1. Wideband slow-light propagation with no distortion in a nanofiber-plane-grating composite waveguide

Accession number: 20162702569605
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Source title: Optical Engineering
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Language: English
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Document type: Journal article (JA)
Publisher: SPIE
Abstract: A nanofiber-plane-grating composite slow-light waveguide to achieve wideband slowlight propagation with no distortion is proposed. The waveguide is formed by embedding a tapered nanofiber into a V-groove on a plane-grating surface. By optimizing the waveguide structural parameters, a slow-light effect with bandwidth of about 1453 GHz is obtained. Based on finite-difference time-domain (FDTD) method, we analyze the waveguide's optical properties and slow-light characteristics. Simulation results show that a picosecond optical pulse propagating in the slow-light waveguide can be delayed for about 980 fs and without distortion. The group velocity of the optical pulse can be reduced to about 0.3c (c is the speed of light in vacuum). This study will provide important theoretical basis and innovative ideas for the development of new-Type slow-light elements. © 2016 Society of Photo-Optical Instrumentation Engineers (SPIE).
Number of references: 28
Main heading: Slow light
Controlled terms: Nanofibers - Optical properties - Laser pulses - Finite difference time domain method - Optical waveguides
Uncontrolled terms: Composite waveguides - Group velocities - Innovative ideas - Light effects - Light elements - Picoseconds - Plane grating - Structural parameter
Classification code: 714.3 Waveguides - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 744.1 Lasers, General - 761 Nanotechnology - 921 Mathematics - 933 Solid State Physics
Numerical data indexing: Frequency 1.45e+12Hz, Time 9.80e-13s
DOI: 10.1117/1.OE.55.6.066120
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

2. A electrochemical sensor based on poly (sulfosalicylic acid) film modified electrode and application to phenol detection in oilfield wastewater

Accession number: 20163102677896
Authors: Xiao, Zengli (1); Qin, Wenlong (1); Shi, Liangliang (2)
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Volume: 10
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Publication year: 2016
Pages: 299-308
Language: English
ISSN: 19754094
Document type: Journal article (JA)
Publisher: Science and Engineering Research Support Society
Abstract: In this paper, a highly sensitive and selective method based on the poly (sulfosalicylic acid) modified electrode (PSA /CPE) to detect phenol was established. The morphologies and interface properties of PSA film were characterized by scanning electron microscopy and electrochemical impedance spectroscopy. It was illustrated that the PSA/CPE had an excellent electrocatalytic ability towards the oxidation of phenol. Meanwhile the influence of parameters such as pH and scan rate effect on the analytical performance of the sensor was evaluated. Moreover, the interference from o-nitrophenol can be neglected. By using differential pulse voltammetry (DPV), linear calibration curves were obtained as 5-175 and 220-555 μmol L-1 for phenol. The detection limits are 2.2 μmol L-1 for phenol. With favorable selectivity and sensitivity, the present method has been applied to the determination of phenol in oilfield wastewater. © 2016 SERSC.
Number of references: 30
Main heading: Phenols
Controlled terms: Voltammetry - Interfaces (materials) - Scanning electron microscopy - Electrochemical impedance spectroscopy - Electrochemical electrodes - Electrochemical sensors - Surface treatment - Oil well flooding
Uncontrolled terms: Differential pulse voltammetry - Electrocatalytic ability - Film modified electrode - Linear calibration curve - Oilfield wastewaters - Phenol detection - Selectivity and sensitivity - Sulfosalicylic acid
Classification code: 511.1 Oil Field Production Operations - 732.2 Control Instrumentation - 801 Chemistry - 801.4.1 Electrochemistry - 804.1 Organic Compounds - 951 Materials Science
Numerical data indexing: Molar_Concentration 2.20e-01mol/m3 to 5.55e-01mol/m3, Molar_Concentration 2.20e-03mol/m3
DOI: 10.14257/ijsh.2016.10.6.29
Funding Details: Number: 2014JM7251, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 15JS087, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: 51304159, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This study is supported by the Key laboratory research project of Education Department of Shaanxi Province (No.15JS087), the National Natural Science Foundation of China(Grant no. 51304159), and the Natural Science Basic Research Plan in Shaanxi Province (Nos. 2014JM7251).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

3. A new spectral-spatial algorithm method for hyperspectral image target detection

Accession number: 20161902371775
Authors: Wang, Cai-Ling (1, 2); Wang, Hong-Wei (3); Hu, Bing-Liang (1); Wen, Jia (4); Xu, Jun (5); Li, Xiang-Juan (2)
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Source title: Guang Pu Xue Yu Guang Pu Fen Xi/Spectroscopy and Spectral Analysis
Abbreviated source title: Guang Pu Xue Yu Guang Pu Fen Xi
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Issue: 4
Issue date: April 1, 2016
Publication year: 2016
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Language: Chinese
ISSN: 10000593

CODEN: GYGFED
Document type: Journal article (JA)
Publisher: Science Press
Abstract: With high-resolution spatial information and continuous spectrum information, hyperspectral remote sensing image -has a unique advantage in the field of target detection. Traditional hyperspectral remote sensing image target detection methods emphasis on using spectral information to determine deterministic algorithm and statistical algorithms. Deterministic algorithms find the target by calculating the distance between the target spectrum and detected spectrum however, they are unable to detect sub-pixel target and are easily affected by noise. Statistical methods which calculate background statistical characteristics to detect abnormal point as target. It can detect subpixel target targets and small targets better thanbig size target,. With the spatial resolution increasing, subpixel target detection target has gradually grown to a single pixel and multi-pixel target. At this point, hyperspectral image usually has large homogeneous regions where the neighboring pixels wihin the regions consist of the same type of materials and have a similar spectral characteristics, therefore, the spatial information should be needed to incorporate into the algorithm for targe detection. This paper proposes an algorithm for hyperspectral target detection combined spectrum characteristics and spatial characteristics. The algorithm is based on traditional target detection operator and combined neighborhood clustering statistics. Firstly, the algorithm uses target detection operator to divided hyperspectral image into a potential target region and background region. Then, it calculates the centroid of the potential target area. Finally, as the centroid for neighborhood clustering center to clust data in order to exclud background from potential target area, through iterative calculation to obtain the final results of the target detection. The traditional statistics algorithms defines the total image as background area in order to extract background statistics features, and the algorithm propsed devided the total image into background part and potential target part, which cut off the target interference for background statistics feature extraction. Compared with CEM operators and ACE operators, the algorithm proposed outperforms than traditional operators in big target detection. © 2016, Peking University Press. All right reserved.
Number of references: 12
Main heading: Iterative methods
Controlled terms: Spectroscopy - Remote sensing - Radar target recognition - Statistics - Clustering algorithms - Pixels - Feature extraction
Uncontrolled terms: Deterministic algorithms - Hyperspectral Remote Sensing Image - Hyperspectral target detection - Neighborhood clustering - Spectral algorithm - Statistical characteristics - Statistical operators - Subpixel target detection
Classification code: 716.2 Radar Systems and Equipment - 903.1 Information Sources and Analysis - 921.6 Numerical Methods - 922.2 Mathematical Statistics
DOI: 10.3964/j.issn.1000-0593(2016)04-1163-07
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

4. Strain modulating half-metallicity of semifluorinated GaN nanosheets

Accession number: 20161802333942
Authors: Xiao, Meixia (1, 2); Ao, Zhimin (3, 4); Xu, Tianhan (1); He, Cheng (2); Song, Haiyang (1); Wang, Lei (1)
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Source title: Chemical Physics Letters
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Volume: 653
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Publication year: 2016
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Language: English
ISSN: 00092614
CODEN: CHPLBC
Document type: Journal article (JA)
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Abstract: Strain-dependent half-metallicity of two-bilayer GaN nanosheets (NSs) with fluorinated Ga atoms is studied using density-functional theory. Our results demonstrate that the band gaps in spin-up states and half-metallic gaps vary with biaxial strain and uniaxial compressive strain along the zigzag direction, while the metallic behaviors in spin-down states remain regardless of strain. However, biaxial strain has a better effect on the half-metallicity. Semifluorinated GaN NSs may undergo a structural phase transition from wurtzite to graphite-like phase at high biaxial tension. Therefore, biaxial strain tuning half-metallicity efficiently could provide a viable route to GaN-based spintronic nanodevices. © 2016 Published by Elsevier B.V.
Number of references: 39
Main heading: Surface treatment
Controlled terms: Astrophysics - Density functional theory - Zinc sulfide - Energy gap - Gallium nitride - Metals - Nanosheets - III-V semiconductors
Uncontrolled terms: Biaxial tensions - Half-metallicity - Metallic behaviors - Spin-down state - Spintronic nanodevices - Strain-dependent - Structural phase transition - Uniaxial compressive
Classification code: 657.2 Extraterrestrial Physics and Stellar Phenomena - 712.1 Semiconducting Materials - 761 Nanotechnology - 804.2 Inorganic Compounds - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933 Solid State Physics
DOI: 10.1016/j.cplett.2016.04.066
Funding Details: Number: -, Acronym: NCI, Sponsor: National Computational Infrastructure; Number: NCET-12-1046, Acronym: MOE, Sponsor: Ministry of Education of the People's Republic of China; Number: 2015JM6327, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 2013JK0894, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: 20151708, Acronym: -, Sponsor: State Key Laboratory for Mechanical Behavior of Materials; Number: 2012BS004, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: The authors acknowledge the support by Scientific Research Program Funded by Shaanxi Provincial Education Department (2013JK0894), Program for New Century Excellent Talent in University of Ministry of Education of China (Grant No. NCET-12-1046), State Key Laboratory for Mechanical Behavior of Materials (20151708), Natural Science Foundation of Shaanxi Province (2015JM6327), and Youth Science and Technology Innovation Fund Project at the Xi'an Shiyou University (2012BS004). This research is also supported by the National Computational Infrastructure (NCI) through the merit allocation scheme and used NCI resources and facilities in Canberra, Australia.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

