacuum chamber and the influence of oxygen flow rate to the thin film quality is studied. It can be seen that thin ZnO films with strong c-axis preferred orientation are grown on single crystal silicon (111) and quartz (SiO_2) substrates by pulsed laser deposition (PLD) method. In the range of 30~70 sccm for oxygen flow rate, thin ZnO film fabricated under the condition of O_2 flow rate of 50 sccm has higher optical transmittance above 80%, higher O_2 content~ 40.71%, higher growth rate ~252 nm, stronger ultraviolet near band edge emission and a weaker emission band correlated with deep-level defects.

Number of references:13
Main heading:Pulsed lasers
Controlled terms:Crystal orientation - Defects - Deposition - Laser radiation - Metallic films - Optical films - Optical properties - Optoelectronic devices - Oxide minerals - Oxygen supply - Pulsed laser deposition - Quartz - Semiconductor growth - Semiconductor lasers - Silicon compounds - Silicon oxides - Silicon wafers - Single crystals - Thin films - Ultraviolet lasers - Zinc oxide
Uncontrolled terms:Deep-level defects - Direct band gap - Emission bands - High quality - Influence of oxygen - Near band edge emissions - O_2 flow rate - Optical transmittance - Oxygen flow rates - Preferred orientations - Room temperature - Single crystal silicon - Thin

film quality - Ultraviolet optoelectronic devices - UV lasers - Vacuum chambers - Wide-band-gap semiconductor - ZnO - ZnO films - ZnO thin film   - ZnO thin films

Classification code:741.3 Optical Devices and Systems - 804 Chemical Products Generally - 802.3 Chemical Operations - 744.9 Laser Applications - 744.4.1 Semiconductor Lasers - 744.1 Lasers, General - 744 Lasers - 804.1 Organic Compounds - 813.1 Coating Techniques - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 933.1.2 Crystal Growth - 951 Materials Science - 804.2 Inorganic Compounds - 741.1 Light/Optics - 423 Non Mechanical Properties and Tests of Building Materials - 545.3 Steel - 539.3 Metal Plating - 539 Metals Corrosion and Protection; Metal Plating - 531.2 Metallography - 531 Metallurgy and Metallography - 482.2 Minerals - 652.1 Aircraft, General - 712.1 Semiconducting Materials - 712.1.1 Single Element Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 717.2 Optical Communication Equipment - 672.1 Combat Naval Vessels

Database:Compendex

<RECORD 339>

Title:Spin-dependent transport for a two-dimensional electron gas with magnetic barriers

Authors:Wang, Hai-Yan (1); Duan, Zi-Gang (2); Liao, Wen-Hu (1); Zhou, Guang-Hui (1)
Author affiliation:(1) Department of Physics, Hunan Normal University, Changsha 410081, China; (2) Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhou, G.-H.
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Abstract:The spin-dependent conductance and magnetoresistance ratio (MRR) for a semiconductor heterostructures consisting of two magnetic barriers with different height and space have been investigated by the transfer-matrix method. It is shown that the splitting of the conductance for parallel and antiparallel magnetization configurations results in tremendous spin-dependent MRR, and the maximal MRRs reach 5300% and 3800% for the magnetic barrier spaces W 81.3 and 243.9 nm, respectively. The obtained spin-filtering transport property of nanostructures with magnetic barriers may be useful to magnetic-barrier-based spintronics. © 2010 Chinese Physical Society and IOP Publishing Ltd.

<RECORD 340>

Title:Electronic transport for armchair graphene nanoribbons with a potential barrier
Authors:Zhou, Ben-Hu (1); Duan, Zi-Gang (2); Zhou, Ben-Liang (1); Zhou, Guang-Hui (1)
Author affiliation:(1) Department of Physics, Hunan Normal University, Changsha 410081, China; (2) Institute of Optoelectronics, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhou, G.-H.
    (ghzhou@hunnu.edu.cn)

Abstract:This paper studies the electronic transport property through a square potential barrier in armchair-edge graphene nanoribbon (AGNR). Using the Dirac equation with the continuity condition for wave functions at the interfaces between regions with and without a barrier, we

calculate the mode-dependent transmission probability for both semiconducting and metallic AGNRs, respectively. It is shown that, by some numerical examples, the transmission probability is generally an oscillating function of the height and range of the barrier for both types of AGNRs. The main difference between the two types of systems is that the magnitude of oscillation for the semiconducting AGNR is larger than that for the metallic one. This fact implies that the electronic transport property for AGNRs depends sensitively on their widths and edge details due to the Dirac nature of fermions in the system. © 2010 Chinese Physical Society and IOP Publishing Ltd.

<RECORD 341>

Title:Hydrothermal synthesis and characterization of novel PbSe dendritic structures

Authors:Lv, Weizhong (1); Wang, Xiaofeng (2); Qiu, Qi (2); Wang, Fang (2); Luo, Zhongkuan (2); Weng, Wenjian (1)
Author affiliation:(1) Department of Materials Science and Engineering, Zhejiang University, Hangzhou, 310027, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Lv, W.
(weizhonglv@163.com)

Document type:Journal article (JA)

Abstract:Well-defined crystalline dendritic structured lead selenide (PbSe) was prepared via a template-free, facile hydrothermal route using $Pb(NO_3)_2$ as the lead ion source, selenourea (CH_4N_2Se) as the selenide source at 150 °C for 24 h. The sample was characterized by powder X-ray diffraction (XRD), scanning electron microscopy (SEM), energy dispersive X-ray spectroscopy (EDX) and transmission electronic microscopy (TEM). XRD patterns showed that phase-pure PbSe was produced. Novel PbSe dendritic structure is synthesized as indicated by SEM and TEM. The quality and composition of the products was determined with X-ray photoelectron spectroscopy (XPS). The influencing factors for the morphologies are discussed and the formation mechanisms are proposed. The studies on the corresponding photoluminescence (PL) properties of the dendritic structured PbSe were also carried out. © 2009 Elsevier B.V. All rights reserved.

Number of references:26

Main heading:Hydrothermal synthesis

Controlled terms:Dendrimers - Ion sources - Lead - Scanning electron microscopy - Selenium compounds - X ray diffraction - X ray photoelectron spectroscopy - X ray spectroscopy

Uncontrolled terms:Dendritic - Dendritic structures - Electronic microscopy - Energy dispersive X ray spectroscopy - Formation mechanism - Hydrothermal routes - Influencing factor - Lead ions - Lead selenide - Photoluminescence properties - Powder X ray diffraction - Selenides - Selenourea - SEM - SEM and TEM - TEM - Template-free - XRD patterns

Classification code:933.1.1 Crystal Lattice - 932.2 Nuclear Physics - 932.1 High Energy Physics - 931.3 Atomic and Molecular Physics - 931.2 Physical Properties of Gases, Liquids and Solids - 815.1 Polymeric Materials - 804.2 Inorganic Compounds - 804.1 Organic Compounds - 802.2 Chemical Reactions - 801 Chemistry - 741.1 Light/Optics - 712.1.2 Compound Semiconducting Materials - 546.1 Lead and Alloys

DOI:10.1016/j.jallcom.2009.12.102

Database:Compendex

<RECORD 342>

Accession number:20101212781970Title:Background suppression by axially selective activation in single-molecule localization microscopy

Authors:Chen, Danni (1); Yu, Bin (1); Qu, Junle (1); Niu, Hanben (1)

Author affiliation:(1) Key Lab. of Optoelectronics Devices and Systems, Ministry of Education/Guangdong Province, Shenzhen University, Shenzhen 518060, China; (2) College of Optoelectronic Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, China

Corresponding author:Niu, H.
        (hbniu@szu.edu.cn)

Source title:Optics Letters

Abbreviated source title:Opt. Lett.

Abstract:Resolution of a few tens of nanometers has been achieved in fluorescence microscopy with photoswitchable molecules. However, for thick samples, the background brought by the crosstalk of unwanted on-state molecules is nonnegligible. Now we present a background suppression method by using two axial standing waves generated by the interference of two activation beams with the same phases and two deactivation beams with the opposite phases. With spatially incoherent illumination, most activated molecules are located in a thin layer. The performance of such method is simulated with the known photoswitching characteristic of Cy5. With suitable parameters, the thickness of the layer can reach 39 nm (FWHM). © 2010 Optical Society of America.

Number of references:14

Main heading:Molecules

Controlled terms:Fluorescence microscopy

Uncontrolled terms:Background suppression - Incoherent illumination - Photo-switchable - Photoswitching - Selective activation - Single-molecule - Standing wave - State molecules - Thick samples - Thin layers

Classification code:461.9 Biology - 461.9.1 Immunology - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 941.3 Optical Instruments

Database:Compendex

<RECORD 343>

Accession number:20101812898212Title:Colorful patterns with discrete planar symmetries from dynamical systems

Authors:Lu, Jian (1); Zou, Yuru (1); Li, Wenxia (2)

Author affiliation:(1) College of Mathematics and Computational Science, Shenzhen University, Shenzhen 518060, Guangdong Province, China; (2) Department of Mathematics, East China Normal University, Shanghai 200062, China

Corresponding author:Lu, J.

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Source title:Fractals

Abstract:Automatic generation of colored patterns with discrete planar symmetries is considered from a dynamical system's point of view. Invariant mappings with such symmetries are constructed to serve as the density functions for the generation of colorful images. © 2010 World Scientific Publishing Company.

<RECORD 344>

Authors:Chen, Min-Rong (1); Li, Xia (1); Zhang, Xi (1); Lu, Yong-Zai (2)

Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen, 518060, China; (2) Department of Automation, Shanghai Jiao Tong University, Shanghai, 200240, China

Corresponding author:Chen, M.-R.
        (optmrchen@gmail.com)

Abstract:Particle swarm optimization (PSO) has received increasing interest from the optimization community due to its simplicity in implementation and its inexpensive computational overhead. However, PSO has premature convergence, especially in complex multimodal functions. Extremal optimization (EO) is a recently developed local-search heuristic method and has been successfully applied to a wide variety of hard optimization problems. To overcome the limitation of PSO, this paper proposes a novel hybrid algorithm, called hybrid PSO-EO algorithm, through introducing EO to PSO. The hybrid approach elegantly combines the exploration ability of PSO with the exploitation ability of EO. We testify the performance of the proposed approach on a suite of unimodal/multimodal benchmark functions and provide comparisons with other meta-heuristics. The proposed approach is shown to have superior performance and great capability of preventing premature convergence across it comparing favorably with the other algorithms. © 2009 Elsevier B.V. All rights reserved.
Number of references:41
Main heading:Particle swarm optimization (PSO)
Controlled terms:Convergence of numerical methods - Ground state - Heuristic algorithms - Heuristic methods
Uncontrolled terms:Extremal optimization - Meta heuristics - Multi modal function - Numerical optimization - Numerical optimizations
Classification code:932 High Energy Physics; Nuclear Physics; Plasma Physics - 931.3 Atomic and Molecular Physics - 921.6 Numerical Methods - 933 Solid State Physics - 921.5 Optimization Techniques - 723.1 Computer Programming - 723 Computer Software, Data Handling and Applications - 921 Mathematics
DOI:10.1016/j.asoc.2009.08.014
Database:Compendex

<RECORD 345>

Accession number:20102012932526Title:Meso-scale simulation on mechanical behavior of single crystal titanium
Authors:Huang, Wen (1); Wang, Yang (2); Ge, Peng (3); Huang, Zhongwei (1)
Author affiliation:(1) Shenzhen University, Shenzhen 518060, China; (2) University of Science and Technology of China, Hefei 230027, China; (3) Northwest Institute for Nonferrous Metal Research, Xi'an 710016, China
Corresponding author:Huang, W.
        (whuang@szu.edu.cn)

Abstract:A meso-scale numerical constitutive model was established by the theory of crystal plasticity and the finite element method to describe the mechanical behavior of the hexagonal close-packed (hcp) metal. Based on this model, the one-way tensile experiment on a single crystal of titanium at elevated temperature was simulated. The simulated results are consistent with the experimental ones, indicating that the model is reliable. The calculated results also reveal the action of each slip system in deformation process of single crystal titanium. The meso-scale deformation evolution, including grid slipping and crystal lattice reorientation, during the tensile deformation was also analyzed.
Number of references:15
Main heading:Finite element method
Controlled terms:Computer simulation - Constitutive models - Deformation - Mechanical engineering - Plasticity - Single crystals - Titanium
Uncontrolled terms:Crystal plasticity - Deformation process - Elevated temperature - Hexagonal close-packed - Mechanical behavior - Meso-scale constitutive model - Mesoscale - Mesoscale simulation - Simulated results - Slip system   - Tensile deformation
Classification code:933.1 Crystalline Solids - 931 Classical Physics; Quantum Theory; Relativity - 921.6 Numerical Methods - 921 Mathematics - 951 Materials Science - 723.5 Computer Applications - 542.3 Titanium and Alloys - 422 Strength of Building Materials; Test Equipment and Methods - 421 Strength of Building Materials; Mechanical Properties - 608 Mechanical Engineering, General
Database:Compendex

<RECORD 346>

Title:Alpha-glucosidase folding during urea denaturation: Enzyme kinetics and computational prediction
Authors:Wu, Xue-Qiang (1); Wang, Jun (2); Lü, Zhi-Rong (1); Tang, Hong-Min (3); Park, Daeui (4); Oh, Sang-Ho (4); Bhak, Jong (4); Shi, Long (1); Park, Yong-Doo (1); Zou, Fei (1)
Author affiliation:(1) Department of Environmental Health, School of Public Health and Tropical Medicine, Southern Medical University, North of Guangzhou Road No.1838, Baiyun District, Guangzhou 510515, China; (2) School of Medicine, Shenzhen University, Shenzhen 518060, China; (3) Yangtze Delta Region Institute, Tsinghua University, Jiaxing 314050, China; (4) Korean BioInformation Center (KOBIC), KRIBB, Daejeon 305-806, Korea, Republic of
Corresponding author:Zou, F.

(zoufei_dean@hotmail.com)

Abstract:In this study, we investigated structural changes in alpha-glucosidase during urea denaturation. Alpha-glucosidase was inactivated by urea in a dose-dependent manner. The inactivation was a first-order reaction with a monophase process. Urea inhibited alpha-glucosidase in a mixed-type reaction. We found that an increase in the hydrophobic surface of this enzyme induced by urea resulted in aggregation caused by unstable folding intermediates. We also simulated the docking between alpha-glucosidase and urea. The docking simulation suggested that several residues, namely THR9, TRP14, LYS15, THR287, ALA289, ASP338, SER339, and TRP340, interact with urea. Our study provides insights into the alpha-glucosidase unfolding pathway and 3D structure of alpha-glucosidase. © 2009 Humana Press.
Number of references:26
Main heading:Urea
Controlled terms:Agglomeration - Docking - Enzyme kinetics - Enzymes - Hydrophobicity - Metabolism - Surface chemistry
Uncontrolled terms:3D Structure - Computational predictions - Docking simulation - Docking simulations - Dose-dependent manner - First order reactions - Folding intermediates - Glucosidase - Hydrophobic surfaces - Structural change
Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 815.1.1 Organic Polymers - 804.1 Organic Compounds - 802.3 Chemical Operations - 802.2 Chemical Reactions - 801.4 Physical Chemistry - 801.2 Biochemistry - 674.1 Small Marine Craft - 672 Naval Vessels - 655.1 Spacecraft, General - 461.9 Biology - 461.8 Biotechnology - 461.2 Biological Materials and Tissue Engineering
DOI:10.1007/s12010-009-8636-6
Database:Compendex
Compilation and indexing terms, Copyright 2011 Elsevier Inc.

<RECORD 347>

Accession number:20101712896985Title:Modal identification technique based on distributed sensor networks
Authors:Zhang, Min (1); Xie, Huicai (2); Sim, Sung-Han (3); Spencer Jr., B.-F. (3)
Author affiliation:(1) Shantou University, Shantou 515063, China; (2) Shenzhen University,

Shenzhen 518060, China; (3) University of Illinois at Urbana-Champaign, IL 61801, United States
Corresponding author:Zhang, M.
(mzhang2@stu.edu.cn)

Abstract:Identification of the dynamic characteristics of civil structures is important in structural health monitoring. A large number of data must be available from a dense array of sensors for large-scale civil structures and poses a big challenge to the conventional centralized processing technique. Smart sensor networks (SSN) with decentralized processing capability provides new possibilities for structural health monitoring. A distributed method is proposed to calculate the global mode shape in SSN. Stochastic subspace identification is implemented to identify local mode shapes, which are rescaled by using particle swarm optimization method, and subsequently to combine global mode shapes. Using an arch bridge model as an example, the distributed method is shown to be effective. The global mode shapes are close to those from centralized method according to modal assurance criterion (MAC).