5. Brittleness index prediction in shale gas reservoirs based on efficient network models

Accession number: 20163902836487
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Publication year: 2016
Pages: 673-685
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Brittleness index is one of the critical geomechanical properties of unconventional reservoir rocks to screen effective hydraulic fracturing candidates. In petroleum engineering, brittleness index can be generally calculated from the mineralogical composition by X-ray diffraction (XRD) test or rock mechanical parameters by tri-axial experiments and well logs. However, mineral composition analysis or tri-axial experiments cannot produce continuous brittleness profile. Well log-based brittleness index prediction conventionally relies on Young's modulus and

Poisson's ratio, but sometimes shear compressional velocity is not available to derive elastic inputs for the brittleness index calculation. This study proposes some data-driven practical brittleness prediction approaches based on back-propagation artificial neural network (BP-ANN), extreme learning machine (ELM) and linear regression using commonly available conventional logging data and lab mineralogical-derived brittleness. A dataset of 71 mineralogical-derived brittleness measurements from Silurian Longmaxi marine shale, Jiaoshiba Shale Gas Field, Sichuan Basin, China were established. The model comparisons and error analysis reveal that the application of artificial intelligence models can be more effectively applied to brittleness prediction compared with simple regression correlations. Both BP-ANN and ELM models are competent for brittleness prediction while BP-ANN model can produce slightly better brittleness prediction results with same inputs and ELM model require less running time. Thus, more choices can be made according to accuracy and computational speed demand. Moreover, an overall ranking of sensitivity degree is then provided to show the impacts of different well logs as inputs on the BP-ANN and ELM model, which is helpful to find optimal inputs in given case. Comparing to traditional well-log based brittleness approaches, data-based approaches show its wider applications because the integration of mineralogical composition and well log information can provide continuous brittleness profile in terms of high accuracy while acoustic full waveform velocities are no longer necessary inputs in brittleness evaluation. © 2016 Elsevier B.V.
Number of references: 35
Main heading: Hydraulic fracturing
Controlled terms: Backpropagation - Shale gas - Brittleness - Hydraulic machinery - Plasticity - Regression analysis - Well logging - Fracture mechanics - Gas industry - X ray diffraction - Elastic moduli - Forecasting - Neural networks - Petroleum reservoirs - Porosity - Shear flow - Natural gas fields
Uncontrolled terms: Back propagation artificial neural network (BPANN) - Extreme learning machine - Regression - Rock brittleness - Well logs
Classification code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 512.2.1 Natural Gas Fields - 522 Gas Fuels - 631.1 Fluid Flow, General - 632.2 Hydraulic Equipment and Machinery - 723.4 Artificial Intelligence - 922.2 Mathematical Statistics - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
DOI: 10.1016/j.jngse.2016.09.009
Funding Details: Number: -, Acronym: -, Sponsor: Natural Science Foundation of Shandong Province; Number: 2015CB251206, Acronym: -, Sponsor: National Basic Research Program of China (973 Program); Number: 20130133120014, Acronym: SRFDP, Sponsor: Specialized Research Fund for the Doctoral Program of Higher Education of China; Number: 61305075, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: RT1086, Acronym: -, Sponsor: -;
Funding text: This study was supported by the National Basic Research Program of China (No. 2015CB251206), the Program of Changjiang Scholars and Innovative Research Team in University (No. RT1086), the China National Natural Science Foundation (No. 61305075 , No. 51504280), the Specialized Research Fund for the Doctoral Program of Higher Education of China (No. 20130133120014), the Natural Science Foundation of Shandong Province (No. ZR2013FQ004 , No. ZR2013DM015) and the Open Fund (No. G5800-I5-ZS-WX038) from Petroleum Exploration and Production Research Institute of SINOPEC. We would also like to thank the anonymous reviewers for their thoughtful comments that helped to improve the paper.
Compendex references: YES
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Data Provider: Engineering Village

6. Geochemical characteristics and genesis of high-H2S natural gas in the Dagang exploration area, Huanghua depression

Accession number: 20171203473023
Authors: Guo, Jianying (1, 2); Fu, Lixin (3); Xiao, Xin (4); Wang, Dongliang (1, 2); Li, Jian (1, 2); Zhang, Lu (1, 2); Xiao, Dunqing (3); Xie, Zengye (1, 2); Liu, Xiaoxuan (5); Wang, Jinyou (6)
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Source title: Shiyou Xuebao/Acta Petrolei Sinica
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Volume: 37

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Publication year: 2016
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Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: After the discovery of H2S gas reservoir in Jinxian Depression, Jizhong Sag, Bohai Bay Basin, high-H2S gas reservoir was discovered in the Dagang exploration area, Huanghua sag. Such high H2S and CO2 contents have been first found in coal-formed gas reservoir in China, and the genesis of acid gas has attracted attentions of domestic scholars. Through comparing the organic geochemistry parameters of gas and rock, it is believed that high content of H2S in the area is the product of thermochemical sulphate reduction(TSR), which reveals that TSR can also occur in the coal-formed gas area and enriches the previous geological recognition that TSR only occurs in the marine crude oil cracking gas area; high content of organic-inorganic CO2 is related to thermal metamorphism of carbonate rock and TSR, and is also strongly associated with coal-formed hydrocarbon gas. The enrichment of H2S in the Dagang exploration area, Huanghua Sag is controlled by formation temperature and the enrichment degree of sulfur source in reservoir. High-H2S natural gas is mainly distributed in the south central region covered by Carboniferous-Permian strata with a relatively great burial depth, such as Chenghai, Bogu-Wumaying-Wangguantun, and etc. The research results have a positive guiding significance to discover the formation mechanism of high acidic natural gas and carry out the next exploration deployment of natural gas. © 2016, Editorial Office of ACTA PETROLEI SINICA. All right reserved.
Number of references: 18
Main heading: Sulfur compounds
Controlled terms: Rocks - Gases - Natural gas - Petroleum prospecting - Carbon dioxide - Coal - Crude oil - Exploratory geochemistry
Uncontrolled terms: Dagang exploration area - Formation temperature - Geochemical characteristic - Guiding significances - Huanghua Depression - Organic geochemistry - Sulphate reduction - Thermal metamorphism
Classification code: 481.2 Geochemistry - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 522 Gas Fuels - 524 Solid Fuels - 804.2 Inorganic Compounds
DOI: 10.7623/syxb2016S2004
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

7. Nonlinear tunneling and robust energy transfer in sum frequency generation

Accession number: 20164202918783
Authors: Xu, Yonggang (1); Zhang, Jing (1, 2); Zhu, Haifei (1); Zhang, Jie (1); Ma, Pingping (1); Wang, Jiang (1); Liu, Huanhuan (1); Li, Yongfang (1)
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Corresponding author: Li, Yongfang(yfli@snnu.edu.cn)
Source title: Journal of the Optical Society of America B: Optical Physics
Abbreviated source title: J Opt Soc Am B
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Publication year: 2016
Pages: 2038-2044
Language: English
ISSN: 07403224
E-ISSN: 15208540
CODEN: JOBPDE
Document type: Journal article (JA)
Publisher: OSA - The Optical Society
Abstract: Based on the counter-diabatic protocol in quantum physics and the quasi-phase-matching method in nonlinear optics, we present a method of achieving robust energy transfer between the sum frequency and signal fields in an optical crystal system by adding a counter-diabatic field (CDF). Adding the CDF does not loosen the adiabatic condition, but rather separates the single original diabatic step into two so that the system remains adiabatic. The two

resulting diabatic steps exhibit nonlinear tunneling, where the second step is the inverse of the first one. Moreover, we predict the fabrication of a nonlinear optical crystal with quasi-periodicity in terms of the CDF. Not only does this work provide a solid theoretical foundation for the design of nonlinear optical devices, but it also elucidates physical processes that can be applied in many areas of modern science, ranging from quantum information processing and coherent manipulation of quantum systems to high-precision measurements. © 2016 Optical Society of America.
Number of references: 22
Main heading: Energy transfer
Controlled terms: Interferometry - Quantum optics - Nonlinear optics - Phase matching
Uncontrolled terms: Coherent manipulation - Counter diabatic fields - High-precision measurement - Nonlinear optical crystal - Nonlinear optical devices - Quantum-information processing - Sum frequency generation - Theoretical foundations
Classification code: 713 Electronic Circuits - 741.1 Light/Optics - 741.1.1 Nonlinear Optics - 931.4 Quantum Theory; Quantum Mechanics - 941.4 Optical Variables Measurements
DOI: 10.1364/JOSAB.33.002038
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Database: Compendex
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8. Analysis on the electromechanical fields in a piezoelectric semiconducting nanowire under torque deformation

Accession number: 20171003413467
Authors: Cui, Zhi-Jian (1); Fan, Shuai-Qi (2)
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Source title: Proceedings of the 2016 Symposium on Piezoelectricity, Acoustic Waves and Device Applications, SPAWDA 2016
Abbreviated source title: Proc. Symp. Piezoelectricity, Acoustic Waves Device Appl., SPAWDA
Part number: 1 of 1
Issue title: Proceedings of the 2016 Symposium on Piezoelectricity, Acoustic Waves and Device Applications, SPAWDA 2016
Issue date: January 23, 2017
Publication year: 2016
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Article number: 7829999
Language: English
ISBN-13: 9781509011896
Document type: Conference article (CA)
Conference name: 2016 Symposium on Piezoelectricity, Acoustic Waves and Device Applications, SPAWDA 2016
Conference date: October 21, 2016 - October 24, 2016
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Conference code: 126085
Sponsor: IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society (UFFC-S); The Acoustical Society of China (ASC); The Chinese Society of Theoretical and Applied Mechanics (CSTAM); Xi'an University of Technology
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: A piezoelectric semiconducting ZnO nanowire under the action of a torque is analyzed. The shear stresses in the cross-section are acquired from classical elasticity. Based on the obtained results, the electric potential, the electric field and the electric displacements can be found from the Gauss law in electrostatics together with the conservation of charge. Numerical results show that the torque deformation produces large effect on the electric displacements but little contribution to the electric potential. The study is helpful to development of piezoelectric semiconductor devices. © 2016 IEEE.
Number of references: 7
Main heading: Piezoelectricity
Controlled terms: Crystallography - Shear stress - Nanowires - Wide band gap semiconductors - II-VI semiconductors - Magnetic semiconductors - Electric potential - Zinc oxide - Deformation - Semiconducting zinc compounds - Semiconductor devices

Uncontrolled terms: Conservation of charge - Electric displacement - Electro-mechanical fields - Numerical results - Piezoelectric semiconductors - Semiconducting - Semiconducting nanowires - ZnO nanowires
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 708.4 Magnetic Materials - 712.1 Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 761 Nanotechnology - 804.2 Inorganic Compounds - 933 Solid State Physics - 933.1 Crystalline Solids
DOI: 10.1109/SPAWDA.2016.7829999
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

9. Preparation and characterization of Ti-O units anchored on silica by surface organometallic chemistry method

Accession number: 20162202452671
Authors: Li, Jinling (1, 2); Gao, Ziwei (2)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) School of Chemistry & Chemical Engineering, Shaanxi Normal University, Xi'an; 710119, China
Corresponding author: Gao, Ziwei(zwgao@snnu.edu.cn)
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Abbreviated source title: Gaodeng Xuexiao Huaxue Xuebao
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Publication year: 2016
Pages: 956-963
Language: Chinese
ISSN: 02510790
CODEN: KTHPDM
Document type: Journal article (JA)
Publisher: Higher Education Press Limited Company
Abstract: Based on the surface organometallic chemistry method, four surface organtitanium complexes anchored on silica were obtained by the reaction of spacer ligand (phenol, benzoic acid, 1-naphthol and 1-naphthol acid as spacer ligand, respectively), Ti(NMe2)4 and silica in one pot reaction system. Then, the four products were calcined respectively to obtain the titanum oxide anchored on silica. The surface organtitanium complexes and surface titanum oxides were characterized by Fourier transform infrared spectrum(FTIR), thermogravimetry analysis(TG-DTA), X-ray photoelectron spectrometry(XPS) and atomic force microscopy(AFM). The results showed that after calcination of surface organtitanium complexes at high temperature in O2, not only were the organic ligands removed, but also the surface hydroxy was regenerated, which ensured that the four coordination forms of Ti were not changed. Meanwhile, titanium oxides anchored on silica surface by Si-O-Ti bonds, and existed as isolated, dispersed and ordered form. In addition, the skeleton structure of the silica was kept well after calcination of surface organtitanium complexes. © 2016, Higher Education Press. All right reserved.
Number of references: 27
Main heading: Silica
Controlled terms: Ligands - Fourier transform infrared spectroscopy - Organometallics - Thermogravimetric analysis - Benzoic acid - Titanium oxides - Atomic force microscopy - Calcination
Uncontrolled terms: Four coordination - Fourier transform infrared spectrum(FTIR) - High temperature - One-pot reaction - Skeleton structure - Surface organometallic chemistry - Thermogravimetry analysis - X-ray photoelectron spectrometries
Classification code: 741.3 Optical Devices and Systems - 801 Chemistry - 801.4 Physical Chemistry - 802.3 Chemical Operations - 804.1 Organic Compounds - 804.2 Inorganic Compounds
DOI: 10.7503/cjcu20150707
Funding Details: Number: 14JS086, Acronym: -, Sponsor: -; Number: 20771071,21271124, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2014JQ2056, Acronym: -, Sponsor: Natural Science Basic Research Program of Shaanxi Province;
Funding text: Supported by the National Natural Science Foundation of China(Nos.21271124, 20771071), the Natural Science Basic Research Plan of Shaanxi Province, China (No.2014JQ2056) and the Key Laboratory Scientific Research Program of Shaanxi Provincial Education Department, China(No.14JS086)
Compendex references: YES

Database: Compendex
Data Provider: Engineering Village

10. Effect of carbon content on microstructures, mechanical and tribological properties and thermal stability in WBC films

Accession number: 20161002054611
Authors: Liu, Y.M. (1, 2); Pei, Z.L. (2); Gong, J. (2); Sun, C. (2)
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Corresponding author: Pei, Z.L.(zlpei@imr.ac.cn)
Source title: Surface and Coatings Technology
Abbreviated source title: Surf. Coat. Technol.
Volume: 291
Issue date: April 15, 2016
Publication year: 2016
Pages: 276-285
Language: English
ISSN: 02578972
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The study is mainly to develop a new type of hard nanocomposite films based on the AlB2-type WB2 (h-WB2) system by studying the influence of carbon contents on the microstructures, mechanical and tribological properties, and thermal stability of the WBC films. By increasing the C2H2 partial pressure (PC2H2), carbon atoms present in forms of solid solution h-WBxCy and amorphous carbide a-WC, a-WBxCy, a-C:H (polymeric carbon) successively. Consequently, two- or three-phase nanocomposite films with microstructures comprising of nanocrystalline grains embedded in an amorphous matrix have been developed. Films with the h-WBxCy/a-WC and h-WBxCy/a-WC/a-C:H (or h-WBxCy/a-WBxCy/a-WC/a-C:H) nanocomposite structure deposited at PC2H2 $\leq$ 0.01 Pa (14.9-26.4 at.% C) exhibit highest hardness about 45 GPa and lowest wear rate about 10-8 mm3/mN. And the transformation temperature of the h-WB2 phase has been enhanced greatly from 700 to 1000 °C by slight C-doping due to the formation of the strong interfaces between the nanocrystalline and amorphous phase in the films deposited at PC2H2 = 0.008 Pa. Moreover, proper C content (less than 26.4 at.%) can refine the film structure and reduce the oxygen impurity content and thereby improve the film properties. The residual stress of the films changes from tensile to compressive stress with the introduction of carbon, and the value of compressive stress is closely related to the film structures. © 2016 Elsevier B.V.
Number of references: 40
Main heading: Nanocomposites
Controlled terms: Amorphous films - Semiconductor doping - Amorphous carbon - Interfaces (materials) - Aluminum compounds - Tribology - Microstructure - Carbides - Compressive stress - Nanocomposite films - Nanocrystals - Carbon films - Thermodynamic stability
Uncontrolled terms: Amorphous matrices - Mechanical and tribological properties - Nano-composite structure - Nanocrystalline and amorphous - Nanocrystalline grains - Reactive magnetron sputtering - Transformation temperatures - Tribological properties
Classification code: 641.1 Thermodynamics - 712.1 Semiconducting Materials - 761 Nanotechnology - 804.2 Inorganic Compounds - 812.1 Ceramics - 813.2 Coating Materials - 931 Classical Physics; Quantum Theory; Relativity - 933 Solid State Physics - 933.1 Crystalline Solids - 933.2 Amorphous Solids - 951 Materials Science
Numerical data indexing: Pressure 4.50e+10Pa, Pressure 8.00e-03Pa, Temperature 9.73e+02K to 1.27e+03K
DOI: 10.1016/j.surfcoat.2016.02.049
Funding Details: Number: 2013020093, Acronym: -, Sponsor: Natural Science Foundation of Liaoning Province; Number: 2012CB625100, Acronym: -, Sponsor: National Basic Research Program of China (973 Program);
Funding text: This work was supported by the National Key Basic Research Program of China (973 Program, No. 2012CB625100), and the Natural Science Foundation of Liaoning Province of China (No. 2013020093).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