Number of references:11

Main heading:Structural health monitoring

Controlled terms:Arch bridges - Health - Network management - Optical communication - Particle swarm optimization (PSO) - Sanitary sewers - Sensor networks - Smart sensors - Structures (built objects)

Uncontrolled terms:Civil structure - Dense arrays - Distributed method - Distributed methods - Distributed sensor networks - Dynamic characteristics - Local modes - Modal assurance criterion - Modal identification - Mode shapes   - Number of datum - Particle swarm optimization method - Processing capability - Processing technique - Stochastic subspace identification

Classification code:722.3 Data Communication, Equipment and Techniques - 723 Computer Software, Data Handling and Applications - 731.1 Control Systems - 732 Control Devices - 732.2 Control Instrumentation - 914.3 Industrial Hygiene - 921.5 Optimization Techniques - 717.1 Optical Communication Systems - 401.1 Bridges - 408 Structural Design - 422 Strength of Building Materials; Test Equipment and Methods - 452.1 Sewage - 461.6 Medicine and Pharmacology - 714.2 Semiconductor Devices and Integrated Circuits - 716.1 Information Theory and Signal Processing

Database:Compendex

<RECORD 348>

Title:Negative thermal expansion and correlated magnetic and electrical properties of Si-doped Mn$_3$GaN compounds

Authors:Sun, Ying (1); Wang, Cong (1); Wen, Yongchun (1); Chu, Lihua (1); Nie, Man (1); Liu, Fusheng (2)
Author affiliation:(1) Center for Condensed Matter and Materials Physics, School of Physics, Beihang University, Beijing 100083, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Wang, C.
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Abstract:The negative thermal expansion (NTE) and correlated magnetic and electrical transport properties of Mn$_3$Ga$_x$Si$_{1-x}$N were investigated. For pure Mn$_3$GaN, there is a large NTE effect corresponding to the antiferromagnetic to paramagnetic transition. Very interestingly, when partial Ga was replaced by Si, the NTE properties around the magnetic transition were changed. The NTE temperature range was broadened to $\Delta T=148$ K for Mn$_3$Ga$_{0.75}$Si$_{0.25}$N and the linear thermal expansion coefficient was estimated as $\beta=-1.4 \times 10^{-5}$ K^{-1} (272-420 K). Accordingly, the resistivity also showed a decrease from 327 to 395 K with temperature. With a further increasing Si content to x=0.5, the magnetic transition still occured, but the NTE effect did not appear. After careful observation, an anomaly was found at around 350 K in a-T, ρ-T, and DSC curves of Mn$_3$Ga$_{0.5}$Si$_{0.5}$N, respectively. This phenomenon strongly implies the close correlation among lattice, spin, and charge in this series materials. © 2009 The American Ceramic Society.

Negative thermal expansion - Paramagnetic transition - Series materials - Si content - Temperature range

<RECORD 349>

Authors:Lin, Xiaodong (1); Hu, Juguang (1); Liu, Yi (1); Zhang, Lei (2)
Author affiliation:(1) College of Physics Science and Technology, Shenzhen University, Shenzhen, Guangdong 518060, China; (2) College of Basic Courses, Guangdong Pharmaceutical University, Guangdong 510006, China
Corresponding author:Lin, X.
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Abstract:Time-resolved plasma emission spectrum measurement system is established for pulsed laser deposition (PLD) device. In diamond-like carbon film deposition, the intensity of CII(426.7 nm) and CIII(229.7 nm) emission is observed. The result is that the intensity decreases with deposition time, and depends strongly on target's surface. Keeping pulse energy and frequency constant, when the target is held, the emission intensity decreases more quickly than that when the target is rotated. The ratio of CIII emission intensity to that of CII is found increasing with time.
Number of references:7

Main heading:Pulsed lasers

Controlled terms:Carbon films - Chemical vapor deposition - Deposition - Diamond like carbon films - Diamonds - Emission spectroscopy - Plasma deposition - Pulsed laser deposition - Targets

Uncontrolled terms:Carbon emissions - Deposition time - Diamond-like film - Emission intensity - Emission spectrum - Emission spectrums - Frequency constant - Pulse energies - Spectral characteristics - Time resolved measurement   - Time-resolved

Classification code:802.3 Chemical Operations - 804.2 Inorganic Compounds - 813.1 Coating Techniques - 813.2 Coating Materials - 931.3 Atomic and Molecular Physics - 932.1.1 Particle Accelerators - 932.3 Plasma Physics - 802.2 Chemical Reactions - 482.2.1 Gems - 539.3 Metal Plating - 712 Electronic and Thermionic Materials - 741.1 Light/Optics - 744.1 Lasers, General - 744.9 Laser Applications - 801 Chemistry

<RECORD 350>

Title:Influence of gas partial pressure on density and texture of carbon/carbon composite fabrication by microwave pyrolysis chemical vapour infiltration

Authors:Zou, J.Z. (1); Zeng, X.R. (1); Li, X.H. (1); Xiong, X.B. (1); Xie, S.H. (1); Qian, H.X. (1)

Author affiliation:(1) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen 518060, China

Corresponding author:Zeng, X. R.
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Abstract:To overcome the long processing time of isothermal chemical vapour infiltration, microwaves are introduced into chemical vapour infiltration developing a method named microwave pyrolysis chemical vapour infiltration for the fabrication of carbon/carbon composites. The process was performed at deposition temperature of 1100°C, with a residence time of 0&bull15 s under different gas partial pressures, using nitrogen gas as diluent gas and methane as

carbon source gas. The densification rate of the preforms, the bulk density of the samples and the uniformity of density were investigated. The deposition process of the microwave pyrolysis chemical vapour infiltration and the microstructure of as prepared samples were analysed. Results show that carbon/carbon composites with bulk density of 1&bull70 g cm^{-3} can be prepared with the microwave pyrolysis chemical vapour infiltration process in 90 h, the preforms can be densified from the inside out, and the densities of composites first increase and then decrease with increasing methane partial pressure. High textured pyrocarbon can be prepared by the microwave pyrolysis chemical vapour infiltration, and optical anisotropy gradient is increased gradually with increasing methane concentration. Furthermore, this research provides a novel method or good idea for the low cost fabrication of the carbon matrix composites, such as C/C, SiC/C and SiC/C/C composites. © 2010 W. S. Maney & Son Ltd.

Number of references:12

Main heading:Cracking (chemical)

Controlled terms:Carbon carbon composites - Chemical vapor deposition - Density of gases - Fabrication - Gases - Methanation - Methane - Microstructure - Microwaves - Preforming - Seepage - Soil mechanics - Thermogravimetric analysis

Uncontrolled terms:Bulk density - Carbon matrix composites - Carbon source gas - Chemical vapour deposition - Chemical Vapour Infiltration - Densification rate - Deposition process - Deposition temperatures - Gas partial pressure - Isothermal chemical vapour infiltration - Low cost fabrication - Methane concentrations - Microwave pyrolysis - Nitrogen gas - Novel methods - Processing Time - Pyrocarbons - Residence time

Classification code:951 Materials Science - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 804.1 Organic Compounds - 813.1 Coating Techniques - 816.1 Processing of Plastics and Other Polymers - 913.4 Manufacturing - 931.2 Physical Properties of Gases, Liquids and Solids - 933 Solid State Physics - 801 Chemistry - 407 Maritime and Port Structures; Rivers and Other Waterways - 415.4 Structural Materials Other Than Metal, Plastics or Wood - 441 Dams and Reservoirs; Hydro Development - 711 Electromagnetic Waves - 483.1 Soils and Soil Mechanics - 531.2 Metallography - 535.2.2 Metal Forming Practice - 522 Gas Fuels

DOI:10.1179/106678509X12519034621716

Database:Compendex

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<RECORD 351>

Title:A novel intelligent single particle optimizer

Authors:Ji, Zhen (1); Zhou, Jia-Rui (1); Liao, Hui-Lian (2); Wu, Qing-Hua (2)

Author affiliation:(1) Texas Instruments DSPs Laboratory, College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China; (2) Department of Electrical Engineering and Electronics, The University of Liverpool, Liverpool, L69 3GJ, United Kingdom

Corresponding author:Ji, Z.

(jizhen@szu.edu.cn)

Source title:Jisuanji Xuebao/Chinese Journal of Computers

Abstract:Intelligent single particle optimizer (ISPO) is proposed based on conventional particle swarm optimization (PSO). ISPO applies a particle, which is different from conventional PSO, to search in the problem space. The whole position vector of particle is split into a certain number of subvectors, and the particle is updated based on these subvectors. During the process of updating each subvector, a novel learning strategy is introduced based on the analysis of previous velocity subvectors, and the particle adjusts its velocity and position subvector dynamically. Experimental results demonstrate that ISPO has an outstanding ability to find the global optimum. ISPO performs much better than most recently proposed PSO-based algorithms on the optimization of most complicated composition test functions.
Number of references:13
Main heading:Particle swarm optimization (PSO)
Uncontrolled terms:Global optimum - Learning strategy - Optimizers - Position vector - Problem space - Single particle - Subvectors - Test functions
Classification code:723 Computer Software, Data Handling and Applications - 921.5 Optimization Techniques
DOI:10.3724/SP.J.1016.2010.00556
Database:Compendex

<RECORD 352>

Title:Wavelet inpainting model driven by curvature
Authors:Sun, Xiaoli (1); Li, Min (1); Xu, Chen (1)
Author affiliation:(1) College of Mathematics and Computational Science, Shenzhen University, Shenzhen 518060, China
Corresponding author:Sun, X.
        (xlsun@szu.edu.cn)

Abstract:In the total variation wavelet inpainting model, when the low-frequency wavelet coefficients and almost all high-frequency wavelet coefficients, in some areas, are all lost, the wavelet coefficients always can not be filled properly. Based on the defect, the curvature term is introduced into the model to guide the filling process, the Euler-Lagrange equation of the new model is derived through variational method. In the image domain, the same gray level line can be jointed under the guide of its curvature, then the wavelet coefficients can be filled as more as possible, the repaired image will be more faithful to the initial one. Experiment results show that the lost wavelet coefficients can be filled more efficiently through our new method. Copyright © 2010 Binary Information Press.
Number of references:7
Main heading:Wavelet transforms
Controlled terms:Equations of motion - Image processing
Uncontrolled terms:Euler-Lagrange equations - Filling process - Gray levels - High frequency HF - Image domain - Image Inpainting - Inpainting - Low frequency - Model-driven - New model - Total variation - Variational methods - Wavelet coefficients
Classification code:723.2 Data Processing and Image Processing - 741 Light, Optics and Optical Devices - 921.2 Calculus - 921.3 Mathematical Transformations - 931.1 Mechanics
Database:Compendex

<RECORD 353>

Accession number:20101812913311Title:Polarization- and direction-independent defect modes in a wide incident-angle range within Bragg gaps by photonic heterostructures containing negative-index materials
Authors:Lin, M. (1); Xu, J. (1); Fang, Y. (5); Qiu, G. (2); Ouyang, Z. (2)
Author affiliation:(1) School of Physical Electronics, University of Electronic Science and Technology of China, Chengdu 610054, China; (2) THz Technical Research Center of Shenzhen University, Shenzhen 518060, China; (3) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, Shenzhen 518060, China; (4) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (5) Department of Physics, Zhenjiang Watercraft College, Zhenjiang 212003, China
Corresponding author:Ouyang, Z.
        (zbouyang@szu.edu.cn)

Abstract:We propose a type of photonic heterostructure by combining dielectric one-dimensional (1D) defective photonic crystals (PCs) and magnetic 1D defective PCs. Both of the two PCs consist of alternating positive-index-material (PIM) layers with a negative-index-material (NIM) defect layer. It is demonstrated by transfer matrix method that there is a polarization- and direction-independent defect mode in a wide incident-angle range within Bragg gaps in the heterostructure. The field distributions prove that the dielectric 1D defective PC benefits to achieve the approximately omnidirectional defect mode for TE waves while the magnetic 1D defective PC benefits for TM waves. Such a structure is useful for designing polarization-independent and omnidirectional or large incident angle narrow-passband filters in optical devices. © 2009 Springer-Verlag.

Number of references:15

Main heading:Photonic crystals

Controlled terms:Defects - Heterojunctions - Microcomputers - Optical instruments - Polarization - Transfer matrix method

Uncontrolled terms:Bragg gaps - Defect layers - Defect mode - Direction-independent - Field distribution - Heterostructures - Incident angles - Negative index material - Negative-index - Passband filters   - Polarization-independent - TE wave

Classification code:951 Materials Science - 941.3 Optical Instruments - 933.1 Crystalline Solids - 921 Mathematics - 741.3 Optical Devices and Systems - 741.1 Light/Optics - 722.4 Digital Computers and Systems - 714.2 Semiconductor Devices and Integrated Circuits - 712.1 Semiconducting Materials - 711.1 Electromagnetic Waves in Different Media - 701.1 Electricity: Basic Concepts and Phenomena - 531.2 Metallography - 423 Non Mechanical Properties and Tests of Building Materials

DOI:10.1007/s00340-009-3845-9

Database:Compendex

<RECORD 354>

Title:Temperature prediction of hydrogen producing reactor using SVM regression with PSO

Authors:Minqiang, Pan (1); Dehuai, Zeng (1); Gang, Xu (2)

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Abstract:Temperature forecasting of hydrogen-producing reactor is a complicated problem due to its nonlinearity and the small quantity of training data. Support vector machine (SVM) has been successfully employed to solve regression problem of nonlinearity and small sample. The determination for hyper-parameters including kernel parameters and the regularization is important to the performance of SVM. Particle Swarm Optimization (PSO) is a method for finding a solution of stochastic global optimizer based on swarm intelligence. Using the interaction of particles, PSO searches the solution space intelligently and finds out the best one. Thus, the proposed forecasting model based on the global optimization of PSO and local accurate searching of SVM is applied to forecast hydrogen-producing reactor temperature in this paper. Practical example results indicate that the application of the PSO-SVM method to temperature forecasting of hydrogen-producing reactor is feasible and effective. And to prove the effectiveness of the model, other existing methods are used to compare with the result of SVM. The results show that the model is effective and highly accurate in the forecasting of hydrogen-producing reactor temperature. © 2010 ACADEMY PUBLISHER.

<RECORD 355>

Authors:Su, S.C. (1); Lu, Y.M. (1); Zhang, Z.Z. (1); Shan, C.X. (1); Li, B.H. (1); Shen, D.Z. (1); Yao, B. (1); Zhang, J.Y. (1); Zhao, D.X. (1); Fan, X.W. (1)
Author affiliation:(1) Key Laboratory of Excited State Processes, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences, Changchun 130033, China; (2) Graduate School, Chinese Academy of Sciences, Beijing 100049, China; (3) College of Materials Science and Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Lu, Y. M.

Abstract:ZnMgO nanowalls were prepared by plasma-assisted molecular beam epitaxy without a catalyst on C-Al_2O_3 substrate. The obtained nanowalls have preferred orientation along c axis. The nanowalls are about 10 to 20 nm in thickness and about 50 nm in height. Only Zn, Mg, O and Al signals are detected in the nanowalls from the energy dispersive spectroscopy (EDS). The Mg content is about 3% in ZnMgO nanowalls. The room temperature photoluminescence (PL) spectra shows the emission peak of the ZnMgO nanowalls at 3.346 eV. The origin of the ultraviolet emission is discussed with the help of temperature-dependent PL spectra. The ultraviolet emission band is free exiton recombination observed in the low temperature PL spectra (at 81 K). We also observe the free-to-acceptor (FA) emission of the ZnMgO nanowalls. The acceptor binding energy obtained from photoluminescence studies is about 123 meV. The results show that Mg doping leads to an increase of the acceptor binding energy. The possible growth mechanism of the ZnMgO nanowall networks was discussed. Copyright © 2010 American Scientific Publishers All rights reserved.

Number of references:23
Main heading:Binding energy
Controlled terms:Crystal growth - Energy dispersive spectroscopy - Molecular beam epitaxy - Molecular beams - Nuclear energy - Optical properties - Photoluminescence - Potential energy - Semiconductor quantum wells - Zinc   - Zinc oxide
Uncontrolled terms:Emission peaks - Growth mechanisms - Low temperatures - Mg content - Mg-doping - Nanowall networks - Nanowalls - PL spectra - Plasma-assisted molecular beam

epitaxy - Preferred orientations - Room-temperature photoluminescence - Temperature dependent - Ultraviolet emission - ZnMgO - ZnO

Classification code:933.1.2 Crystal Growth - 932.2 Nuclear Physics - 931.3 Atomic and Molecular Physics - 931.1 Mechanics - 804.2 Inorganic Compounds - 801.4 Physical Chemistry - 801 Chemistry - 741.1 Light/Optics - 714.2 Semiconductor Devices and Integrated Circuits - 712.1 Semiconducting Materials - 622.3 Radioactive Material Applications - 621 Nuclear Reactors - 546.3 Zinc and Alloys

<RECORD 356>

Title:Damping of taut cable with attached bilinear viscous damper

Authors:Zhou, Hai-Jun (1); Sun, Li-Min (2)
Author affiliation:(1) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China; (2) State Key Laboratory for Disaster Reduction in Civil Engineering, Tongji University, Shanghai 200092, China
Corresponding author:Zhou, H.-J.

Abstract:The equations of motion of cable/damper system were derived by using Galerkin method. The free vibration decay curves of the cable were derived by applying Runge-Kutta-Felhberg (RKF) algorithm. The damping parameter was calculated based on the energy loss in one cycle of vibration. The parameter study was carried out to study the influence of the first damping coefficient, the second damping coefficient and the relief velocity. It is found that bilinear viscous damper has the advantage over linear damper. Simplified design formulations based on equivalent energy dissipation in one cycle of vibration were further proposed and their results were compared with the numerical results.

Number of references:8
Main heading:Damping
Controlled terms:Cables - Electron energy loss spectroscopy - Energy dissipation - Equations of motion - Galerkin methods - Runge Kutta methods
Uncontrolled terms:Bilinear viscous damper - Damping coefficients - Damping parameters -

Design formulation - Energy loss - Equivalent energy - Free vibration decay - Linear dampers - Numerical results - Parameter studies - Runge-Kutta - Viscous dampers

Classification code:932.2 Nuclear Physics - 931.3 Atomic and Molecular Physics - 931.1 Mechanics - 921.6 Numerical Methods - 921.2 Calculus - 801 Chemistry - 716.2 Radar Systems and Equipment - 535 Rolling, Forging and Forming - 525.4 Energy Losses (industrial and residential)

<RECORD 357>

Title:Definitions and analysis of passing-power and dissipation-power and their components in electric networks
Authors:Peng, Jian-Chun (1)
Author affiliation:(1) College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen 518060, Guangdong Province, China
Corresponding author:Peng, J.-C.
        (jcpeng@163.com)

Abstract:The power defined in electric circuit theory is the element's absorbing power, physically based on the work done by electric field force on charges. However, the distribution of elements' absorbing power fails to show the continuity of energy flow in electric networks. The calculation-formula-based flowing power given by electric power network theory shows the continuity of energy flow, but is not applicable to asymmetric networks. In this paper, to reveal the continuity of energy flow in electric networks, the passing-power and dissipation-power are defined based on the spatial energy flow density of electromagnetic fields. The relationship between the dissipation-power and the absorbing power defined in circuit theory is analyzed, and a method to solve passing-power in a special class of symmetric electric networks is derived. The difficulties in the solution of passing-power in general electric networks are pointed out. Furthermore, the passing-power component and dissipation-power component are defined based on continuity of energy flow and conservation of energy to quantitatively show the proportion of

each source to a passing-/dissipation-power. The difficulties in the solution of passing-power component are analyzed. It is pointed out that there are wide applications for passing-power and its components.

Number of references:15

Main heading:Electric network analysis

Controlled terms:Electric fields - Electric lines - Electromagnetic fields - Engineering exhibitions

Uncontrolled terms:Asymmetric networks - Conservation of energy - Distribution of element - Electric circuit - Electric field force - Electric networks - Electric power networks - Energy flow - Energy flow density - General electrics - Physically based - Power components - Power electric - Spatial energy - Special class

Classification code:701 Electricity and Magnetism - 701.1 Electricity: Basic Concepts and Phenomena - 703.1.1 Electric Network Analysis - 706.2 Electric Power Lines and Equipment - 901.2 Education

Database:Compendex

<RECORD 358>

Title:Structural and magnetic properties of DyCo$_{5-x}$Ga$_x$ compounds

Authors:Li, J.Q. (1); Ao, W.Q. (1); Liu, F.S. (1); Zhang, W.H. (1); Yan, J.L. (2)

Author affiliation:(1) College of Materials Science and Engineering, Shenzhen University, Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, 518060, China; (2) College of Materials Science and Engineering, Guangxi University, Key Laboratory of Nonferrous Metal Materials and New Processing Technology, Nanning, Guangxi 530004, China

Corresponding author:Li, J.Q.

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Abstract:The structural and magnetic properties of DyCo$_{5-x}$Ga$_x$ compounds with x = 0.55, 0.85, 1.15, 1.45 and 1.75, have been investigated by X-ray diffraction and magnetic measurements. Powder X-ray diffraction analysis revealed that the DyCo$_{5-x}$Ga$_x$ samples are stabilized in single phase with a hexagonal

CaCu$_5$-type structure (space group P6/mmm) for $0.55 \le x \le 1.45$. The substitution of Co by Ga in this compound increases its lattice parameters a, c and cell volume V but decreases the 3d-sublattice moment and the 3d uniaxial anisotropy. As result, the compensation temperature T$_{comp}$ increases from 199 K (for the sample with x = 0.55) to 260 K (for the sample with x = 1.45). Two spin reorientation transitions, at T$_{SR1}$ = 460 and T$_{SR2}$ = 725 K, respectively, for the sample with x = 0.55, only one at T$_{SR3}$ = 466 K for the sample with x = 0.85 while none for the samples with x = 1.15 or less were found. The Curie temperature decreases with increasing Ga content. The total magnetization for the compound increases at low temperature (e.g. 100 K) but decreases at high temperature with increasing Ga content (e.g. 300 K). © 2009 Elsevier B.V. All rights reserved.

Number of references:10

Main heading:Rare earth alloys

Controlled terms:Cobalt compounds - Crystal structure - Diffraction - Gallium - Magnetic properties - Magnetism - Rare earth elements - Rare earths - Single crystals - Structural properties - X ray diffraction - X ray diffraction analysis

Uncontrolled terms:Cell volume - Compensation temperature - Ga content - High temperature - Lattice parameters - Low temperatures - Magnetic measurements - Powder X ray diffraction - Rare-earth alloys and compounds - Single phase   - Space Groups - Spin reorientation transitions - Structural and magnetic properties - Sub-lattices - Total magnetization - Type structures - Uniaxial anisotropy

Classification code:801 Chemistry - 801.4 Physical Chemistry - 804.1 Organic Compounds - 951 Materials Science - 804.2 Inorganic Compounds - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 931.3 Atomic and Molecular Physics - 741.1 Light/Optics - 711.1 Electromagnetic Waves in Different Media - 408 Structural Design - 481.2 Geochemistry - 531.2 Metallography - 547.2 Rare Earth Metals - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 701.2 Magnetism: Basic Concepts and Phenomena

DOI:10.1016/j.jallcom.2009.10.225

Database:Compendex

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<RECORD 359>

Accession number:20094912526564Title:Echelle diffraction grating demultiplexers with a single diffraction passband

Authors:Song, Jun (1); Ding, Jin Fei (2)

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Corresponding author:Song, J.

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Source title:Optics Communications

Abbreviated source title:Opt Commun

Abstract:Planar multiplexers based on echelle gratings are very popular devices for optical communication applications. However, the available channel number is restricted by the concept of free spectral range (FSR) due to their high operating diffraction order. Now, we can break the restriction of the FSR concept, and most of wavelengths in the operating passband of echelle grating multiplexers can be used based on a variable diffraction order design. We present the design, fabrication, and characterization of the echelle grating multiplexer with a single diffraction passband based on silica platform. © 2009 Elsevier B.V. All rights reserved.

Number of references:9

Main heading:Optical communication

Controlled terms:Diffraction - Diffraction gratings - Multiplexing equipment - Silica - Wavelength division multiplexing

Uncontrolled terms:Channel number - Demultiplexers - Diffraction orders - Echelle - Echelle grating - Echelle gratings - Free spectral range - Pass bands

Classification code:804.2 Inorganic Compounds - 741.3 Optical Devices and Systems - 741.1 Light/Optics - 718 Telephone Systems and Related Technologies; Line Communications - 812 Ceramics, Refractories and Glass - 717.1 Optical Communication Systems - 716 Telecommunication; Radar, Radio and Television - 711.1 Electromagnetic Waves in Different Media - 482.2 Minerals - 717 Optical Communication

DOI:10.1016/j.optcom.2009.10.095

Database:Compendex

<RECORD 360>

Accession number:20100512676302Title:Preparation and characterization of monodisperse CdS quantum dot-polymer microspheres

Authors:Shao, Qian (1); Yang, Chengli (1); Jiang, Lingzhi (3); He, Jie (1); Li, Shijie (1); Jiang, Biwang (1)

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Abstract:A novel and effective method for the preparation of monodisperse CdS quantum dot-polymer microspheres was proposed. The monodisperse hollow polymer microspheres were firstly swelled in chloroform. Then, the reaction precursor composed of CdO and sulfur, was impregnated into the hollow polymer microspheres. Subsequently, the CdS quantum dots were synthesized directly within the polymer microspheres by thermal decomposition. The morphology, structure, and fluorescence properties of CdS quantum dot-polymer micro- spheres were studied by scanning electron microscope, transmission electron microscope, fluorescence microscope, and flow cytometry. The results indicate that the fluorescent CdS quantum dots are successfully synthesized in the mono- disperse hollow polymer microspeheres, which provide very strong fluorescence intensity, and offer excellent photostability due to the compact structure of the polymer matrix. These CdS quantum dot-polymer microspheres have potential applications in biotechnology and biomedicine. © 2010 Wiley Periodicals, Inc.

<RECORD 361>

Authors:Li, Cuihua (1); He, Jinhua (1); Liu, Jianhong (1); Yu, Zhenqiang (1); Zhang, Qianling (1); He, Chuanxin (1); Hong, Weiliang (1)
Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Li, C.
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Abstract:Ternary mixtures of 1,2-dimethyl-3-hexadecylimidazolium bromide/1-decanol/water form two types of well-ordered lyotropic ionic liquid crystals, a hexagonal phase linked to the ionic liquid-water axis, and a lamellar phase located at the center of their phase diagram. The lamellar and hexagonal phases span a wide temperature range from 3 to 40 °C, depending on the composition. The spontaneous self-assembly of the mixtures arises from strong association between the hydroxyl groups of 1-decanol or water and the polar head-groups of the ionic liquid (head-group solvent), aromatic stacking interaction between the imidazolium rings and the hydrophobic effect. © 2009 Elsevier Inc. All rights reserved.
Number of references:24
Main heading:Ionization of liquids
Controlled terms:Association reactions - Fluorine containing polymers - Hydrophobicity - Ionic liquids - Ions - Liquid crystals - Phase diagrams - Self assembly - Ternary systems
Uncontrolled terms:1-decanol - Aromatic stacking interactions - Hexagonal phase - Hexagonal phasis - Hydrophobic effect - Hydroxyl groups - Imidazolium ring - Lamellar phase - Lyotropic liquid crystal - Lyotropic liquid crystalline phase   - Lyotropics - Polar head - Temperature range - Ternary mixtures
Classification code:802.2 Chemical Reactions - 804 Chemical Products Generally - 815.1 Polymeric Materials - 951 Materials Science - 921.4 Combinatorial Mathematics, Includes Graph

Theory, Set Theory - 931.3 Atomic and Molecular Physics - 933.1 Crystalline Solids - 931.2 Physical Properties of Gases, Liquids and Solids - 801.4 Physical Chemistry - 801 Chemistry - 531 Metallurgy and Metallography - 531.1 Metallurgy - 531.2 Metallography - 701 Electricity and Magnetism - 701.1 Electricity: Basic Concepts and Phenomena - 714.2 Semiconductor Devices and Integrated Circuits

<RECORD 362>

Authors:Yuan, Qiuhua (1); Zhang, Peixin (1); Gao, Li (1); Peng, Hailin (1); Ren, Xiangzhong (1); Zhang, Dongyun (2)
Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China; (2) School of Chemistry and Chemical Engineering, Guangxi University, Nanning 530004, China
Corresponding author:Yuan, Q.

Abstract:The crystallization behavior of MgO-Al$_2$O$_3$-SiO$_2$ glass-ceramics by sol-gel technology was investigated by using x-ray diffraction (XRD), differential thermal analysis (DTA), Scanning electron microscopy (SEM). The results showed that: (1)α-cordierite phase was precipitated when the green body was calcined at 1050°C, and α-cordierite of high purity and stability could be formed at 1100°C; (2) Adding an appropriate amount of low melting point glass powder into the green body may provide liquid-phase environment during the sintering process, which will help enhance the tightness density of glass-ceramic, and thus improve its flexural strength. © (2010) Trans

Tech Publications.
Number of references:8
Main heading:Sol-gel process
Controlled terms:Aluminum - Calcination - Computer crime - Gels - Glass ceramics - Scanning electron microscopy - Secondary batteries - Silicate minerals - Silicon compounds - Sintering - Sol-gels - Sols - Thermoanalysis - X ray diffraction - X ray diffraction analysis
Uncontrolled terms:Crystallization behavior - Flexural strength - Glass Powder - Green body - High purity - Liquid Phase - Low melting point - SEM - Sintering process - Sol-gel methods - Sol-gel technology
Classification code:933.1.1 Crystal Lattice - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 812.1 Ceramics - 812.2 Refractories - 812.3 Glass - 813.1 Coating Techniques - 902.3 Legal Aspects - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 802.3 Chemical Operations - 482.2 Minerals - 533.1 Ore Treatment - 536.1 Powder Metallurgy Operations - 541.1 Aluminum - 801.3 Colloid Chemistry - 702.1.2 Secondary Batteries - 723 Computer Software, Data Handling and Applications - 741.1 Light/Optics - 801 Chemistry - 712.1.2 Compound Semiconducting Materials
DOI:10.4028/www.scientific.net/AMR.92.131
Database:Compendex
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<RECORD 363>

Title:Personal construct-based factors affecting interpersonal trust in a project design team
Authors:Ding, Zhikun (1); Ng, Fungfai (2)
Author affiliation:(1) School of Civil Engineering, Shenzhen Univ., Nanhai Ave., Shenzhen 3688, Guangdong 518060, China; (2) Faculty of Architecture, Univ. of Hong Kong, Pokfulam Rd., Hong Kong, Hong Kong
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Abstract:Interpersonal trust is an important factor affecting the performance of the design team in a construction project. To improve the team's performance, factors affecting interpersonal trust need to be identified thereby increasing trust between team members. A questionnaire survey of architects in project design teams is conducted in Beijing, Shanghai, and Qingdao, People's Republic of China. Based on the personal construct theory, the survey collects personal construct-based factors which may affect interpersonal trust. Then the factors are tested using structural equation modeling method. Two significant factors i.e., "social interaction" and "attitude on work" are identified. The results suggest that team managers should enhance the social interactions between team members and provide guidance to team members about the correct attitude on work such that the level of interpersonal trust can be improved. © 2010 ASCE.
Number of references:37
Main heading:Project management
Controlled terms:Construction industry - Surveys
Uncontrolled terms:China - Construction projects - Design team - People's Republic of China - Project design teams - Qingdao - Questionnaire surveys - Significant factors - Social interactions - Structural equation modeling method   - Team members
Classification code:405 Construction Equipment and Methods; Surveying - 405.3 Surveying - 903.1 Information Sources and Analysis - 912.2 Management
DOI:10.1061/(ASCE)CO.1943-7862.0000124
Database:Compendex

<RECORD 364>

Accession number:20100512684151Title:Preparation of liposome particle of atractylone by supercritical carbon dioxide process

Authors:Wen, Zhen (1); Liu, Bo (2); Zheng, Zongkun (1); You, Xinkui (1); Pu, Yitao (1); Li, Qiong (2)
Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China; (2) School of Chemistry and Chemical Engineering, South China University of Technology, Guangzhou 510640, China
Corresponding author:Wen, Z.
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Abstract:The liposome particle entrapping atractylone extracted from Atractylodes macrocephala Koidz.was prepared and characterized. The liposome suspension of atractylone was formed by supercritical carbon dioxide (SC-CO$_2$) expansion process and was dried by vacuum freezing. The physicochemical properties of the liposome particle including microstructure, size, entrapment efficiency and drug loading content were measured. The liposome formation could be controlled by adjusting the processing conditions such as pressure, temperature of SC-CO$_2$ and mole fraction of ethanol in SC-CO $_2$ [x (CH$_3$CH$_2$OH)]. The entrapment efficiency, loading content, and average size of liposome particle were 83.1%, 5.1% and 506.5nm respectively under the optimum conditions of 30MPa, 338K and x (CH $_3$CH$_2$OH) = 15%.The liposome particle presented good performance of redispersion to liposomal suspension. The physicochemical properties of liposome particle including entrapment efficiency, dissolution rate and stability complied with the provisions of Chinese pharmacopoeia. The results show the liposome particle can be used as an solid immediate for hepatic target of drugs. © (2010) Trans Tech Publications.