11. Adsorptive removal of organic chloride from model jet fuel by Na-LSX zeolite: Kinetic, equilibrium and thermodynamic studies

Accession number: 20163902845918
Authors: Ma, Rui (1); Zhu, Jianhua (1); Wu, Bencheng (1); Li, Xiaohui (2)
Author affiliation: (1) College of Chemical Engineering, China University of Petroleum, Beijing; 102249, China; (2) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
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Source title: Chemical Engineering Research and Design
Abbreviated source title: Chem. Eng. Res. Des.
Volume: 114
Issue date: October 1, 2016
Publication year: 2016
Pages: 321-330
Language: English
ISSN: 02638762
CODEN: CERDEE
Document type: Journal article (JA)
Publisher: Institution of Chemical Engineers
Abstract: The commercial Na-loaded low-silica X zeolite (Na-LSX) was used as adsorbent for the removal of organic chloride compound (5-chloro-2-methylaniline) from model jet fuel. The Na-LSX adsorbent was characterized by XRD, BET, FT-IR, SEM-EDS, and XRF, respectively. A series of experiments were carried out to investigate the adsorption performance of organic chloride onto Na-LSX zeolite by batch adsorption experiments. In the batch experiments, some key operational parameters, such as temperature, adsorption time, initial concentration of organic chloride in model jet sample as well as the dosage of adsorbent were investigated. Equilibrium isotherms were analyzed by using Langmuir, Freundlich, Temkin and Dubinin–Radushkevich (D–R) adsorption models. The pseudo-first-order, the pseudo-second-order and intra-particle diffusion models were used to fit the kinetics data. The results revealed that Langmuir isotherm provided a better fit to the experimental data than other isotherms. And it was also found that the adsorption kinetics followed the pseudo-second-order kinetic equation well. The thermodynamic analysis results indicated that the adsorption process was an endothermic, feasible and spontaneous process under the specified conditions. Above mentioned investigation results implied that the Na-LSX zeolite would be an effective adsorbent for adsorption removal of organic chloride from distillate of crude oil. © 2016 Institution of Chemical Engineers
Number of references: 48
Main heading: Adsorption
Controlled terms: Chlorine compounds - Integral equations - Jet fuel - Adsorption isotherms - Crude oil - Fighter aircraft - Zeolites - Silica - Thermoanalysis - Kinetics - Thermodynamic properties
Uncontrolled terms: Adsorption performance - Batch adsorption experiments - Equilibrium isotherms - Intra-particle diffusion - Operational parameters - Organic chlorides - Pseudo second order kinetics - Thermo dynamic analysis
Classification code: 512.1 Petroleum Deposits - 523 Liquid Fuels - 631.1 Fluid Flow, General - 641.1 Thermodynamics - 652.1.2 Military Aircraft - 801 Chemistry - 802.3 Chemical Operations - 804.2 Inorganic Compounds - 921.2 Calculus - 931 Classical Physics; Quantum Theory; Relativity
DOI: 10.1016/j.cherd.2016.08.028
Funding Details: Number: -, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work was supported by the No. 21206194 project of National Natural Science Foundation of China.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

12. Effect of silicon dose and pH on coagulation performance and Floc fractal dimension of poly-silicic-cation coagulant

Accession number: 20162902616549
Authors: Li, Ran (1); Pan, Jie (1); Yang, Jiang (1); Qin, Wenlong (1); He, Yanling (2)
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Corresponding author: Li, Ran(rli@xsyu.edu.cn)
Source title: Environmental Engineering Science
Abbreviated source title: Environ. Eng. Sci.
Volume: 33
Issue: 7
Issue date: July 1, 2016

Publication year: 2016
Pages: 478-483
Language: English
ISSN: 10928758
E-ISSN: 15579018
CODEN: EESCF5
Document type: Journal article (JA)
Publisher: Mary Ann Liebert Inc.
Abstract: Poly-silicic-cation coagulants (PSiCs) were prepared from industrial wastes. Optimal conditions for synthesis of PSiCs were determined from orthogonal experiments. Coagulation performance was evaluated through jar tests in treatment of pulping and papermaking wastewater, and fractal dimensions of the flocs during coagulation were analyzed on basis of floc images on GRViewer. Results showed that coagulation performance and floc fractal dimension were significantly influenced by the Si/(Fe + Al) molar ratio and the pH of PSiCs. Optimal Si/(Fe + Al) ratio and pH were 0.8 and 1.5, respectively. Turbidity removal rate from pulping and papermaking wastewater decreased with the increasing Si/(Al + Fe) ratio, which increased with the rise of pH, but decreased at high pH. The floc fractal dimension was improved with the increase of silicon dose or pH, but decreased when the Si/(Fe + Al) ratio or pH was high. Adsorption bridging ability of PSiCs played a key role in the aggregation and breakup of flocs. © Mary Ann Liebert, Inc. 2016.
Number of references: 23
Main heading: Fractal dimension
Controlled terms: Silicon - Positive ions - Coagulation - Wastewater treatment
Uncontrolled terms: Coagulation performance - flocs - Jar test - Optimal conditions - Orthogonal experiment - Papermaking wastewater - poly-silicic-cation coagulant - Turbidity removal
Classification code: 452.4 Industrial Wastes Treatment and Disposal - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 802.3 Chemical Operations - 921 Mathematics
DOI: 10.1089/ees.2015.0494
Funding Details: Number: 51304160, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This study was supported by the National Natural Science Foundation of China (Nos. 51504192 and 51304160).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

13. Plastic stress-strain relationship of thick-walled titanium alloy tube under compressive stress state

Accession number: 20164703040724
Authors: Liu, Jing (1, 2); Li, Lan-Yun (1); Li, Xiao (1); Li, Yuan-Bo (1)
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) State Key Laboratory of Solidification Processing, Northwestern Polytechnical University, Xi'an; 710072, China
Corresponding author: Liu, Jing(jingliu@xsyu.edu.cn)
Source title: Zhongguo Youse Jinshu Xuebao/Chinese Journal of Nonferrous Metals
Abbreviated source title: Zhongguo Youse Jinshu Xuebao
Volume: 26
Issue: 10
Issue date: October 1, 2016
Publication year: 2016
Pages: 2093-2101
Language: Chinese
ISSN: 10040609
CODEN: ZYJXFK
Document type: Journal article (JA)
Publisher: Central South University of Technology
Abstract: An inverse method for fast and accurate identifying the material parameters of thick-walled titanium alloy tube under compressive stress state was developed combing ring axial compression test, FE method, regression analysis and genetic algorithm. Considering the evitable elastic deformation of testing machine, the specimen barreling and machine elastic deformation were examined in testing thick-walled TA18 tube specimen with varying heights. Then, a reasonable range of specimen height and the experimental load-displacement curves were determined accordingly. Employing the curves, the material parameters of tube were obtained by using the inverse method. In

order to verify the reliability of the identified parameters, FE simulations of ring compression tests were carried out using the determined material parameters and compared with experiments. Comparison results show that the obtained stress-strain curves can describe the compressive deformation behaviors of tube material with prediction errors of maximum diameter, and the load deviates from the experiments less than 1.5% and 11%, respectively.
Number of references: 21
Main heading: Regression analysis
Controlled terms: Titanium alloys - Genetic algorithms - Finite element method - Tubes (components) - Compression testing - Elastic deformation - Inverse problems - Compressive stress - Stress-strain curves
Uncontrolled terms: Compressive deformation behavior - Identified parameter - Load-displacement curve - Reverse method - Ring compression - Ring compression tests - Stress-strain relationships - Thick-walled titanium alloy tubes
Classification code: 542.3 Titanium and Alloys - 619.1 Pipe, Piping and Pipelines - 921.6 Numerical Methods - 922.2 Mathematical Statistics
Numerical data indexing: Percentage 1.10e+01%, Percentage 1.50e+00%
Funding Details: Number: 14JK1565,15JK1575, Acronym: -, Sponsor: -; Number: 2014JQ7237, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: SKLSP201403, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: 2015QNKYCXTD02, Acronym: SKLSP, Sponsor: State Key Laboratory of Solidification Processing;
Funding text: Project(51405386) supported by the National Natural Science Foundation of China; Project (2014JQ7237) supported by the Natural Science Basic Research Plan in Shaanxi Province, China; Projects(14JK1565, 15JK1575) supported by the Scientific Research Program Funded by Shaanxi Provincial Education Department, China; Project(SKLSP201403) supported by the State Key Laboratory of Solidification Processing in Northwestern Polytechnical University, China; Project(2015QNKYCXTD02) supported by the Young Innovation Research Team in Xi'an Shiyou University, China
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