<RECORD 365>

Title:Co-precipitation synthesis and optimization process for LiCo $_{1/3}$Ni$_{1/3}$Mn$_{1/3}$O$_2$

Authors:Zhang, Peixin (1); Lin, Muchong (1); Yuan, Qiuhua (1); Fan, Zhenzhen (1); Ren, Xiangzhong (1); Zhang, Dongyun (2)

Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China; (2) School of Chemistry and Chemical Engineering, Guangxi University, Nanning, 530004, China
Corresponding author:Zhang, P.
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Abstract:With the acetates of nickel, manganese and cobalt as raw materials and lithium hydroxide as precipitation agent, the precursor $Ni_{1/3}Co_{1/3}Mn_{1/3}(OH)_2$ was first prepared by chemical coprecipitation method, which was then mixed and ballmilled with certain stoichiometric ratios of $LiOH \cdot H_2O$, and ultimately obtained $LiCo_{1/3}Mn_{1/3}Ni_{1/3}O_2$ after calcination process. Single-factor experiment method, in conjunction with XRD, SEM, and charge-discharge test, was utilized to study the influence of various factors, including the dispersion way of precursor, pH value of reaction solution, and the content of ballmilling lithium on the electrochemical properties of $LiCo_{1/3}Mn_{1/3}Ni_{1/3}O_2$. The results indicated that: (1) the material dispersed by ultrasonic treatment revealed excellent cycling performance, its ratio of capacity fading decreased at least 34.1% compared to those without ultrasonic process; (2) the optimum conditions of fabricating $LiCo_{1/3}Mn_{1/3}Ni_{1/3}O_2$ may be summarized as the treatment of ultrasonic dispersion, suitable pH value (12-13) and stoichiometric ratio (1.0) of ballmilling lithium. © (2010) Trans Tech Publications.
Number of references:15
Main heading:Coprecipitation
Controlled terms:Calcination - Cobalt - Electric discharges - Electrochemical properties - Lithium - Lithium compounds - Manganese - Manganese compounds - Organometallics - pH effects - Raw materials - Synthesis (chemical) - Ultrasonics

<RECORD 366>

Title:Crystallization behavior and performance of MgO-Al$_2$O$_3$-SiO$_2$ glass-ceramics by sintering

Authors:Zhang, Peixin (1); Gao, Li (1); Yuan, Qiuhua (1); Peng, Hailin (1); Ren, Xiangzhong (1); Zhang, Dongyun (2)

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Corresponding author:Zhang, P.
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Abstract:The glass-ceramics of MgO-Al$_2$O$_3$-SiO$_2$ system

were prepared by sintering technology. The crystallization process of MgO-Al$_2$O$_3$-SiO$_2$ glass-ceramics was investigated with X-ray diffraction (XRD), scanning electron microscopy (SEM), and other techniques; the discussion of breaking strength, thermal expansion coefficient and relevant properties at different sintering temperatures was also presented. The results show that: (1) The main crystalline phase is α-cordierite at different sintering temperatures, and the samples show high flexural strength and low thermal expansion coefficient; (2) with the increase of sintering temperature, the content of crystal phase increases, while the thermal expansion coefficient decreases evidently, the flexural strength and tightness density rise up first, then go down. © (2010) Trans Tech Publications.

Number of references:9

Main heading:Thermal expansion

Controlled terms:Aluminum - Bending strength - Crystallization - Glass ceramics - Scanning electron microscopy - Silicate minerals - Silicon compounds - Sintering - Thermal stress - X ray diffraction - X ray diffraction analysis

Uncontrolled terms:Breaking strength - Crystal phase - Crystalline phase - Crystallization behavior - Crystallization process - Flexural strength - High flexural strength - Low thermal expansion - MgO-Al$_2$O$_3$-SiO$_2$ system - SEM - Sintering temperatures - Thermal expansion coefficients

Classification code:804.1 Organic Compounds - 804.2 Inorganic Compounds - 812.1 Ceramics - 812.2 Refractories - 951 Materials Science - 812.3 Glass - 931.3 Atomic and Molecular Physics - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 931.2 Physical Properties of Gases, Liquids and Solids - 802.3 Chemical Operations - 801 Chemistry - 421 Strength of Building Materials; Mechanical Properties - 482.2 Minerals - 533.1 Ore Treatment - 536.1 Powder Metallurgy Operations - 541.1 Aluminum - 641.1 Thermodynamics - 712.1.2 Compound Semiconducting Materials - 741.1 Light/Optics

DOI:10.4028/www.scientific.net/AMR.92.65

Database:Compendex

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<RECORD 367>

Accession number:20100512684148Title:Preparation and electrochemical properties of LiFePO$_4$/PPy composite cathode materials for lithium-ion batteries

Authors:Ren, Xiangzhong (1); Li, Xi (1); Zhang, Peixin (1); Liu, Jianhong (1); Zhang, Qianling (1)

Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Ren, X.

Source title:Advanced Materials Research

Abbreviated source title:Adv. Mater. Res.

Volume:92

Monograph title:Powder Technology and Application II

Issue date:2010

Abstract:LiFePO$_4$/PPy composites with different content of polypyrrole (PPy) were prepared by chemical oxidation reactions. X-ray diffraction (XRD) and scanning electron microscopy (SEM) were employed to characterize the LiFePO$_4$/PPy composite. The results showed that doped PPy did not destroy the olivine structure of LiFePO$_4$ but decreased the intensity of the diffraction peaks, and PPy was found on the surface of LiFePO$_4$ particles. PPy could remarkably increase the conductivity of the composite and improve the electrochemical performance of LiFePO$_4$. The sample with 2.5 % (wt). PPy possessed a high initial discharge capacity of 144.5mAh/g at 0.1C. The results of both cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS) proved good cycle performances of the samples doped by PPy. © (2010) Trans Tech Publications.

<RECORD 368>

Title:LD-pumped Q-switched Nd:YVO$_4$ self-Raman laser

Authors:Wang, Z.C. (1); Du, C.L. (1); Ruan, S.C. (1); Zhang, L. (1)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen 518060, China
Corresponding author:Du, C. L.
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Abstract:LD-pumped actively Q-switched Nd:YVO$_4$ self-Raman laser is presented. The maximum average output power of the self-Raman laser at 1173.6 nm was obtained to be 2.21 W at the incident pump power of 18 W and the pulse repetition frequency (PRF) of 30 kHz, with the corresponding optical conversion efficiency of 12.28%. © 2010 Pleiades Publishing, Ltd.
Number of references:17
Main heading:Pumping (laser)
Controlled terms:Conversion efficiency - Neodymium - Optical frequency conversion - Pulsed laser applications - Q switching
Uncontrolled terms:Actively Q-switched - Incident pump power - LD-pumped - Optical conversion efficiency - Output power - Pulse repetition frequencies - Q-switched - Self-Raman laser
Classification code:525.5 Energy Conversion Issues - 547.2 Rare Earth Metals - 741.1.1 Nonlinear Optics - 744.1 Lasers, General - 744.8 Laser Beam Interactions - 744.9 Laser Applications
DOI:10.1134/S1054660X10030217
Database:Compendex

<RECORD 369>

Title:Study on XPS and PL of Er Doped AlN film prepared by magnetron sputtering method

Authors:Xu, Hong-Bin (1); Liu, Wen (1); Zhang, Yong (1); Lv, Wen-Zhong (2)
Author affeiliation:(1) Key Laboratory of Optoelectronic Devices and Systems of Guangdong Province, Shenzhen University, Shenzhen 518060, China; (2) Department of Electronic Science and Technology, Huazhong University of Science and Technology, Wuhan 430074, China
Corresponding author:Liu, W.
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Abstract:Er^{3+} doped AlN films were prepared by magnetron sputtering on silicon substrate. High pure Al and Er alloy were used as target materials and N_2, Ar were used as sputtering gas. XRD analysis indicates that the film is amorphous. XPS indicates that the film is stoichiometric and the concentration of Er is about 1 at%. It is difficult to avoid the impurities of completely, their concentration is near 10%. The PL spectroscopy was featured by two broad bands with a number of sharp peaks superimposed on them. The sharp PL peaks can be attributed to the direct intra-4f excitation of Er^{3+}, whereas, the broad bands are related to an indirect carrier-mediated process and ON defects.

Number of references:21
Main heading:Erbium
Controlled terms:Amorphous films - Film preparation - Magnetron sputtering - X ray diffraction - X ray photoelectron spectroscopy
Uncontrolled terms:AlN - AlN films - AlN:Er - Broad bands - Concentration of - Er-doped - High pure Al - Magnetron sputtering method - PL spectroscopy - Silicon substrates   - Sputtering gas - Target materials - XPS - XRD analysis
Classification code:933.1.1 Crystal Lattice - 932.1 High Energy Physics - 931.3 Atomic and Molecular Physics - 813.1 Coating Techniques - 933.2 Amorphous Solids - 801 Chemistry - 712.1 Semiconducting Materials - 547.2 Rare Earth Metals - 539.3 Metal Plating - 715.1 Electronic Equipment, non-communication
Database:Compendex

<RECORD 370>

Accession number:20095112555168Title:Effect of processing conditions on sonochemical

synthesis of nanosized copper aluminate powders

Authors:Lv, Weizhong (1); Luo, Zhongkuan (1); Yang, Hui (2); Liu, Bo (1); Weng, Wenjiang (2); Liu, Jianhong (1)

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Abstract:Nanosized copper aluminate ($CuAl_2O_4$) spinel particles have been prepared by a precursor approach with the aid of ultrasound radiation. Mono-phasic copper aluminate with a crystallite diameter of 17 nm along the (3 1 1) plane was formed when the products were synthesized using $Cu(NO_3)_2 \cdot 6H_2O$ and $Al(NO_3)_3 \cdot 9H_2O$ as starting materials, with urea as a precipitation agent at a concentration of 9 M. The reaction was carried out under ultrasound irradiation at 80 °C for 4 h and a calcination temperature of 900 °C for 6 h. The synthesized copper aluminate particles and the effect of different processing conditions such as the copper source, precipitation agents, sonochemical reaction time, calcination temperature and time were analyzed and characterized by the techniques of powder X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), atomic force microscopy (AFM) and Fourier transformation infrared spectroscopy (FT-IR). © 2009 Elsevier B.V. All rights reserved.

Number of references:37

Main heading:Copper

Controlled terms:Acoustic waves - Atomic force microscopy - Atomic spectroscopy - Calcination - Fourier analysis - Infrared spectroscopy - Nanostructured materials - Precipitation (chemical) - Scanning electron microscopy - Sonochemistry - Synthesis (chemical) - Transmission electron microscopy - Ultrasonics - Urea - X ray diffraction

Uncontrolled terms:Calcination temperature - Concentration of - Fourier transformations - Nano powders - Nano-sized - Powder X ray diffraction - Processing condition - SEM - Sonochemical reactions - Sonochemical synthesis - Spinel particles - Starting materials - TEM - Ultrasound irradiation - Ultrasound radiation

Classification code:941.4 Optical Variables Measurements - 801.1 Chemistry, General - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.1 Organic Compounds - 815.1.1 Organic Polymers - 921 Mathematics - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 801 Chemistry - 482.1 Mineralogical Techniques - 544.1 Copper - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 751 Acoustics, Noise. Sound - 752 Sound Devices, Equipment and Systems - 753 Ultrasonics and Applications - 753.1 Ultrasonic Waves - 751.1 Acoustic Waves

<RECORD 371>

Title:Simultaneous arithmetic coding and encryption using chaotic maps
Authors:Wong, Kwok-Wo (1); Lin, Qiuzhen (2); Chen, Jianyong (2)
Author affiliation:(1) Department of Electronic Engineering, City University of Hong Kong, Kowloon Tong, Hong Kong; (2) Department of Computer Science and Technology, Shenzhen University, Shenzhen 518060, China
Corresponding author:Wong, K.-W.
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Abstract:Based on the observation that iterating a skew tent map reversely is equivalent to arithmetic coding, a simultaneous compression and encryption scheme is proposed in which the chaotic map model for arithmetic coding is determined by a secret key and keeps changing. Moreover, the compressed sequence is masked by a pseudorandom keystream generated by another chaotic map. This two-level protection enhances its security level, which results in high key and plaintext sensitivities. The compression performance of our scheme is comparable with arithmetic coding and approaches Shannon's entropy limit. © 2010 IEEE.
Number of references:20

Main heading:Chaotic systems
Controlled terms:Cryptography
Uncontrolled terms:Arithmetic Coding - Chaotic map - Compression performance - Encryption schemes - High-key - Keystream - Plaintext - Pseudo random - Secret key - Security level - Shannon's entropy - Skew tent map
Classification code:961 Systems Science - 931 Classical Physics; Quantum Theory; Relativity - 921 Mathematics - 723 Computer Software, Data Handling and Applications - 718 Telephone Systems and Related Technologies; Line Communications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television

<RECORD 372>

Title:Spectra study and size control of cobalt nanoparticles passivated with oleic acid and triphenylphosphine

Authors:Su, Yikun (1); OuYang, Xing (1); Tang, Jiaoning (1)
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Abstract:This paper compares the performance of two surfactants-triphenylphosphine (TPP) and oleic acid (OA) as a pair of capping agents in the synthesis of magnetic Co nanoparticles (NPs). Magnetic colloids of cobalt NPs are prepared by reducing solute cobalt chloride in the presence of stabilizing agents at a high temperature and characterized by TEM. Infrared spectra reveal that a chemical bond can be formed between O of C{double bond, long}O band and Co atoms while a coordinate bond forms between P and Co atoms around the NPs on the surface. OA binds strongly to the particle surface during synthesis that hinders the particle from growing; the TPP reversibly coordinates neutral metal surface sites that favor rapid growth. We studied the influence of changing the TPP/OA concentration ratio on the particle size distribution and crystallinity of Co

NPs. Our results indicate the presence of TPP/OA is able to control particle growth, stabilize the colloidal suspension and prevent the final product from oxidation by air. © 2009 Elsevier B.V. All rights reserved.

Number of references:11

Main heading:Suspensions (fluids)

Controlled terms:Acids - Atomic spectroscopy - Chemical bonds - Chlorine compounds - Cobalt - Infrared spectroscopy - Magnetic bubbles - Magnetic devices - Magnetic materials - Nanoparticles - Nanostructured materials - Oleic acid - Surface active agents - Surfaces

Uncontrolled terms:Capping agent - Co Nanoparticles - Cobalt chlorides - Cobalt nanoparticles - Colloidal suspensions - Concentration ratio - Coordinate bonds - Crystallinities - Double bonds - High temperature   - Infrared spectrum - Magnetic colloids - Nano-materials - Neutral metals - Particle growth - Particle surface - Rapid growth - Size control - Stabilizing agents - TEM   - Triphenylphosphines

Classification code:801.4 Physical Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 951 Materials Science - 931 Classical Physics; Quantum Theory; Relativity - 931.3 Atomic and Molecular Physics - 933 Solid State Physics - 933.1 Crystalline Solids - 941.4 Optical Variables Measurements - 931.2 Physical Properties of Gases, Liquids and Solids - 801.3 Colloid Chemistry - 801 Chemistry - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 604.2 Machining Operations - 701.2 Magnetism: Basic Concepts and Phenomena - 704 Electric Components and Equipment - 708 Electric and Magnetic Materials - 708.4 Magnetic Materials - 712.2 Thermionic Materials - 714 Electronic Components and Tubes - 741.1 Light/Optics - 761 Nanotechnology

DOI:10.1016/j.apsusc.2009.10.066

Database:Compendex

<RECORD 373>

Title:Crosslinked sulfonated poly (bis-A)-sulfones as proton exchange membrane for PEM fuel cell application

Authors:Yu, Jianjia (1); Dong, Chao (1); Liu, Jianhong (2); Li, Cuihua (2); Fang, Jianhua (3); Guan, Rong (1)

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Abstract:The crosslinked sulfonated poly (bis-A)-sulfone (SPSF) proton exchange membranes were prepared by immersing the SPSF membrane into the presence of phosphorous pentoxide-methanesulfonic acid (PPMA) in the ratio of 1:10 by weight. The occurring of crosslinking reaction was proved and the membrane properties before and after crosslinking were evaluated. The results showed that the crosslinking treatment has reduced the water uptake, depressed the swelling, and enhanced the dimensional stability of SPSF membranes with just only slight sacrifice in proton conductivity. The ordered arrangement of molecular chain internal SPSF membrane was reduced and the efficiency of crosslinking reaction showed a random property along the depth direction of the membrane in the process of crosslinking. © 2009 Springer Science+Business Media, LLC.

<RECORD 374>

Title:A PIV approach based on nonlinear filtering
Authors:Lu, Zong-Qing (1); Liao, Qing-Min (1); Pei, Ji-Hong (2)
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Corresponding author:Lu, Z.-Q.
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Abstract:For fluid motion image computation (PIV), a nonlinear filtering based PIV approach was proposed which can obtain reliable motion vector, div and curl fileds. As variational based PIV approaches the new approach is a nonlinear filtering process instead of an energy minimizing process, which can overcome the shortage of correlation based PIV approaches and avoid the restrictions of convexity and differentiability required by classical variational approaches. Experimental results from real particle image sequences demonstrated that the new method can help to suppress the computation noise and increase the reliability of fluid motion characteristic and structural descriptions.

<RECORD 375>

Title:Analysis of influential factor on seismic response of base-isolated eccentric structures
Authors:Wang, Jian-Qiang (1); Yao, Qian-Feng (2); Li, Da-Wang (3)
Author affiliation:(1) School of Civil Engineering, Zhengzhou University, Zhengzhou 450001, China; (2) School of Civil Engineering, Beijing Jiaotong University, Beijing 100044, China; (3) School of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Wang, J.-Q.

Abstract:The analysis of lateral-torsional coupled seismic response of base-isolated eccentric structures is carried out. The eccentricities and the uncoupled torsional to lateral period ratios of superstructure, and the eccentricities in isolation layer are taken into account. The eccentricities and period ratios of superstructure have a little effect on the lateral response of the structure, but they have much impact on the maximum inter-floor displacement and the torsional response of the structure. The eccentricities in isolation layer have a greater impact on the maximum displacement of the isolators and the torsional response of the structure than that on the lateral response of the structure.

<RECORD 376>

Title:Groundwater control technique in centrifuge tests
Authors:Zhang, Min (1); Ng, Charles-W-W (3)
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Abstract:A groundwater control system has been designed to simulate various groundwater conditions in centrifuge tests. The system consists of a water supply part and a control part. A desirable groundwater table can be obtained via a solenoid valve and a feed-back pore pressure transducer. Due to the rotation of a centrifuge model, accuracy in the determination of groundwater table and the location of transducer are discussed. The design of the groundwater control system was verified in a centrifuge slope test and satisfactory results were obtained.
Number of references:7
Main heading:Groundwater
Controlled terms:Centrifugation - Centrifuges - Solenoid valves - Transducers - Water supply
Uncontrolled terms:Centrifuge modelling - Centrifuge models - Centrifuge tests - Control techniques - Ground water table - Groundwater conditions - Slope test
Classification code:802.3 Chemical Operations - 802.1 Chemical Plants and Equipment - 752.1 Acoustic Devices - 732.2 Control Instrumentation - 715 Electronic Equipment, General Purpose and Industrial - 704 Electric Components and Equipment - 619 Pipes, Tanks and Accessories; Plant Engineering Generally - 446.1 Water Supply Systems - 444.2 Groundwater
Database:Compendex

<RECORD 377>

Title:Boundary extraction algorithm by means of run-length connectivity analysis
Authors:Hu, Tao (1); Guo, Baoping (2); Guo, Xuan (1); Yang, Ou (1)
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Abstract:A sub-contour data structure was designed to link the left and right endpoints of runs and the splitting and merging points in order. On the basis of run-length connectivity analysis, a new boundary extraction algorithm was proposed. The run-length encoding was implemented by the algorithm through a successive scan. The connectivity between runs in current and the above rows was analyzed. Three operations, including sub-contour creation, sub-contour growing and sub-contour linking, would occur in different connectivity situations to implement generating outer and inner contours and contours inclusion relationship. Experimental results show that this algorithm owns higher performance than that of other algorithms for the images with high run average compression ratio.
Number of references:10
Main heading:Merging
Controlled terms:Algorithms - Compression ratio (machinery) - Data structures - Encoding (symbols)
Uncontrolled terms:Boundary extraction - Compression ratios - Connectivity analysis - Other algorithms - Run length - Run-length encoding - Splitting and merging
Classification code:921 Mathematics - 723.3 Database Systems - 723.2 Data Processing and Image Processing - 723.1 Computer Programming - 723 Computer Software, Data Handling and Applications - 618.1 Compressors - 612.1 Internal Combustion Engines, General

Database:Compendex

<RECORD 378>

Accession number:20101512840855Title:Preparation of liposome of beta-eudesmol by supercritical carbon dioxide precipitation and measurement of its physicochemical properties
Authors:Wen, Zhen (1); Liu, Bo (1); Zheng, Zong-Kun (1); You, Xin-Kui (1); Pu, Yi-Tao (1); Li, Qiong (2)
Author affiliation:(1) School of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China; (2) School of Chemistry and Chemical Engineering, South China University of Technology, Guangzhou 510640, China
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Abstract:β-eudesmol was incorporated into liposome in order to improve its bioavailability and target delivery to hepatic cells. The liposome suspension of β-eudesmol was formed by supercritical carbon dioxide (SC-CO$_2$) precipitation technology and was dried by vacuum freezing. The physicochemical properties of the freeze-dried liposome of β-eudesmol, such as the structure, size, entrapment efficiency and drug loading content, were measured. The effects of pressure, temperature of SC-CO$_2$ and mole fraction of cosolvent ethanol in SC-CO$_2$ (x(CH$_3$CH$_2$OH)) on liposome formation process were discussed. Under the found optimum operation conditions of 30 MPa, 338 K and x(CH$_3$CH$_2$OH)=15%, the entrapment efficiency, loading content and average size of the prepared liposome are 87.2%, 5.9% and 448.5 nm, respectively. The freeze-dried liposome of β-eudesmol has the good performance of redispersion in buffer solution. The physicochemical properties of the prepared liposome of β-eudesmol, such as entrapment efficiency, dissolution rate and stability, accord with the provisions of Chinese pharmacopoeia. The results show that the prepared liposome of β-eudesmol can be used as a solid immediate for the drug of liver cancer.
Number of references:9
Main heading:Supercritical fluid extraction
Controlled terms:Biochemistry - Carbon dioxide - Dissolution - Ethanol - Freezing
Uncontrolled terms:Average size - Buffer solutions - Cosolvents - Dissolution rates - Drug loading - Entrapment efficiency - Hepatic cells - Liposome formation - Liver cancers - Mole fraction - Optimum operation conditions - Physicochemical property - Redispersions - Super-critical - Supercritical carbon dioxides - Target delivery
Classification code:804.2 Inorganic Compounds - 804.1 Organic Compounds - 802.3 Chemical Operations - 822.2 Food Processing Operations - 801.2 Biochemistry - 644.1 Refrigeration Methods - 523 Liquid Fuels - 644.2 Refrigerants
Database:Compendex

<RECORD 379>

Title:Experimental investigation on Erbium-doped fiber source in double-pass forward configuration
Authors:Wu, Xu (1); Liu, Cheng-Xiang (2); Zhang, Li (3); Fang, Hong (1); Ruan, Shuang-Chen (2)
Author affiliation:(1) Department of Mathematics and Physics, Xi'an Technological University, Xi'an 710032, China; (2) Shenzhen Key Laboratory of Laser Engineering, College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (3) College of Information Engineering, Shenzhen University, Shenzhen 518060, China

Corresponding author:Liu, C.-X.

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Abstract:In order to obtain high stability fiber optic gyroscope erbium-doped fiber source, the influence factors of temperature changes on the mean wavelength are theoretically analyzed. The mean wavelength temperature stability of double-pass forward (DPF) erbium-doped fiber source is studied experimentally. Optimized erbium-doped fiber length 12.2 m and pump power 150 mW in DPF fiber source are obtained. Using three fiber lengths including optimized fiber length, the influences of different pump power on mean wavelength, output power and spectral width of fiber source are analyzed. The intrinsic thermal coefficients of different length fiber are measured. The DPF fiber source with -0.452 $\times$ 10^{-6}/°C mean-wavelength stability is obtained.

Number of references:9
Main heading:Fibers
Controlled terms:Erbium - Fiber optics - Gyroscopes - Optimization - Photonics - Pumps - Stability - Wavelength
Uncontrolled terms:Double-pass forwards - Erbium-doped fiber length - Erbium-doped fiber source - Fiber optic gyroscope - Mean-wavelength stability - Thermal coefficients
Classification code:812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 921.5 Optimization Techniques - 931 Classical Physics; Quantum Theory; Relativity - 943.1 Mechanical Instruments - 951 Materials Science - 961 Systems Science - 801 Chemistry - 547.2 Rare Earth Metals - 618.2 Pumps - 711 Electromagnetic Waves - 712 Electronic and Thermionic Materials - 717 Optical Communication - 741.1.2 Fiber Optics - 744 Lasers
Database:Compendex

<RECORD 380>

Accession number:20100512676490Title:Design and epitaxy of 1.5 μm InGaAsP-InP MQW material for a transistor laser
Authors:Duan, Zigang (1); Shi, Wei (2); Chrostowski, Lukas (2); Huang, Xiaodong (3); Zhou,

Ning (3); Chai, Guangyue (1)

Author affiliation:(1) Key Laboratory of Optoelectronic Devices, Systems of the Ministry of Education and Guangdong Province, Shenzhen University, Shenzhen 518060, China; (2) Department of Electrical and Computer Engineering, University of British Columbia, Vancouver, BC V6T174, Canada; (3) Accelink Technologies Co. Ltd., Hongshan District, Wuhan 430074, China

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Abstract:An InGaAsP-InP transistor laser (TL) at 1.55 Lim has been designed and modeled. The proposed TL has a deep-ridge waveguide structure with the multiple quantum wells (MQWs) buried in the base-emitter junction, which provides good optical and electrical confinement and can effectively reduce the optical absorption and lateral leakage current. Good laser performance has been predicted by numerical modeling based on which the epitaxial growth was carried out by metalorganic chemical vapor deposition (MOCVD). The effect of p-dopant (Zn) diffusion on the QW performance was investigated by a re-growth procedure. By introducing a graded p-doping profile, the Zn diffusion into the MQWs was effectively controlled. With an average doping density of 1 x 10^{18} cm^{-3} in the base contact layer, the InGaAsP MQWs demonstrated high PL intensity at 1.51 Lim and clear satellite diffraction peaks in the XRD spectrum. © 2010 Optical Society of America.

Number of references:21

Main heading:Semiconductor quantum wells

Controlled terms:Chemical vapor deposition - Crystal growth - Doping (additives) - Metallorganic vapor phase epitaxy - Quantum well lasers - Thermoluminescence - Waveguides - Zinc

Uncontrolled terms:Base emitter junction - Contact layers - Diffraction peaks - Doping densities - InGaAsP - InP - Laser performance - Metalorganic chemical vapor deposition - MQW materials - Multiple quantum wells   - Numerical modeling - Optical absorption - P-doping - PL intensity - Re-growth - Ridge waveguide structures - Transistor lasers - XRD spectra

Classification code:931.4 Quantum Theory; Quantum Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 813.1 Coating Techniques - 802.2 Chemical Reactions - 801 Chemistry - 933.1.2 Crystal Growth - 744.1 Lasers, General - 714.3 Waveguides - 714.2 Semiconductor Devices and Integrated Circuits - 712.1 Semiconducting Materials - 546.3 Zinc

and Alloys - 741.1 Light/Optics

<RECORD 381>

Title:Nanofocusing of terahertz wave on conical metal wire waveguides

Authors:Liang, Huawei (1); Ruan, Shuangchen (1); Zhang, Min (1); Su, Hong (1)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, 518060, China
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Abstract:The nanofocusing of the terahertz (THz) radiation energy is studied. By using a conical metal nanowire waveguide, we focus the energy of the terahertz surface plasmon polaritons (THz SPPs) to several nanometers' scale. Another interesting property of the THz SPPs propagation on the waveguide is that the peak electric field at the waveguide tip enhances many times. What is more, both the phase velocity and the attenuation coefficient versus the wire radius are obtained. The terahertz energy nanofocusing opens the way to observe terahertz propagating and imaging on the nanoscale. © 2009 Elsevier B.V. All rights reserved.
Number of references:19
Main heading:Waveguides
Controlled terms:Electric fields - Electric properties - Phonons - Photons - Plasmons - Quantum theory - Solids - Surface plasmon resonance - Wire
Uncontrolled terms:Attenuation coefficient - Metal nanowire - Metal wires - Nano scale - Nano-focusing - Nanofocus - Peak electric field - Surface plasmon polaritons - Terahertz - Terahertz radiation   - Terahertz surfaces - Terahertz waves
Classification code:932.3 Plasma Physics - 931.4 Quantum Theory; Quantum Mechanics - 931.3 Atomic and Molecular Physics - 931.2 Physical Properties of Gases, Liquids and Solids - 751.1 Acoustic Waves - 933 Solid State Physics - 741.1 Light/Optics - 712.1 Semiconducting Materials -

711 Electromagnetic Waves - 701.1 Electricity: Basic Concepts and Phenomena - 535.2 Metal Forming - 714.3 Waveguides

<RECORD 382>

Title:Preface of the 2010 IAENG International Conference on Electrical Engineering special session: Design, analysis and tools for integrated circuits and systems

Authors:Man, Ka Lok (1); Mercaldi, Michele (2); Hahanov, Vladimir (3); Prinetto, Paolo (4); Poncino, Massimo (4); MacIi, Alberto (4); Choi, Joongho (5); Li, Wei (6); Schellekens, Michel (7); Popovici, Emanuel (7); Seon, Jong-Kug (8); Rossi, Umberto (9); Fummi, Franco (10); Pravadelli, Graziano (10); Lam, Yui Fai (11); PavLov, Vladimir (12); Patel, Ajay (13); Huang, Jinfeng (14); Vallee, Thierry (15); Boubekeur, Menouer (7); Sokolova, Ana (16); Almerares, Sergio (9); Donno, Monica (2); Cho, Jun-Dong (17); Zahirul Alam, A.H.M. (18); Provan, Gregory (7); Velev, Miroslav N. (19); Uddin, M. Nasir (20); Botchkarev, Alexei (21); Bosnacki, Dragan (22); Hickey, Dave (7); O'Keeffe, Maria (7); Krilavicius, Tomas (23); Pastrnak, Milan (24); Herbert, John (7); Lu, Zhe-Ming (25); Pan, Jeng-Shyang (26); Chang, Chin-Chen (27); Horng, Mong-Fong (28); Chen, Liang (29); Lim, Chee-Peng (30); Tao, Ngo Quoc (31); Deb, Suash (32); Merniz, Salah (33); Valero, Oscar (34); Yi, Yang (25); Woods, Damien (35); Vedrine, Franck (36); Monsuez, Bruno (37); Yen, Kang (38); Matsuura, Takenobu (39); Edwards, R. Timothy (40); Tveretina, Olga (41); Fino, Maria Helena (42); O'Riordan, Adrian Patrick (7); Labiak, Grzegorz (43); Gaur, M.S. (44); Chang, Jian (45); Chung, Yeh-Ching (46); Derezinska, Anna (47); Cho, Kyoung-Rok (48); Zhang, Yong (49); Liutkevicius, R. (50); Zeng, Yuanyuan (7); Vasudevan, D.P. (7); Bukowiec, Arkadiusz (43); Kitsos, Paris (51); Goudarzi, Maziar (7); Dong, Jin Song (52); Bhalla, Ateet (53); Al-Khalili, Dhamin (54); Navabi, Zainalabedin (55); Zinchenko, Lyudmila (56); Anjum, Muhammad Almas (57); Narasimha, Deepak Laxmi (58); Hughes, Danny (1); Tadjouddine, Emmanuel M. (1); Wang, Jun (59); Kumar, A.P. Sathish (60); Jaisankar, N. (61); Mansoor, Atif (57); Hollands, Steven (62); Mohammadi, Siamak (55); Klein, Felipe (63); Westermann, Peter (64); English, Tom (7); Planas, Miquel Moreto (65); Chung, Chelho (66); Chakrabarti, Amlan (67); Lei, Chi-Un (68); Bamakhrama, Mohamed (69); Naik, B. Rajendra (70); Harte, Sean (7); Yin, Alexander (71); Giancardi, Luigi (72); El-Din Mady, Alie (7); Joseph, Arun (73); Khandekar, Prasad D. (74); Pandey, Hari Mohan (75); Bharti, Vishal (76); O'Mullane, Monica (7); Chen, Chen (77)