14. Molecular dynamics simulation of effect of grain on mechanical properties of nano-polycrystal α–Fe (*Open Access*)

Accession number: 20165203163227
Authors: Wang, Peng (1, 2); Xu, Jian-Gang (1); Zhang, Yun-Guang (1); Song, Hai-Yang (2)
Author affiliation: (1) School of Science, Xi'an University of Posts and Telecommunications, Xi'an; 710121, China; (2) College of Material Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Song, Hai-Yang(gsfshy@sohu.com)
Source title: Wuli Xuebao/Acta Physica Sinica
Abbreviated source title: Wuli Xuebao
Volume: 65
Issue: 23
Issue date: December 5, 2016
Publication year: 2016
Article number: 236201
Language: Chinese
ISSN: 10003290
CODEN: WLHPAR
Document type: Journal article (JA)
Publisher: Institute of Physics, Chinese Academy of Sciences
Abstract: The nanocrystalline metals are widely investigated due to their unique mechanical properties. Currently, the available studies about deformation mechanisms of metals mainly focus on face-centered cubic metals such as Ni, Cu and Au. However, the body-centered cubic metals are still very limited, despite their industrial importance. Here, we investigate the effects of grain size and temperature on the mechanical behavior of nano-polycrystal α–Fe under uniaxial tensile loading by using molecular dynamics (MD) simulation. The models of nanocrystalline α–Fe with the grain sizes of 3.95, 6.80, 9.70, 12.50, 15.50, 17.50, 20.70 and 26.00 nm are geometrically created in three dimensions by using Voronoi construction, and these models are relaxed to reach an equilibrium state. Then, each of them has a strain of 0.001 along the Z-direction in each step, keeping zero pressure in the X- and Y-directions until the strain increases up to 0.2. A 1.0 fs time step is used in all of the MD simulations. Based on the data output, the stress-strain curves at different grain sizes are obtained. The results indicate that the peak stresses of nano-polycrystal α–

Fe decrease with the decrease of grain size, exhibiting a breakdown in the Hall-Petch relation when the grain size is smaller than a critical size. The major deformation mechanism is found to change from dislocation slips and twinning-mediated plasticity in a model with a larger grain size to grain boundary sliding in a model with a smaller grain size. It should be noted that twinning is formed by the emission of partial dislocations along the {112} slip plane. The results show that crack formation during tension is a cause of reducing the flow stress of nano-polycrystal α–Fe with a large grain size and that the Young's modulus of nano-polycrystal α–Fe decreases with the grain size decreasing. The main reason for the crack nucleation is here that grain boundaries perpendicular to the loading direction bear higher stress and the twin band interacts with grain boundaries at a larger grain size, causing the stress to concentrate at the intersections of grain boundaries. The results also show the detwinning behavior and migration of deformed twins in nano-polycrystal α–Fe. The detwinning behavior occurs via the migration of the intersection of grain boundary and twin, and this intersection is incoherent boundary. The migration of deformed twins proceeds by repeating initiation and glide of partial dislocations on adjacent {112} planes. In addition, we find that the nucleation and propagation of dislocation become easier at higher temperature than at lower temperature. © 2016 Chinese Physical Society.
Number of references: 32
Page count: 6
Main heading: Molecular dynamics
Controlled terms: Grain size and shape - Deformation - Elastic moduli - Nanocrystals - Metals - Stress-strain curves - Cracks - Polycrystals - Grain boundaries - Mechanisms
Uncontrolled terms: Deformation mechanism - Deformed twins - Face-centered cubic metals - Grain size - Molecular dynamics simulations - Nanocrystalline metal - Partial dislocations - Uniaxial tensile loading
Classification code: 601.3 Mechanisms - 761 Nanotechnology - 801.4 Physical Chemistry - 933.1 Crystalline Solids - 951 Materials Science
Numerical data indexing: Size 2.07e-08m, Size 2.60e-08m, Time 1.00e-15s
DOI: 10.7498/aps.65.236201
Funding Details: Number: 2016KW-049, Acronym: -, Sponsor: -; Number: 2012KJXX-39, Acronym: -, Sponsor: -; Number: 11572259, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: NCET-12-1046, Acronym: MOE, Sponsor: Ministry of Education of the People's Republic of China;
Funding text: Project supported by the National Natural Science Foundation of China (Grant No. 11572259), the Program for New Century Excellent Talent in University of the Ministry of Education of China (Grant No. NCET-12-1046), the New Scientific and Technological Star of Shaanxi Province (Grant No. 2012KJXX-39), and the International Cooperation and Exchanges of Shaanxi Province (Grant No. 2016KW-049).
Compendex references: YES
Open Access type(s): All Open Access, Hybrid Gold
Database: Compendex
Data Provider: Engineering Village

15. Creative thinking of database course for economics and management major in conceive of the "big course" and "big task"

Accession number: 20164302951264
Authors: Hou, Ke (1); Li, Guo-Ying (2)
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Corresponding author: Hou, Ke(kehou_cn@188.com)
Source title: International Journal of Database Theory and Application
Abbreviated source title: Int. J. Database Theory Appl.
Volume: 9
Issue: 9
Issue date: 2016
Publication year: 2016
Pages: 119-126
Language: English
ISSN: 20054270
Document type: Journal article (JA)
Publisher: Science and Engineering Research Support Society
Abstract: According to the teaching and reform practice experience of database course for economics and management major, the paper makes a comparative analysis of the database courses of the universities in china and foreign, in terms of textbook, teaching content, teaching method, homework form, examination method and so on. In

this paper, some new ideas about system and content of database course based on the "big course" and "big task" are put forward, and some improvements on teaching method have been discussed. © 2016 SERSC.
Number of references: 7
Main heading: Curricula
Controlled terms: Database systems - Economics - Teaching
Uncontrolled terms: Comparative analysis - Course system - Creative thinking - Database course - Database technology - Examination methods - Teaching contents - Teaching resources
Classification code: 723.3 Database Systems - 901.2 Education - 971 Social Sciences
DOI: 10.14257/ijdta.2016.9.9.11
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

16. A Novel and Complete Framework for Face Recognition with Pose Variations Using a Single Image

Accession number: 20171503566803
Authors: Zhao, Minghua (1); Mo, Ruiyang (1); Zhao, Yonggang (2); Shi, Zhenghao (1)
Author affiliation: (1) Faculty of Computer Science and Engineering, Xi'an University of Technology, Xi'an; 710048, China; (2) Faculty of Earth Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
Abbreviated source title: Proc. - Int. Conf. Enterp. Syst.: Adv. Enterp. Syst., ES
Part number: 1 of 1
Issue title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
Issue date: March 16, 2017
Publication year: 2016
Pages: 203-207
Article number: 7880492
Language: English
ISBN-13: 9780769559841
Document type: Conference article (CA)
Conference name: 4th International Conference on Enterprise Systems, ES 2016
Conference date: November 2, 2016 - November 3, 2016
Conference location: Melbourne, VIC, Australia
Conference code: 126897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: A novel and complete framework for face recognition with pose variations using only one image is proposed in this paper. Firstly, feature points on face images are located with view-based AAM (Active Appearance Model), based on which, alignment and normalization are operated on face images. Secondly, mapping from non-frontal images to frontal images is constructed based on the algorithm of linear regression and frontal images are obtained from images with different poses. Finally, genetic algorithm is used to determine parameters of SVM that is applied to classify the facial features after dimension reduction. Experiments based on face database of CAS-PEAL-R1 show that performance of our proposed framework is better than other approaches for face recognition with pose variations. Recognition rates for face images with rotation of 15 degree, 30 degree and 45 degree can reach 98%, 84% and 76% respectively. © 2016 IEEE.
Number of references: 10
Main heading: Support vector machines
Controlled terms: Genetic algorithms - Face recognition - Gesture recognition
Uncontrolled terms: Active appearance models - Dimension reduction - Face database - Facial feature - Frontal images - Pose variation - Pose-invariant face recognition - View-based aam
Classification code: 723 Computer Software, Data Handling and Applications
Numerical data indexing: Percentage 7.60e+01%, Percentage 8.40e+01%, Percentage 9.80e+01%
DOI: 10.1109/ES.2016.33
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