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Kwan University, Korea, Republic of; (18) International Islamic University Malaysia, Malaysia; (19) Aries Design Automation, United States; (20) Lakehead University, Canada; (21) IEEE Canada Board of Directors, Canada; (22) Eindhoven University of Technology, Netherlands; (23) Vytautas Magnus University, Lithuania; (24) Siemens IT Solutions and Services, Slovakia; (25) Sun Yat-Sen University, China; (26) National Kaohsiung University of Applied Sciences, Taiwan; (27) Feng Chia University, Taiwan; (28) Shu-Te University, Taiwan; (29) University of Northern British Columbia, Canada; (30) University of South Australia, Australia; (31) Vietnamese Academy of Science and Technology, Viet Nam; (32) C. V. Raman College of Engineering, India; (33) Mentouri University, Constantine, Algeria; (34) University of Balearic Islands, Spain; (35) University of Seville, Spain; (36) CEA, France; (37) ENSTA, France; (38) Florida International University, United States; (39) Tokai University, Japan; (40) MultiGiG, Inc., United States; (41) Karlsruhe University, Germany; (42) Universidade Nova de Lisboa, Portugal; (43) University of Zielona Gora, Poland; (44) Malaviya National Institute of Technology, Jaipur, India; (45) Texas Instruments, Inc., United States; (46) National Tsing-Hua University, Taiwan; (47) Warsaw University of Technology, Poland; (48) Chungbuk National University, Korea, Republic of; (49) Shenzhen University, China; (50) Vytautas Magnus University, Kaunas, Lithuania; (51) Hellenic Open University, Patras, Greece; (52) National University of Singapore, Singapore, Singapore; (53) Technocrats Institute of Technology, Bhopal, India; (54) Royal Military College of Canada, Canada; (55) University of Tehran, Iran; (56) Bauman Moscow State Technical University, Russia; (57) National University of Sciences and Technology (NUST), Pakistan; (58) University of Malaya, Malaysia; (59) Fujitsu Laboratories of America, Inc., United States; (60) PSG Institute of Advanced Studies, India; (61) VIT University, India; (62) Synopsys, Ireland; (63) State University of Campinas (UNICAMP), Brazil; (64) Technical University of Dortmund, Germany; (65) Technical University of Catalonia, Spain; (66) System Semiconductor/Central R and D Center, LS Industrial Systems, Korea, Republic of; (67) University of Calcutta, India; (68) University of Hong Kong, Hong Kong, Hong Kong; (69) ST-NXP Wireless, Netherlands; (70) Osmania University, India; (71) University of Turku, Finland; (72) University of Genova, Italy; (73) IBM Systems and Technology Laboratory, India; (74) Vishwakarma Institute of Information Technology, Pune, India; (75) SVKM's NMIMS University, India; (76) Dronacharya College of Engineering, Khentawas, Gurgaon, India; (77) Global Institute of Software Technology, China
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<RECORD 383>

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Abstract:The data transmission performance by speech channel was analyzed for sensors distributed in remote and wild regions. The ISUP signalling message flow and overall signaling delay were illustrated for a sensor completing a circuit-switched connection procedure. The queuing model used to estimate the number of communication ports in the receiving equipment was presented. The distribution of data inter-arrival time was derived from computer simulation of sensor networks. The number of communication ports and the corresponding data loss rates are calculated based on Erlang B formula, which can provide a theoretical foundation for developing the receiving equipment and evaluating the reliability of the sensor networks.
Number of references:13
Main heading:Data communication equipment
Controlled terms:Computer simulation - Military operations - Sensor networks - Speech

communication - Speech transmission

Uncontrolled terms:Access schemes - Communication ports - Communication technologies - Data loss rate - Data transmission - Early Warning System - Erlang B - Erlang B formula - Inter-arrival time - Performance analysis - Queuing models - Signalling messages - Speech channels - Theoretical foundations - Transmitting data

Classification code:751.5 Speech - 732 Control Devices - 731.1 Control Systems - 723.5 Computer Applications - 722.3 Data Communication, Equipment and Techniques - 718 Telephone Systems and Related Technologies; Line Communications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television - 404.1 Military Engineering

Database:Compendex

<RECORD 384>

Title:Computer simulation of SARS coronavirus-associated E protein's folding in biological membrane

Authors:Chen, Yan-Tao (1); Liu, Jian-Hong (1)
Author affiliation:(1) Shenzhen Key Laboratory of Functional Polymer, College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China
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Abstract:With the limitation of computing speed, most of simulation researches focus on the polypeptide segment inside membrane, losing sight of the parts outside membrane. Via the construction of implicit biological membrane, a computer simulation of severe acute respiratory syndromes coronavirus associated E protein in its complete length was performed in lattice space. The research results revealed two distinct thermodynamic transitions in the E protein's folding process. During the first transition, the initial random coil became α-helix and the coil-helix transition occurred due to the strong hydrogen bonding interaction in biological membrane. In the second transition, the polypeptide segment outside of the membrane collapsed, and the coil-globule transition took place because of the residue's hydrophobic interaction in solution.

Finally, a stable transmembrane conformation was shaped and the sequence partition was in accordance with other prediction for E protein. In addition, our simulation method exhibited high computational efficiency, thus providing feasibility for the simulation of homo-oligomeric bundles of transmembrane protein.

Number of references:13

Main heading:Computer simulation

Controlled terms:Biological membranes - Computational efficiency - Cytology - Hydrogen bonds - Hydrophobicity - Protein folding

Uncontrolled terms:Coronaviruses - Lattice chains - Membrane proteins - Polymer chemistry and physics - Severe acute respiratory syndrome

Classification code:931.2 Physical Properties of Gases, Liquids and Solids - 921 Mathematics - 801.4 Physical Chemistry - 801.2 Biochemistry - 723.5 Computer Applications - 723.1 Computer Programming - 461.9 Biology - 461.2 Biological Materials and Tissue Engineering - 461 Bioengineering and Biology

Database:Compendex

<RECORD 385>

Title:Synthsis and characterization of UF/paraffin PCM microcapsules

Authors:Ni, Zhuo (1); Shi, Kai-Yong (2); Huang, Zhi-Bin (1); Luan, Lan (1); Xing, Feng (2)
Author affiliation:(1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China; (2) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Xing, F.
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Abstract:Phase change microcapsules were synthesized by in-situ polymerization using urea-formaldehyde resin(UF) as shell material and paraffin as core material. The formation of the microcapsules was observed using optical microscopy. The ssurface morphology and the wall

thickness of the microcapsules were characterized using scanning electron microscopy. Chemical structures of the microcapsule composition were analyzed by Fourier-transform infrared spectroscopy. The results show that urea-formaldehyde resin can effectively capsulize an organic material of paraffin. During the phase change of the paraffin, the microcapsules can store and release energy. They can be used to design new types of energy storage materials.

Number of references:11

Main heading:Urea formaldehyde resins

Controlled terms:Building materials - Coremaking - Encapsulation - Energy storage - Flywheels - Formaldehyde - Infrared spectroscopy - Metabolism - Optical microscopy - Paraffin waxes - Paraffins - Phase change materials - Polymers - Resins - Scanning electron microscopy - Urea

Uncontrolled terms:Chemical structure - Construction materials - Core material - Energy storage materials - In-situ polymerization - Microcapsules - Organic materials - Paraffin phase-change material - Phase Change - Phase change microcapsules - Shell materials - Wall thickness

Classification code:714.2 Semiconductor Devices and Integrated Circuits - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 801.2 Biochemistry - 801.4 Physical Chemistry - 804.1 Organic Compounds - 813.2 Coating Materials - 815.1 Polymeric Materials - 815.1.1 Organic Polymers - 817.2 Polymer Applications - 931.2 Physical Properties of Gases, Liquids and Solids - 933 Solid State Physics - 941.4 Optical Variables Measurements - 702 Electric Batteries and Fuel Cells - 411 Bituminous Materials - 412 Concrete - 413 Insulating Materials - 414 Masonry Materials - 415 Metals, Plastics, Wood and Other Structural Materials - 461.6 Medicine and Pharmacology - 461.9 Biology - 513.3 Petroleum Products - 525.7 Energy Storage - 534.2 Foundry Practice - 601.1 Mechanical Devices - 615 Thermoelectric, Magnetohydrodynamic and Other Power Generators - 616 Heat Exchangers

Database:Compendex

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<RECORD 386>

Accession number:20094812513830Title:Effect of melt treatment on the microstructure and magnetic properties of $Nd_2Fe_{14}B/\alpha$-Fe nanocomposites

Authors:Sheng, Hong-chao (1); Zeng, Xie-rong (2); Qian, Hai-xia (2); Fu, Dong-ju (1)

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Corresponding author:Zeng, X.-r.
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Abstract:Melt-spun $Nd_{9.5}Fe_{81}Zr_3B_{6.5}$ ribbons were prepared under different quenching temperature. The effect of melt treatment on the microstructure and magnetic properties of $Nd_2Fe_{14}B/\alpha$-Fe nanocomposites was studied by X-ray diffraction, scanning electron microscopy (SEM), differential scanning calorimeter, transmission electron microscopy observations, and magnetization measurements. It was found that melt spinning at different quenching temperature caused the as-quenched ribbons to have distinctive structure. Depending on the quenching temperature, nanocrystalline structure, partially amorphous structure containing nanophases or entirely amorphous structure could be obtained. Moreover, with increasing initial quenching temperature, the microstructure of optimally heat treated ribbons becomes coarser and more irregular, and the magnetic properties of them deteriorated. It is believed that the alteration of melt characteristics which are highly sensitive to the melt temperature may be the cause for the change of glass forming ability, the microstructure and magnetic properties of the ribbons. © 2009 Elsevier B.V. All rights reserved.

Number of references:15

Main heading:Structural properties

Controlled terms:Differential scanning calorimetry - Glass - Magnetic materials - Magnetic properties - Magnetism - Melt spinning - Metallic glass - Microstructure - Nanocomposites - Neodymium - Quenching - Scanning electron microscopy - Smelting - Thermal effects - Transmission electron microscopy - Zirconium

Uncontrolled terms:Amorphous metals - Amorphous structures - Differential scanning calorimeters - Glass forming ability - Heat-treated ribbons - Highly sensitive - Magnetization measurements - Melt temperature - Melt treatments - Melt-spun - Nano-crystalline structures - Nanophases - Quenching temperatures - SEM - Transmission electron microscopy observation

Classification code:708.4 Magnetic Materials - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801 Chemistry - 951 Materials Science - 801.4 Physical Chemistry - 931.2 Physical Properties of Gases, Liquids and Solids - 933 Solid State Physics - 933.2 Amorphous Solids - 944.6 Temperature Measurements - 812.3 Glass - 701.2 Magnetism: Basic Concepts and Phenomena - 641.1 Thermodynamics - 408 Structural Design - 421 Strength of Building Materials; Mechanical Properties - 531 Metallurgy and Metallography - 531.2 Metallography - 533.2 Metal Refining - 535.2.2 Metal Forming Practice - 537.1 Heat Treatment Processes - 547.2 Rare Earth Metals - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 641 Heat and Mass Transfer; Thermodynamics

DOI:10.1016/j.jnoncrysol.2009.09.022

Database:Compendex

<RECORD 387>

Authors:Chen, Guoliang (1)
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<RECORD 388>

Authors:Li, Yan (1); Degerli, Yavuz (2); Ji, Zhen (1)
Author affiliation:(1) TI DSPs Laboratory, Faculty of Information Engineering, Shenzhen University, Shenzhen 518060, China; (2) CEA Saclay, IRFU, SEDI, 91191 Gif-sur-Yvette Cedex, France
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Abstract:CMOS active pixel sensors have become strong candidates for pixel detectors used in high energy physical experiments. Using standard CMOS fabrication process, full data processing circuits can be integrated on the same substrate with sensors and on-chip data processing is achievable. For this purpose, a column level high speed low power auto-zeroed comparator is developed. Tested at 100MHz, a resolution better than 0.5mV was obtained and its output residual offset is only 0.15mVrms. The dimension of the comparator is 25μm×30μm and its power dissipation is about 220μW.
Number of references:15
Main heading:Image sensors
Controlled terms:CMOS integrated circuits - Comparators (optical) - Data processing - Pixels - Speed
Uncontrolled terms:CMOS active pixel sensors - High energy - High-speed - Low Power - On chips - Physical experiments - Pixel detector - Power dissipation - Standard CMOS - Vertex detectors
Classification code:931.1 Mechanics - 742.2 Photographic Equipment - 741.3 Optical Devices and Systems - 723.5 Computer Applications - 723.2 Data Processing and Image Processing - 722.2 Computer Peripheral Equipment - 714.2 Semiconductor Devices and Integrated Circuits
Database:Compendex

<RECORD 389>

Accession number:20101312807934Title:Preparation of mesoporous silica aerogels via ambient pressure drying
Authors:Wang, Fang (1); Li, Rui-Fei (1); Luo, Zhong-Kuan (1)
Author affiliation:(1) Shenzhen Key Laboratory of Functional Polymer, College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Luo, Z.-K.
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Document type:Journal article (JA)

Abstract:Using sodium silicate as silica sources, trimethylchlorosilane(TMCS) modified SiO_2 hydrogels were prepared by a simple sol-gel process. After immersing and aging, surface modification, solvent replacement and fractional drying, mesoporous SiO_2 aerogels were obtained via an ambient pressure drying technique. The density, specific surface areas and average diameter of the mesoporous SiO_2 aerogels were 0.128-0.139 g/cm^3, 617-656 m^2/g and 14.49-20.20 nm respectively. Fourier transform infrared spectroscopy analyses indicate that the SiO_2 surface was modified by $-O-SiCH_3$. This process led to obvious surface hydrophobicity of SiO_2 aerogels.