17. Experimental investigation on heat transfer characteristics of supercritical water in 2×2 tight rod bundle

Accession number: 20164502977583
Authors: Wu, Gang (1); Pan, Jie (1); Bi, Qin-Cheng (2); Wang, Han (2)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an; 710049, China
Source title: Yuanzineng Kexue Jishu/Atomic Energy Science and Technology
Abbreviated source title: Yuanzineng Kexue Jishu
Volume: 50
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Issue date: October 20, 2016
Publication year: 2016
Pages: 1756-1762
Language: Chinese
ISSN: 10006931
CODEN: YKJIEZ
Document type: Journal article (JA)
Publisher: Atomic Energy Press
Abstract: Within the experimental parameters of pressure of 23-28 MPa, mass flux of 350-1000 kg/(m2·s) and heat flux of 200-1000 kW/m2, heat transfer characteristics of supercritical water in a 2×2 rod bundle were experimentally investigated. The variations of circumferential wall temperature distribution were obtained, and the reasons for this phenomenon were discussed. The effects of pressure, mass flux and heat flux on heat transfer characteristics were investigated and the heat transfer deterioration which occurred at low mass flux condition was analyzed. The experimental results indicate that the circumferential wall temperature is non-uniform, the wall temperature in the corner sub-channel is the highest, whereas the central sub-channel is the lowest. The wall temperature difference is closely related to the non-uniform cross-sectional flow area. The heat transfer of supercritical water is weakened with the increase of heat flux or the decrease of mass flux. Deteriorated heat transfer occurs in the rod bundle when the heat flux to mass flux ratio increases to a certain level. © 2016, Editorial Board of Atomic Energy Science and Technology. All right reserved.
Number of references: 23
Main heading: Heat flux
Controlled terms: Deterioration - Heat transfer
Uncontrolled terms: Experimental investigations - Experimental parameters - Heat transfer characteristics - Heat transfer deterioration - Supercritical water - Tight rod bundles - Wall temperatures - Wall-temperature distribution
Classification code: 641.2 Heat Transfer - 951 Materials Science
Numerical data indexing: Pressure 2.30e+07Pa to 2.80e+07Pa, Surface_Power_Density 2.00e+05W/m2 to 1.00e+06W/m2
DOI: 10.7538/yzk.2016.50.10.1756
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

18. Corrosion research of quinoline inhibitor for pipeline steel in simulated occluded solution

Accession number: 20164703043837
Authors: Li, Shanjian (1, 2); Feng, Lajun (1); Zhang, Jing (1)
Author affiliation: (1) School of Materials Science and Technology, Xi'an University of Technology, Xi'an; 710048, China; (2) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Yingyong Jichu yu Gongcheng Kexue Xuebao/Journal of Basic Science and Engineering
Abbreviated source title: Yingyong Jichu yu Gongcheng Kexue Xuebao
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Issue date: October 1, 2016
Publication year: 2016
Pages: 1025-1033
Language: Chinese

ISSN: 10050930
Document type: Journal article (JA)
Publisher: Editorial Board of Journal of Basic Science and
Abstract: Simulated Occluded Corrosion Cell (OCC) was used to study the changes of chemical state of N80 pipeline steel within the OCC in the Na2S+NaCl solution containing a quinoline inhibitor. The potentiodynamic polarization curves, electrochemical impendence spectroscopy (EIS) and SEM were used to study the anodic and cathodic corrosion behavior of N80 steel and the corrosion effects of Cl- and S2- on N80 steel. The results showed that the occluded solution was acidified and the pH value had a sharp decline in the three solution systems (2%Na2S+5%NaCl, 2%Na2S+8%NaCl and 2%Na2S+10%NaCl) after anodic polarizing in occluded cell. The migration amount of Cl- and S2- into the occluded cell was increased and accumulated. When the quinoline inhibitor was added into the bulk solution, the inhibitor could effectively retard the migration of Cl- and S2- and the acidification of solution within the OCC. The inhibitor efficiency 82% within the OCC could be reached with 0.8% addition in the bulk solution. © 2016, The Editorial Board of Journal of Basic Science and Engineering. All right reserved.
Number of references: 8
Main heading: Localized corrosion
Controlled terms: Cytology - Electrochemical corrosion - Pipelines - Sodium chloride - Steel pipe - Pipeline corrosion - Steel corrosion - Cells - Corrosive effects
Uncontrolled terms: Corrosion behavior - Corrosion cells - Corrosion research - Electrochemical impendence spectroscopies - Inhibitor efficiency - N80 Steel - Potentiodynamic polarization curves - Quinoline inhibitor
Classification code: 461.2 Biological Materials and Tissue Engineering - 461.9 Biology - 539.1 Metals Corrosion - 545.3 Steel - 619.1 Pipe, Piping and Pipelines - 801.4.1 Electrochemistry - 802.2 Chemical Reactions
Numerical data indexing: Percentage 8.20e+01%, Percentage 8.00e-01%
DOI: 10.16058/j.issn.1005-0930.2016.05.014
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

19. Synthesis of no-glycerol biodiesel through transesterification catalyzed by CaO from different precursors

Accession number: 20162902601063
Authors: Tang, Ying (1, 2); Yan, Tianlan (1); Shen, Bo (1); Li, Huafeng (1); Jeje, Ayodeji (2)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an Shaanxi; 710065, China; (2) Department of Chemical & Petroleum Engineering, University of Calgary, Calgary; AB; T2N 1N4, Canada
Corresponding author: Tang, Ying(tangying78@xsyu.edu.cn)
Source title: Canadian Journal of Chemical Engineering
Abbreviated source title: Can. J. Chem. Eng.
Volume: 94
Issue: 8
Issue date: August 1, 2016
Publication year: 2016
Pages: 1466-1471
Language: English
ISSN: 00084034
E-ISSN: 1939019X
CODEN: CJCEA7
Document type: Journal article (JA)
Publisher: Wiley-Liss Inc.
Abstract: Three component mixtures of canola oil, dimethyl carbonate, and methanol, catalyzed by suspended calcium oxide (CaO) particles, produced a biodiesel that required little further processing. Only the catalyst particles needed to be recovered and reused. Substrates for the CaO were laboratory-grade acetate, hydroxide, oxalate, and carbonate compounds of calcium heated to temperatures $\geq$ 850 °C at which calcination is complete. The catalyst substrate and conversion process determined the effectiveness of the catalyst for high product yields. CaO derived from calcium carbonate exhibited morphological characteristics that included larger contact surface areas, and thus more reactive sites, compared to the other precursors. Moreover, with only 0.17 μg/g (0.017 %) free glycerol present in the produced biodiesel, the biodiesel can be used directly without further treatment. © 2016 Canadian Society for Chemical Engineering.
Number of references: 28

Main heading: Biodiesel
Controlled terms: Carbonation - Catalysis - Substrates - Glycerol - Calcium carbonate - Transesterification - Lime - Catalysts
Uncontrolled terms: Carbonate compounds - Contact surface area - Different precursors - Dimethyl carbonate - Further treatments - Morphological characteristic - Oxide precursors - Three-component mixtures
Classification code: 523 Liquid Fuels - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds
Numerical data indexing: Percentage 1.70e-02%, Temperature 1.12e+03K
DOI: 10.1002/cjce.22543
Funding Details: Number: 2016JM2012, Acronym: -, Sponsor: -; Number: 21306149, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

20. Pore structure characterization, permeability evaluation and enhanced gas recovery techniques of tight gas sandstones