Number of references:17

Main heading:Surfaces

Controlled terms:Aerogels - Ceramic materials - Dewatering - Fourier transform infrared spectroscopy - Mesoporous materials - Plasma interactions - Silica - Silica gel - Silicates - Sodium - Sol-gel process

Uncontrolled terms:Ambient pressure drying - Average diameter - Chemical technologies - Chemical technology - Mesoporous - Mesoporous Silica - Nanoporous material - Nanoporous Materials - Silica sources - Sodium silicate - Surface hydrophobicity - Surface modification - Trimethylchlorosilanes

Classification code:812 Ceramics, Refractories and Glass - 812.1 Ceramics - 812.3 Glass - 813.1 Coating Techniques - 951 Materials Science - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 932.3 Plasma Physics - 931 Classical Physics; Quantum Theory; Relativity - 804.2 Inorganic Compounds - 804 Chemical Products Generally - 414 Masonry Materials - 482.2 Minerals - 549.1 Alkali Metals - 604.2 Machining Operations - 801 Chemistry - 801.3 Colloid Chemistry - 801.4 Physical Chemistry - 802.3 Chemical Operations

Database:Compendex

<RECORD 390>

Accession number:20100512683690Title:KPCA and LS-SVM prediction model for hydrogen gas concentration

Authors:Pan, Minqiang (1); Zeng, Dehuai (1); Xu, Gang (2); Wang, Tao (1)

Author affiliation:(1) School of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou 510640, China; (2) School of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, China; (3) Shenzhen Key Laboratory of Mould Advanced Manufacture, Shenzhen 518060, China

Corresponding author:Pan, M.
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Source title:Lecture Notes in Electrical Engineering

Abstract:Hydrogen gas concentration forecasting and evaluation is very important for Bio-ethanol Steam Reforming hydrogen production. A lot of methods have been applied in the field of gas concentration forecasting including principal component analysis (PCA) and artificial neural network (ANN) etc. this paper used kernel principal component analysis (KPCA) as a preprocessor of Least Squares Support Vector Machine (LS-SVM) to extract the principal features of original data and employed the Particle Swarm Optimization (PSO) to optimize the free parameters of LS-SVM. Then LS-SVM is applied to proceed hydrogen gas concentration regression modeling. The experiment results show that KPCA-LSSVM features high learning speed, good approximation and generalization ability compared with SVM and PCA-SVM. © 2010 Springer-Verlag Berlin Heidelberg.
Number of references:8
Main heading:Principal component analysis
Controlled terms:Concentration (process) - Ethanol - Feature extraction - Gases - Hydrogen production - Mathematical models - Neural networks - Particle swarm optimization (PSO) - Steam engineering - Support vector machines
Uncontrolled terms:Artificial Neural Network - Free parameters - Gas concentration - Generalization ability - Hydrogen gas concentrations - Kernel principal component analysis - Learning speed - Least squares support vector machines - Prediction model - Preprocessors - Regression modeling
Classification code:802.3 Chemical Operations - 804.1 Organic Compounds - 901 Engineering Profession - 751.1 Acoustic Waves - 921 Mathematics - 922.2 Mathematical Statistics - 931.2 Physical Properties of Gases, Liquids and Solids - 921.5 Optimization Techniques - 741.1 Light/Optics - 522 Gas Fuels - 523 Liquid Fuels - 641.1 Thermodynamics - 461.1 Biomedical Engineering - 716 Telecommunication; Radar, Radio and Television - 723.4 Artificial Intelligence - 723.5 Computer Applications - 723 Computer Software, Data Handling and Applications
DOI:10.1007/978-3-642-05173-9_25
Database:Compendex

<RECORD 391>

Accession number:20100512674636Title:Influence of ethanol on the HAp coatings prepared by

hydrothermal electrodeposition on C/C composites

Authors:Li, Yinghua (1); Huang, Jianfeng (1); Zhu, Guangyan (1); Cao, Liyun (1); Zeng, Xierong (2)

Author affiliation:(1) School of Materials Science and Engineering, Shaanxi University of Science and Technology, Xi'an, Shaanxi 710021, China; (2) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, Guangdong 518060, China

Corresponding author:Huang, J.

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Abstract:Hydroxyapatite (HAp) coatings were prepared on carbon/carbon (C/C) composites with a novel hydrothermal electrodeposition method. The as-prepared HAp coatings were characterized by X-ray diffraction (XRD), Fourier transform infrared (FTIR) spectrum, and scanning electron microscope (SEM) analyses. The influence of ethanol on the phases and microstructures of HAp coatings was investigated. Results show that the coatings' crystallization shows little change with the increase in ethanol content up to 15%, but the density, homogeneousness, and adhesion with the substrate of HAp coatings obviously improved. The deposition mechanism of the HAp coating is also discussed. Thus, it is helpful to get dense and good-adhesion HAp coatings when ethanol is added into the solution during the hydrothermal electrodeposition process. © 2008 FSCT and OCCA.

Number of references:9

Main heading:Coatings

Controlled terms:Adhesion - Apatite - Carbon carbon composites - Electrodeposition - Ethanol - Fourier transform infrared spectroscopy - Hydroxyapatite - Scanning electron microscopy - X ray diffraction - X ray diffraction analysis

Uncontrolled terms:C/C composites - Carbon/carbon - Deposition mechanism - Electrodeposition methods - Electrodeposition process - Fourier transform infrared spectrums - HAp coatings - Scanning electron microscopes

Classification code:951 Materials Science - 804.2 Inorganic Compounds - 813.1 Coating Techniques - 813.2 Coating Materials - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 933.1.1 Crystal Lattice - 804.1 Organic Compounds - 415.4 Structural Materials Other Than Metal, Plastics or Wood - 461.2 Biological Materials and Tissue Engineering - 482.2 Minerals - 801 Chemistry - 523 Liquid Fuels - 539.3.1 Electroplating - 741.1

Light/Optics - 539 Metals Corrosion and Protection; Metal Plating

<RECORD 392>

Title:Modified model of unified chaotic system and the design of synchronization
Authors:Feng, Jian-Wen (1); He, Ling (1); Wu, Geng (1); Dai, An-Ding (1)
Author affiliation:(1) College of Mathematics and Computational Science, Shenzhen University, Shenzhen 518060, China
Corresponding author:Feng, J.-W.
        (fengjw@szu.edu.cn)

Abstract:A new simplified three-dimensional piecewise continuous autonomous system (a modified model of unified chaotic system) was introduced by replacing a quadratic nonlinear term in a unified chaotic system with a piecewise linear signum function. The qualitative properties of this modified model were studied to substantiate that it is a chaotic system. Two kinds of nonlinear controllers were designed to theoretically synchronize two uncertain modified models of unified chaotic system. Numerical simulations were presented to show the effectiveness of the methods.
Number of references:15
Main heading:Chaotic systems
Controlled terms:Adaptive control systems - Feedback control - Numerical methods - Piecewise linear techniques - Synchronization - Three dimensional
Uncontrolled terms:Adaptive Control - Autonomous systems - Modified model - Non-linear controllers - Nonlinear terms - Numerical simulation - Piecewise linear - Piecewise-continuous - Qualitative properties - Signum function   - Unified chaotic systems
Classification code:931 Classical Physics; Quantum Theory; Relativity - 921.6 Numerical Methods - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 961 Systems Science - 921 Mathematics - 731.1 Control Systems - 723.5 Computer Applications - 902.1

Engineering Graphics
Database:Compendex

<RECORD 393>

Title:Trellis-based prediction simulation algorithm for power control in WCDMA system

Authors:Zeng, Jie (1); Lu, Qing (2); Wang, Hui (1)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Inspection and Quarantine Research Institute, Shenzhen 518045, China
Corresponding author:Wang, H.
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Abstract:The principle of a trellis-based algorithm was described. The algorithm was theoretically analyzed, and a simulation model was built. The power control events were modeled by a sequence of 0's and 1's by devising a trellis-based prediction method that adjusted the transmitting power strength according to the degree of similarity between the prediction and the actual state of power control events. The proposed algorithm was applied to the power control of the WCDMA system. The system capacity was increased, and the simulation time was reduced by using the proposed algorithm in simulations.

Number of references:8
Main heading:Algorithms
Controlled terms:Access control - Code division multiple access - Forecasting - Power control
Uncontrolled terms:Communieation technology - Prediction algorithms - System Capacity - System simulations - Wideband code division multiple access
Classification code:921 Mathematics - 912.2 Management - 731.3 Specific Variables Control - 922.2 Mathematical Statistics - 723 Computer Software, Data Handling and Applications - 717 Optical Communication - 716 Telecommunication; Radar, Radio and Television - 718 Telephone Systems and Related Technologies; Line Communications
Database:Compendex

<RECORD 394>

Title:Quasi-phase-matched optical activity effect in "gyroelectric" crystals and its applications

Authors:Zheng, G. (1); She, W. (3); Ouyang, Z. (1)
Author affiliation:(1) College of Electronic Science and Technology, Shenzhen University, Shenzhen 518060, China; (2) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, Shenzhen 518060, China; (3) State Key Laboratory of Optoelectronic Materials and Technologies, Sun Yat-sen University, Guangzhou 510275, China
Corresponding author:Zheng, G.
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Abstract:"Quasi-phase matching" is first introduced to the optical activity (OA) effect and a wave coupling theory for the quasi-phase-matched (QPM) OA effect in periodically poled "gyroelectric" crystals is developed. The OA effect is observed clearly even though the propagating direction of light deviates far from the optical axis in the QPM crystal with both optical activity and natural birefringence. The QPM OA effect provides a special way to determine the gyration coefficients that cannot be observed by the normal OA effect, and it provides a principle for building optical filters without external field. © 2009 Springer-Verlag.
Main heading:Optical filters
Controlled terms:Crystals - Optical materials
Uncontrolled terms:External fields - Optical activity - Optical axis - Periodically poled - Quasi phase matching - Quasi-phase-matched - Wave coupling theory
Classification code:482.2 Minerals - 717.2 Optical Communication Equipment - 741.3 Optical Devices and Systems - 801.4 Physical Chemistry - 802.3 Chemical Operations - 933.1 Crystalline Solids

<RECORD 395>

Title:Research on temperature characteristics of hollow dual-core liquid-filled photonic crystal fiber

Authors:Li, Xue-Jin (1); Song, Kui-Yan (2); Hong, Xue-Ming (2); Yu, Yong-Qin (1)
Author affiliation:(1) College of Physical Science and Technology of Shenzhen University, Shenzhen 518060, China; (2) College of Electronics Science and Technology of Shenzhen University, Shenzhen 518060, China; (3) Key Laboratory of Sensor Technology in Shenzhen, Shenzhen 518060, China
Corresponding author:Li, X.-J.
        (lixuejin@szu.edu.cn)

Abstract:A hollow dual-core photonic crystal fiber filled with large thermo-optic coefficient liquid was analyzed. The effective refractive index, coupling length and confinement loss were investigated by the full-vector finite element method with a perfectly matched layer. Theoretical calculations and results show that the coupling length reduces linearly whenever the temperature increases, but confinement loss increases with temperature. Photonic crystal fiber filled with liquid becomes more sensitive to temperature as the wavelength reduces.
Number of references:19
Main heading:Photonic crystal fibers
Controlled terms:Crystal whiskers - Fibers - Finite element method - Laser pulses - Liquids - Numerical methods - Optical fiber coupling - Optical fibers - Optical materials - Photonic crystals - Refractive index - Sensors
Uncontrolled terms:Confinement loss - Coupling length - Dual core photonic crystal fiber - Dual-core - Effective refractive index - Optical fiber sensor - Perfectly Matched Layer - Temperature characteristic - Temperature increase - Theoretical calculations - Thermo-optic coefficients - Vector finite element
Classification code:817 Plastics and Other Polymers: Products and Applications - 819.4 Fiber Products - 921.6 Numerical Methods - 812 Ceramics, Refractories and Glass - 931.2 Physical Properties of Gases, Liquids and Solids - 933.1.1 Crystal Lattice - 951 Materials Science - 933.1

Crystalline Solids - 801.4 Physical Chemistry - 717 Optical Communication - 732.2 Control Instrumentation - 741.1 Light/Optics - 531.2 Metallography - 741.1.2 Fiber Optics - 744.1 Lasers, General - 801 Chemistry - 741.3 Optical Devices and Systems

<RECORD 396>

Title:Active semi-supervised spectral clustering based on pairwise constraints

Authors:Wang, Na (1); Li, Xia (1)
Author affiliation:(1) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong 518060, China
Corresponding author:Wang, N.
        (wangna@szu.edu.cn)

Abstract:Semi-supervised clustering uses a small amount of supervised data such as pairwise constraints to aid unsupervised learning. The improved clustering performance depends heavily on the choice of constraints. This makes it important to explore the appropriate pairwise constraints for semi-supervised clustering. This paper presents a method for actively selecting informative pairwise constraints, which corresponds to pick up data pairs far apart in the same cluster and those close in different clusters. An active semi-supervised spectral clustering (ASSC) is then developed by utilizing the selected pairwise constraints to adjust the distance matrix in spectral clustering. As a result, the intra-cluster distance is decreased and the inter-cluster distance is increased. Experimental results on UCI benchmark data sets and artificial data set show that these informative pariwise constraints lead to substantial performance enhancement over the random selective pairwise constraints spectral clustering.

<RECORD 397>

Title:Synchronized zoning strategy optimization of automated picking system

Authors:Lu, Shao-Ping (1); Zhang, Yi-Gong (2); Wu, Yao-Hua (2); Wu, Ying-Ying (2)
Author affiliation:(1) College of Business, Shenzhen University, Shenzhen 518060, China; (2) School of Control Science and Engineering, Shandong University, Jinan 250061, China
Corresponding author:Wu, Y.-H.
        (make.wu@163.net)

Abstract:A comprehensive optimization method for simultaneous zone picking strategy was proposed. The paper provides an analysis of the relationship between the picking efficiency and the three major elements of an automated picking system: the number of zones, the capacity of buffers and the assignment of items. It studies the impact of the baffle sequential at each zone on the total picking time. The proposed method introduces a similarity coefficient, based on which a clustering model for item assignment is built and a heuristic clustering algorithm is developed to solve the model. The goal is to minimize the total picking time and to determine the optimal number of zones and buffer capacity. Simulations have been conducted for a real automated picking system. The results demonstrate the efficiency of the comprehensive optimization method.
Number of references:10
Main heading:Clustering algorithms
Controlled terms:Automation - Control theory - Heuristic methods - Optimization - Synchronization - System theory
Uncontrolled terms:Automated picking system - Buffer - Buffer capacity - Clustering model - Major elements - Optimal number - Optimization method - Picking efficiency - Similarity coefficients - Strategy optimization   - Synchronized zoning
Classification code:961 Systems Science - 921.5 Optimization Techniques - 921 Mathematics - 912.3 Operations Research - 903.1 Information Sources and Analysis - 732 Control Devices - 731.4 System Stability - 731.1 Control Systems - 731 Automatic Control Principles and

Applications - 721 Computer Circuits and Logic Elements - 461.1 Biomedical Engineering

Database:Compendex

<RECORD 398>

Title:Failure probability analysis of reinforced concrete bridges under coupled corrosion fatigue effects

Authors:Zhou, Hai-Jun (1); Mi, Hong-Yu (1); Tan, Ye-Ping (1)
Author affiliation:(1) College of Civil Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author:Zhou, H.-J.
        (haijun@szu.edu.cn)

Abstract:A probabilistic model is proposed to assess the resistance of reinforced concrete (RC) structures located in chloride-contaminated environment with the effects of cyclic traffic loads. Monte Carlo method was applied to find the ultimate limit state failure probability. The structural reliability of an existing simply supported bridge in Guangdong Province was evaluated with different load conditions. The results show that the expected service lifetime of RC bridges is greatly reduced due to the coupled corrosion fatigue effects.

Number of references:11

Main heading:Corrosion fatigue

Controlled terms:Chlorine compounds - Concrete bridges - Concrete buildings - Concrete construction - Corrosion - Failure analysis - Monte Carlo methods - Probability - Quality assurance - Railroad bridges   - Reinforced concrete - Safety engineering - Structural design

Uncontrolled terms:Contaminated environment - Failure Probability - Guangdong Province - Limit state failure probability - Load condition - Probabilistic models - Reinforced concrete structures - Service lifetime - Simply supported bridge - Structural engineering   - Structural reliability - Traffic loads - Ultimate limit state

Classification code:802.2 Chemical Reactions - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 922.2 Mathematical Statistics - 913.3 Quality Assurance and Control - 921

Mathematics - 922.1 Probability Theory - 914 Safety Engineering - 681.1 Railway Plant and Structures, General - 539.1 Metals Corrosion - 401.1 Bridges - 402 Buildings and Towers - 405 Construction Equipment and Methods; Surveying - 408.1 Structural Design, General - 412 Concrete - 421 Strength of Building Materials; Mechanical Properties

<RECORD 399>

Title:Erratum: Synthesis and characteristic of the Fe_3O_4@SiO_2@$Eu(DBM)_3$·$2H_2O$/SiO_2 luminomagnetic microspheres with core-shell structure (Talanta (2010) 82 (450-457))

Authors:Lu, Ping (1); Zhang, Ji-Lin (1); Liu, Yan-Lin (1); Sun, De-Hui (3); Liu, Gui-Xia (2); Hong, Guang-Yan (1); Ni, Jia-Zuan (1)
Author affiliation:(1) State Key Laboratory of Rare Earth Resource Utilization, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022, China; (2) School of Chemistry and Environmental Engineering, Changchun University of Science and Technology, Changchun, 130022, China; (3) Changchun Institute Technology, Changchun, 130012, China; (4) College of Life Science, Shenzhen University, Shenzhen, 518060, China
Corresponding author:Zhang, J.-L.
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<RECORD 400>

Title:Multitarget data association algorithm using cluster cloud model based c-means clustering

Authors:Huang, Jian-Jun (1); Li, Peng-Fei (1); Yu, Jian-Ping (1); Ruan, Yi-Wu (1)
Author affiliation:(1) ATR Key Laboratory of National Defense Technology, Shenzhen University, Shenzhen 518060, China; (2) Department of Missile, Air Defense Forces Command Academy, Zhengzhou 450052, China
Corresponding author:Huang, J.-J.
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Abstract:To solve the data association of multi-target tracking, a novel algorithm of data association was proposed based on cloud c-means clustering (CCM). The CCM algorithm was used to cluster effective echoes, and the resulting cluster centers were considered the final measurements of the targets. The nearest neighboring algorithm was used to associate the cluster centers with the tracks, and the Kalman filter was employed for state estimation. Results from the experiment show that the proposed algorithm has a better tracking accuracy and a lower computational load than the joint probabilistic data association algorithm, and it is more convenient for engineering applications.
Number of references:10
Main heading:Clustering algorithms
Controlled terms:Data processing - Navigation - Signal filtering and prediction - Target tracking
Uncontrolled terms:C-Means clustering - Cloud models - Information processing technology - Multi-target tracking - Nearest neighbor algorithm
Classification code:731.1 Control Systems - 723.2 Data Processing and Image Processing - 721 Computer Circuits and Logic Elements - 716.3 Radio Systems and Equipment - 716.2 Radar Systems and Equipment - 903.1 Information Sources and Analysis - 716.1 Information Theory and Signal Processing - 655.1 Spacecraft, General - 654.1 Rockets and Missiles - 434.4 Waterway Navigation - 431.5 Air Navigation and Traffic Control - 656.1 Space Flight
Database:Compendex

<RECORD 401>

Accession number:20101312807927Title:Investigation and application of ultrafast pulse circuitry

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Abstract:A picosecond high-voltage pulse electronic circuitry was designed using an avalanche transistor. The circuit contained an avalanche transistor circuit and a diode shunt shaper circuit. A high voltage fast-step pulse with a width of 6 ns and amplitude of 5 kV was generated by using avalanche transistors in a Marx bank configuration and was shaped by avalanche diodes. Finally, a short pulse wave form with a width of 230 ps and amplitude of 2.5 kV was achieved. The short pulse was used for driving photocathode, which is MCP coated with gold. The measured exposure time of the camera was as short as 80 ps.
Number of references:9
Main heading:Avalanche diodes
Controlled terms:Cameras - Gold coatings - Image storage tubes - Microchannels - Motion picture cameras - Photography - Pulsed laser applications
Uncontrolled terms:Framing Camera - High voltage pulse - High-speed - Micro channel plate - Optoelectronics and laser - Picoseconds
Classification code:942.2 Electric Variables Measurements - 813.2 Coating Materials - 746 Imaging Techniques - 744.9 Laser Applications - 742.2 Photographic Equipment - 742.1 Photography - 714.1 Electron Tubes - 631 Fluid Flow - 604 Metal Cutting and Machining
Database:Compendex

<RECORD 402>

Accession number:20100512676864Title:Socio-technical innovations for total food chain safety during the 2008 Beijing Olympics and Paralympics and beyond

Authors:Wu, Xuli (1); Wu, Hui (1); Xia, Lixin (2); Ji, Kunmei (2); Liu, Zhigang (2); Chen, Jiajie (2); Hu, Dongsheng (2); Gao, Chen (2); Wu, Yan (2)
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Abstract:The Beijing Olympic Committee adopted a series of socio-technical innovations and a unified Good Nutrition Practice (GNP) to protect the total food chain supply and ensure food safety for athletes and coaches during the Games. The success of these measures was evidenced by the total absence of food safety breaches and incidents during the Games. In contrast, the tragedy that befell infants poisoned by melamine-contaminated formula in China shortly thereafter underscores the need for unassailable food safety measures beyond the Beijing area and the Olympic time period. The innovations enacted to protect Olympic Games participants could benefit the country of China as a whole, as well as other developing countries. © 2009 Elsevier Ltd. All rights reserved.
Number of references:25
Main heading:Health
Controlled terms:Developing countries - Melamine formaldehyde resins
Uncontrolled terms:Beijing area - Food chain - Food safety - Olympic games - Olympics - Sociotechnical - Time periods
Classification code:461.6 Medicine and Pharmacology - 815.1.1 Organic Polymers - 901.4 Impact of Technology on Society - 914.3 Industrial Hygiene
DOI:10.1016/j.tifs.2009.10.010
Database:Compendex

<RECORD 403>

Accession number:20100112608880Title:Growth of oriented vapor grown carbon fibers on

pyrolytic carbon films without catalyst

Authors:Fu, Dongju (1); Zeng, Xierong (2); Deng, Fei (1); Sheng, Hongchao (1); Zou, Jizhou (2)

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Abstract:Growth of oriented vapor-grown carbon fibers (VGCFs) on pyrolytic carbon films without catalyst has been reported. They have potential applications as fillers in composites, superhigh hydrogen storage materials, and good electrode materials. The morphology and structure of products were characterized by field emission scanning electron microscopy. Raman spectroscopy is one of the most effective tools for distinguishing different carbon phases, as each phase displayed its own Raman bands. The oriented VGCFs with high purity were prepared without any catalyst by direct microwave-assisted pyrolysis of methane, at 1100 °C. Raman spectroscopy indicated that the VGCFs possess relatively high degree of graphitization. It was assumed that microwave field might catalyze the formation of VGCFs.

Abstract type:(Edited Abstract)

Number of references:21

Main heading:Carbon films

Controlled terms:Carbon fibers - Catalysis - Catalysts - Field emission - Field emission microscopes - Hydrogen storage - Methane - Microwaves - Raman scattering - Raman spectroscopy   - Scanning electron microscopy - Vapors

Uncontrolled terms:Carbon phasis - Effective tool - Electrode material - Field emission scanning electron microscopy - High purity - Hydrogen storage materials - Microwave field - Microwave-assisted - Potential applications - Pyrolytic carbon   - Raman bands - Vapor grown carbon fiber

Classification code:804 Chemical Products Generally - 804.1 Organic Compounds - 813.2 Coating Materials - 803 Chemical Agents and Basic Industrial Chemicals - 817.1 Polymer Products - 931.4 Quantum Theory; Quantum Mechanics - 932 High Energy Physics; Nuclear

Physics; Plasma Physics - 931.2 Physical Properties of Gases, Liquids and Solids - 802.2 Chemical Reactions - 641.1 Thermodynamics - 711 Electromagnetic Waves - 712 Electronic and Thermionic Materials - 522 Gas Fuels - 712.1 Semiconducting Materials - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 714.2 Semiconductor Devices and Integrated Circuits

<RECORD 404>

Title:Sol-gel preparation of titania/organic silicone hybrid thin films

Authors:Wang, Fang (1); Luo, Zhong-Kuan (1); Qing, Shuang-Gui (1); Qiu, Qi (1); Shi, Yong (1)
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Abstract:Incorporation of metal alkoxides into polymers through Sol-Gel process is of significant interest for tuning the refractive index of optical materials. The organic-inorganic hybrid material with tunable refractive index (RI) and high transparency was studied. Tetrabutoxytitanate (TBOT) and alkoxysilanes including diphenyldimethoxysilane (DPS) and γ-Glycidoxypropy1 trimethoxysilane (GPTS) were employed as sources of the titania sol and the silica sol respectively. Subsequently, crack-free films were fabricated by spin coating. The hybrid films with different Ti contents were characterized by various techniques including IR, UV-Vis, TG/DSC, TEM and auto-laser ellipsometer. The results indicated that the hybrid films displayed homogeneous morphology and titania was crosslinked with alkoxysilanes. The RI of films increased from 1.54 to 1.64 at 633nm with Ti molar fraction varing from 10% to 70%. And the transmittances of the hybrid films in the visible range were higher than 90%.

Refractometers - Silica - Silicones - Sol-gels - Sols - Titanium dioxide

Uncontrolled terms:Alkoxysilanes - Crack-free films - Crosslinked - Ellipsometers - High transparency - Homogeneous morphology - Hybrid film - Hybrid thin film - Metal alkoxides - Molar fractions - Organic-inorganic hybrid materials - Silica sols - Sol gel preparations - Sol-gel titania - TEM - Ti content - Titania sol - Trimethoxysilane - Visible range

Classification code:941.3 Optical Instruments - 812.3 Glass - 813.1 Coating Techniques - 815.1 Polymeric Materials - 815.1.1 Organic Polymers - 816 Plastics and Other Polymers: Processing and Machinery - 817 Plastics and Other Polymers: Products and Applications - 818.2 Elastomers - 933 Solid State Physics - 812 Ceramics, Refractories and Glass - 415 Metals, Plastics, Wood and Other Structural Materials - 482.2 Minerals - 712 Electronic and Thermionic Materials - 804.2 Inorganic Compounds - 712.1 Semiconducting Materials - 801.3 Colloid Chemistry - 804 Chemical Products Generally - 741.1 Light/Optics

DOI:10.3724/SP.J.1077.2010.00037

Database:Compendex

<RECORD 405>

Title:Proceedings - 4th International Conference on Genetic and Evolutionary Computing, ICGEC 2010: Preface

Authors:Pan, Jeng-Shyang (1); Du, Youfu (2); Ding, Mingyue (3); Li, Xia (4); Watada, Junzo (5); Zhang, Qingyu (6)

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Corresponding author:Pan, J.-S.

<RECORD 406>

Accession number:20102813071439Title:DATICS-2010: Welcome message from workshop organizers: FutureTech 2010

Authors:Man, Ka Lok (1); Mercaldi, Michele (1); Hahanov, Vladimir (2); Prinetto, Paolo (3); Poncino, Massimo (3); MacIi, Alberto (3); Choi, Joongho (4); Li, Wei (5); Schellekens, Michel (6); Popovici, Emanuel (6); Seon, Jong-Kug (7); Rossi, Umberto (8); Fummi, Franco (9); Pravadelli, Graziano (9); Lam, Yui Fai (10); PavLov, Vladimir (11); Patel, Ajay (12); Huang, Jinfeng (13); Vallee, Thierry (14); Boubekeur, Menouer (6); Sokolova, Ana (15); Almerares, Sergio (8); Donno, Monica (1); Cho, Jun-Dong (16); Alam, Ahm Zahirul (17); Provan, Gregory (6); Velev, Miroslav N. (18); Nasir Uddin, M. (19); Botchkarev, Alexei (20); Bosnacki, Dragan (21); Hickey, Dave (76); O'Keeffe, Maria (6); Krilavicius, Tomas (22); Pastrnak, Milan (23); Herbert, John (6); Lu, Zhe-Ming (24); Pan, Jeng-Shyang (25); Chang, Chin-Chen (26); Horng, Mong-Fong (27); Chen, Liang (28); Lim, Chee-Peng (29); Tao, Ngo Quoc (30); Deb, Suash (31); Merniz, Salah (32); Valero, Oscar (33); Yi, Yang (24); Woods, Damien (34); Vedrine, Franck (35); Monsuez, Bruno (36); Yen, Kang (37); Matsuura, Takenobu (38); Timothy Edwards, R. (39); Tveretina, Olga (40); Fino, Maria Helena (41); O'Riordan, Adrian Patrick (6); Labiak, Grzegorz (42); Gaur, M.S. (43); Chang, Jian (44); Chung, Yeh-Ching (45); Derezinska, Anna (46); Cho, Kyoung-Rok (47); Zhang, Yong (48); Liutkevicius, R. (22); Zeng, Yuanyuan (6); Vasudevan, D.P. (6); Bukowiec, Arkadiusz (49); Kitsos, Paris (50); Goudarzi, Maziar (6); Dong, Jin Song (51); Bhalla, Ateet (52); Al-Khalili, Dhamin (53); Navabi, Zainalabedin (63); Zinchenko, Lyudmila (54); Anjum, Muhammad Almas (55); Narasimha, Deepak Laxmi (56); Hughes, Danny (57); Tadjouddine, Emmanuel M (58); Wang, Jun (59); Kumar, A.P. Sathish (60); Jaisankar, N. (61); Mansoor, Atif (56); Hollands, Steven (62); Mohammadi, Siamak (54); Klein, Felipe (63); Westermann, Peter (64); English, Tom (6); Planas, Miquel Moreto (65); Chung, Chelho (66); Chakrabarti, Amlan (67); Lei, Chi-Un (68); Bamakhrama, Mohamed (69); Naik, B. Rajendra (70); Harte, Sean (6); Yin, Alexander (71); Giancardi, Luigi (72); Mady, Alie El-Din (75); Joseph, Arun (73); Khandekar, Prasad D. (74); Pandey, Hari Mohan (76)

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Corresponding author:Man, K. L.

<RECORD 407>

Title:CW THz imaging constructions in reflection geometry

Authors:Ruan, Shuang-Chen (1); Quan, Run-Ai (1); Zhang, Min (1); Yang, Jun (2); Liang, Hua-Wei (1); Zhai, Jian-Pang (1); Hu, Xue-Juan (1)
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Abstract:By using 1.89 THz continuous terahertz wave and a 124×124 element pyroelectric camera, two compact imaging configurations were demonstrated in reflective geometry with and without a beam splitter. A Chinese 50-cent coin was tested with the aim to evaluating the performance of these two systems. Compared to the system without a beam splitter, the system with a beam splitter can solve distortion problems. The resulting image is of high quality, evidenced by the clearer image of the numeral "5" with several dim Chinese characters around it without any distortion.

Optoelectronics and laser - Pyroelectric camera - Realtime imaging
Classification code:711 Electromagnetic Waves - 741.3 Optical Devices and Systems - 742.2 Photographic Equipment - 932.1 High Energy Physics
Database:Compendex

<RECORD 408>

Title:A nested multistage adaptive beamformer with a low complexity under the correlated signal environment

Authors:Xie, Ning (1); Lin, Xiaohui (1); Wang, Hui (1)
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Corresponding author:Xie, N.
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Abstract:A multistage adaptive beamformer for wireless communications is proposed. The beamformer adopts a novel nested system architecture to reduce the system complexity and to achieve the system optimization which is carried out independently at each stage. It is shown that this method attains an improved performance in comparison to another competitive method. © 2008 Springer Science+Business Media, LLC.
Number of references:8
Main heading:Adaptive antenna arrays
Controlled terms:Antennas - Beamforming - Wireless telecommunication systems
Uncontrolled terms:Adaptive Beamforming - Beam formers - Correlated signals - Low complexity - MMSE criterion - System architectures - System complexity - System optimizations - Wireless communications
Classification code:711.2 Electromagnetic Waves in Relation to Various Structures - 713 Electronic Circuits - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 731 Automatic Control Principles and Applications - 732 Control Devices
DOI:10.1007/s11277-008-9638-3

<RECORD 409>

Accession number:20104213306508Title:An edge-preserving fourth order PDE method for image denoising

Authors:Lu, Bibo (1); Liu, Qiang (1)
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Abstract:This paper presents an edge-preserving fourth order partial differential equation (PDE) method for image denoising. This method can preserve edges and avoid the staircase effect. The proposed fourth order model contains a function of gradient norm as an edge detector, which controls the diffusion speed according to the local structure of the image and preserves more details. Denoising results are given and we also compare our method with some related PDE models. © 2010 IEEE.

Number of references:16
Main heading:Diffusion
Controlled terms:Image processing - Noise pollution control - Partial differential equations - Stairs

<RECORD 410>

Title:Derivation of stress and strain of saturated sand in free ground under seismic loading

Authors:Su, Dong (1); Li, Xiang-Song (2)

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Abstract:Analysis of response of level ground subjected to earthquake is one of the most important problems in geotechnical engineering practice. By use of the bi-axial shaker installed on the geotechnical centrifuge at the Hong Kong University of Science and Technology, a centrifuge dynamic test was performed on a saturated sand ground model under a bi-axial earthquake loading. Based on definitions of stress and strain, and the D'Alembert's principle, stress and strain of soils at various depths were derived from the data of acceleration, displacement, as well as excess pore pressure measured in the test. The stress paths and stress-strain relationships of saturated sand during the shaking event, and their connection with development of excess pore pressure were revealed.

Uncontrolled terms:D' Alembert's principle - Shaking tables - Stress paths - Stress-strain relationship - Stress-strain relationships

Classification code:802.3 Chemical Operations - 802.1 Chemical Plants and Equipment - 505 Mines and Mining, Nonmetallic - 484 Seismology - 483.1 Soils and Soil Mechanics - 921 Mathematics - 483 Soil Mechanics and Foundations - 423.2 Non Mechanical Properties of Building Materials: Test Methods - 422.2 Strength of Building Materials : Test Methods - 421 Strength of Building Materials; Mechanical Properties - 409 Civil Engineering, General - 481 Geology and Geophysics

Database:Compendex