Accession number: 20160101762302
Authors: Gao, Hui (1); Li, Huazhou Andy (2)
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Corresponding author: Gao, Hui(ghtopsun1@163.com)
Source title: Journal of Natural Gas Science and Engineering
Abbreviated source title: J. Nat. Gas Sci. Eng.
Volume: 28
Issue date: January 01, 2016
Publication year: 2016
Pages: 536-547
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: This mini review provides an overview of the recent developments in the pore structure characterization of tight gas sandstones, permeability measurement techniques, and enhanced tight gas recovery techniques. Firstly, we review the various testing techniques used for characterizing pore structures of tight gas sandstones, namely, the characteristics of pore, throat and micro-cracks in tight sandstones. These techniques can be grouped into qualitative, semi-quantitative and quantitative methods. We review the capabilities of these methods as well as their resolutions in pore-throat diameter measurement. Then the descriptive theories of pore networks of tight sandstones are overviewed, with a special attention paid to the fractal theory. Secondly, the commonly used permeability measurement techniques for tight cores are discussed; these measurements techniques are unsteady-state methods that accommodate the nature of low permeability of tight sandstones. Their merits and drawbacks are provided in this review. We next elaborate on the effect of effective stress and water saturation on the gas relative permeability in tight sandstones; a consensus is found to exist that agrees on the pronounced reduction of gas relative permeability due to increasing water presence and higher effective stress. The permeability jail concept can be used to explain some field observations where there is little water or gas production. Lastly, we move on to review the enhanced gas recovery techniques including waterless fracturing and CO2-based enhanced gas recovery. Both lab experiments and field applications demonstrate that, due to the negative impact that water causes on gas-phase relative permeability, waterless hydraulic fracturing holds a large potential in effectively unlocking tight gas resources. It deserves further detailed experimental and numerical investigation as well as field studies. In addition, CO2 injection into tight gas formations is an important technology that is worth of consideration by both industry and governments due to its promising potential for enhancing CH4 recovery as well as sequestrating CO2 into depleted tight gas formations. © 2015.
Number of references: 114
Main heading: Carbon dioxide

Controlled terms: Energy resources - Gas permeability - Hydraulic fracturing - Pore structure - Sandstone - Tight gas - Recovery - Testing - Gases
Uncontrolled terms: Diameter Measurement - Enhanced gas recoveries - Gas relative permeabilities - Numerical investigations - Permeability measurements - Pore structure characterizations - Relative permeability - Unsteady-state methods
Classification code: 482.2 Minerals - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 525.1 Energy Resources and Renewable Energy Issues - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.1016/j.jngse.2015.12.018
Funding Details: Number: RGPIN 05394, Acronym: NSERC, Sponsor: Natural Sciences and Engineering Research Council of Canada; Number: -, Acronym: U of A, Sponsor: University of Alberta; Number: -, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: The authors greatly acknowledge a Discovery Grant to H. Li provided by the Natural Sciences and Engineering Research Council of Canada (NSERC RGPIN 05394) and a start-up fund from the University of Alberta. The first author also acknowledges a Young Excellent Scholar Fund provided by Xi'an Shiyou University to support H. Gao's academic stay between 2014 and 2015 at the University of Alberta. The authors would like to thank all the engineers and academics who have made significant contributions to the understanding and effective development of tight gas sandstone reservoirs over the last decades.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

21. Demulsification mechanism of O/W emulsion containing polymer using oligomeric quaternary ammonium salt

Accession number: 20162702571360
Authors: Wu, Ya (1, 2); Chen, Shi-Jun (1); Chen, Gang (1); Xu, Jia-Ye (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou Univ, Xi'an; Shaanxi; 710065, China; (2) School of Chemistry and Chemical Engineering, Shaanxi Normal Univ, Xi'an; Shaanxi; 710062, China
Corresponding author: Chen, Gang(gangchen@xsyu.edu.cn)
Source title: Hunan Daxue Xuebao/Journal of Hunan University Natural Sciences
Abbreviated source title: Hunan Daxue Xuebao
Volume: 43
Issue: 6
Issue date: June 25, 2016
Publication year: 2016
Pages: 117-123
Language: Chinese
ISSN: 16742974
CODEN: HDAXE3
Document type: Journal article (JA)
Publisher: Hunan University
Abstract: To address polymer flooding emulsion in high water cut crude oil demulsification and oil-water separation, the bottle test method for the screening of a class of polymer containing liquid oil-water separation was used and the oligomeric quaternary ammonium salt I was found to show excellent demulsification performance, When ammonium salt I was added with the concentration of 25 mg/L, and the emulsion was demulsificated at 55 for 60 min, the dehydration rate reached 96.5%. Compared with conventional polyether or polyamines demulsifiers, the quaternary ammonium salt I made the solution clearer and oil-water interface neater. The mechanism of the quaternary ammonium salt I affecting the emulsion was studied with optical microscope, dynamic analyzer and contact angle analyses. It was shown that free water in the oil droplet coalescence separation zone accounting for a leading role was instable and the emulsion oil droplet moved upward when oligomeric quaternary ammonium salt I was added to polymer flooding produced water. Being immersed, the solution of ammonium salt I on the surface of the pore core turned to water wet state. The result showed that changes of the interfacial wettability of the pore core on the membrane emulsification of strong dissolving capacity might lead to the rupture of the liquid film and oil-water separation. The contact angle measurement showed that the salt I of the liquid surface of the emulsion changed to water wet state, the strong wettability of the emulsion film was caused by the change of the film breakup, and the oil water was successfully separated. © 2016, Editorial Department of Journal of Hunan University. All right reserved.
Number of references: 15
Main heading: Emulsification

Controlled terms: Heavy oil production - Liquid films - Phase interfaces - Drops - Testing - Floods - Lakes - Oil well flooding - Bottles - Contact angle - Crude oil - Demulsification - Microscopes - Wetting - Emulsions - Oligomers - Salts
Uncontrolled terms: Contact angle analysis - Dynamic analyzers - Membrane emulsification - O/W emulsions - Oil water interfaces - Oil water separation - Quaternary ammonium salt - Stability analysis
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 694.2 Packaging Materials - 741.3 Optical Devices and Systems - 801.4 Physical Chemistry - 802.3 Chemical Operations - 804 Chemical Products Generally - 815.1.1 Organic Polymers - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Mass_Density 2.50e-02kg/m3, Percentage 9.65e+01%, Time 3.60e+03s
Funding Details: Number: 21376189,21571121, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: National Natural Science Foundation of China (21571121, 21376189)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

22. H# output tracking control for uncertain networked control systems via a switched system approach

Accession number: 20151600769223
Authors: Wu, Ying (1); Liu, Tianshi (1); Wu, Yanpeng (2); Zhang, Yabin (3)
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an; 710065, China; (2) Department of Automation, Northwestern Polytechnical University, Xi'an, China; (3) No.4 Gas Production Plant, Changqing Oilfield Company, Xi'an, China
Corresponding author: Wu, Ying(wuyg1226@hotmail.com)
Source title: International Journal of Robust and Nonlinear Control
Abbreviated source title: Int J Robust Nonlinear Control
Volume: 26
Issue: 5
Issue date: March 25, 2016
Publication year: 2016
Pages: 995-1009
Language: English
ISSN: 10498923
E-ISSN: 10991239
CODEN: IJRCEA
Document type: Journal article (JA)
Publisher: John Wiley and Sons Ltd
Abstract: In this paper, the problem of H# output tracking control for networked control systems with random time delays and system uncertainties is investigated. Effective sampling instant that is tightly related with transmission delay from sensor to actuator is proposed to ensure that the random variable time delay is always shorter than one effective sampling period. By using both active time-varying sampling period strategy and hybrid node-driven mechanism, the switching instant is coincided with the effective sampling instant. An augmented time-varying networked tracking system model is provided by including the output tracking error as an additional state. However, random transmission delay causes indeterminate sampling period, which induces infinite subsystems. Gridding approach is introduced to transform the continuous time axis into discrete-time sequences, which guarantees the finite number of switching rules. By employing multiple Lyapunov-Krasovskii functions, linear matrix inequality (LMI)-based output tracking H# performance analysis is presented, and robust switching H# model reference tracking controller for networked control systems with communication constraints and system uncertainties is designed to guarantee asymptotic tracking of prescribed reference outputs while rejecting disturbances. Finally, simulation results illustrate the correctness and effectiveness of the proposed approaches. © 2015 John Wiley & Sons, Ltd.
Number of references: 35
Main heading: Networked control systems
Controlled terms: Delay control systems - Robustness (control systems) - Navigation - Continuous time systems - Time varying control systems - Linear matrix inequalities - Time delay - Uncertainty analysis - Robust control
Uncontrolled terms: Communication constraints - Discrete-time sequences - Lyapunov Krasovskii function - Output tracking control - Performance analysis - System uncertainties - Time-varying sampling period - Variable time delay

Classification code: 713 Electronic Circuits - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 731.2 Control System Applications - 921.1 Algebra - 922.1 Probability Theory - 961 Systems Science
DOI: 10.1002/rnc.3347
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

23. An analysis of prototype basin Period and its genetic mechanism of Huangqikou Period and Wangquankou Period, Southwest Ordos Basin

Accession number: 20163502745613
Authors: Song, Lijun (1, 3); Liu, Chiyang (2, 3); Zhao, Hongge (2, 3); Wang, Jianqiang (2, 3); Zhang, Xiaolong (2, 3)
Author affiliation: (1) Geosciences and Engineering Faculty, Xi'an Shiyou University, Xi'an; 710065, China; (2) Department of Geology, Northwest University, Xi'an; 710069, China; (3) State Key Laboratory of Continental Dynamics, Northwest University, Xi'an; 710069, China
Corresponding author: Liu, Chiyang(lcy@nwu.edu.cn)
Source title: Earth Science Frontiers
Abbreviated source title: Earth Sci. Front.
Volume: 23
Issue: 5
Issue date: September 1, 2016
Publication year: 2016
Pages: 221-234
Language: Chinese
ISSN: 10052321
Document type: Journal article (JA)
Publisher: Science Frontiers editorial department
Abstract: Owing to complicated geological evolution and the following reformation caused by the succeeding strong multiphase tectonic movement, the multi-period prototype basin of the Mesoproterozoic southwestern Ordos Basin was vertically stacked, and the original appearance of each prototype basin was no longer in existence, which restricted the in-depth understanding of the original appearance of each prototype basin, of the stacking process of multiphase basin prototype, of its dynamic environment, and of the reasonable exploration of oil and gas. Combined with the tectonic background research of North China Craton at the same time, the prototype basin and its genetic mechanism of Huangqikou and Wangquankou in Daijian Period, Southwest Ordos Basin have been analyzed through the seismic interpretation, drilling data interpretation, and test data analysis. The research findings show that in the early stage of Huangqikou Period, under the background of the clockwise rotation of the North China Craton, the research area, the southwestern Ordos Basin, was rifting under the strike-slip extensional dynamic environment, and filled with a large number of alluvial fan systems and delta systems and a small lake system. In the late stage of Huangqikou Period, the research area began to enter into the post-rift depression stage, mainly was filled with lake-delta system covered the lower lacunae sequence of lower Huangqikou Formation. In Wangquankou Period, with the increase in regional extrusion, owing to the subduction of oceanic crust, the "S" type of monzonitic granite of Xiazhai System derived from volcanic arc or syn-collision orogeny intruded in Maxianshan group; the southwestern Ordos Basin was under the back-arc compressive depression dynamic environment, which developed a set of carbonate rocks of tidal flat depositional system, mainly stromatolite dolostone. Then, because of compressive uplifting, the Daijian System (Huangqikou Formation and Wangquankou Formation), underwent erosion in Qingbaikou Period and Nanhua Period.

Number of references: 6
Main heading: Tectonics
Controlled terms: Petroleum prospecting - Metamorphic rocks - Lakes - Seismology
Uncontrolled terms: Daijian System - Dynamic environments - Genetic mechanism - Geological evolution - In-depth understanding - Ordos Basin - Prototype basin - Seismic interpretation
Classification code: 481.1 Geology - 484.1 Earthquake Measurements and Analysis - 512.1.2 Petroleum Deposits : Development Operations
DOI: 10.13745/j.esf.2016.05.023
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

24. Rayleigh wave velocity analysis in pan f-k domain

Accession number: 20163402737375
Authors: Shen, Hong-Yan (1); Yan, Yue-Ying (1); Zhang, Bao-Wei (2)
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Langfang Geophysical and Geochemical Exploration Institute, Chinese Academy of Geological Science, Langfang; 065000, China
Source title: Meitan Xuebao/Journal of the China Coal Society
Abbreviated source title: Meitan Xuebao
Volume: 41
Issue: 8
Issue date: August 1, 2016
Publication year: 2016
Pages: 2033-2040
Language: Chinese
ISSN: 02539993
CODEN: MTHPDA
Document type: Journal article (JA)
Publisher: China Coal Society
Abstract: Rayleigh wave survey is an important method to solve the near-surface geological problems, and an important technical aspect of this method is the extraction of the Rayleigh wave phase velocity. Based on the conventional reflection wave velocity analysis method, an effective phase velocities analysis method of Rayleigh wave in pan f-k domain is proposed. In the method proposed, the relationship among phase velocity, frequency and wave number, and the relationship between penetration depth and wavelength are employed in order to transform the frequency-wave number (f-k) spectrum into depth-phase velocity (H-vR) spectrum. The effectiveness of the method is proved by the analysis of one example model data and one set of real seismic data for urban active fault survey. The analysis results show that the method can effectively extract near-surface geological information with high precision and strong resistance to noise.
Number of references: 33
Main heading: Rayleigh waves
Controlled terms: Faulting - Seismology - Phase velocity - Acoustic wave velocity - Surveys
Uncontrolled terms: 2d fourier transforms - Geological information - Near surfaces - Pan f-k domain - Velocity analysis
Classification code: 484 Seismology - 484.1 Earthquake Measurements and Analysis - 711.1 Electromagnetic Waves in Different Media - 751.1 Acoustic Waves
DOI: 10.13225/j.cnki.jccs.2015.1675
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

25. A face recognition algorithm based on discriminant sparse locality and preserving projections

Accession number: 20162602532850
Authors: Yang, Yifang (1, 3); Wang, Yuping (2)
Author affiliation: (1) School of Mathematics and Statistics, Xidian University, Xi'an; 710071, China; (2) School of Computer Science and Technology, Xidian University, Xi'an; 710071, China; (3) College of Science, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Wang, Yuping
Source title: Hsi-An Chiao Tung Ta Hsueh/Journal of Xi'an Jiaotong University
Abbreviated source title: Hsi An Chiao Tung Ta Hsueh
Volume: 50
Issue: 6
Issue date: June 10, 2016
Publication year: 2016
Pages: 54-60
Language: Chinese
ISSN: 0253987X
CODEN: HCTPDW
Document type: Journal article (JA)

Publisher: Xi'an Jiaotong University
Abstract: A new face recognition algorithm, i.e. a discriminant sparse locality and preserving projection algorithm (DSLPP), is proposed to solve the problem that the construction between-class scatters is too complex in the discriminant sparse neighborhood and preserving embedding (DSNPE) method. A novel between-class scatter is constructed by using the mean vector of each class as dictionary and preserving the sparse reconstructive relationship of mean face. Then, an optimal projection matrix is obtained by maximizing the between-class scatter and minimizing the with-class compactness simultaneously. The nearest neighbor classifier is finally used for face recognition. The proposed between-class scatter maximizes the difference of samples between different classes and has more discriminant power, so that the recognition rate of the proposed algorithm is markedly improved. Moreover, the computational complex of the DSLPP algorithm is reduced because of the simple design of the dictionary. Experimental results show that the DSLPP algorithm achieves average recognition rates 83.38% and 95.72% on Yale, and UMIST face database respectively, and a maximal recognition rate 83.71% on AR face database, and that the recognition rates are obviously higher than the recognition rates of some conventional methods. The experimental results on UMIST face databases also show that the average computation time of the DSLPP algorithm is less 81.7% than that of the DSNPE algorithm.
Number of references: 19
Main heading: Face recognition
Controlled terms: Database systems
Uncontrolled terms: Between class scatter - Conventional methods - Dimension reduction - Face recognition algorithms - Local preserving - Nearest Neighbor classifier - Projection algorithms - Sparse reconstructive
Classification code: 723.3 Database Systems
Numerical data indexing: Percentage 8.17e+01%, Percentage 8.34e+01%, Percentage 8.37e+01%, Percentage 9.57e+01%
DOI: 10.7652/xjtuxb201606009
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

26. Crystal structure, spectroscopic investigation and thermal properties of l-lysine p-toluenesulfonate

Accession number: 20155201711954
Authors: Wang, L. (1, 2); Wang, D.H. (1); Zhang, G.H. (2); Xu, D. (2); Deng, W.X. (1)
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) State Key Laboratory of Crystal Materials, Institute of Crystal Materials, Shandong University, Jinan; 250100, China
Corresponding author: Wang, L.(leiw@xsyu.edu.cn)
Source title: Journal of Molecular Structure
Abbreviated source title: J. Mol. Struct.
Volume: 1108
Issue date: March 15, 2016
Publication year: 2016
Pages: 179-186
Language: English
ISSN: 00222860
CODEN: JMOSB4
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: A novel organic crystal was prepared from l-lysine (Lly) and p-toluenesulfonic acid (pTS), which was grown from an aqueous solution by slow cooling method. The crystal system and the lattice parameters have been confirmed by single crystal X-ray diffraction studies. The FT-IR, FT-Raman, 1H-NMR and 13C-NMR spectral of the crystal have been recorded and analyzed. The spectral analyses confirmed the presence of various functional groups and the molecular configurations in LLTS crystal. The UV-Vis-NIR transmittance spectrum has been carried out which shows the cutoff wavelength around 280 nm. The thermal properties of crystal have been evaluated from thermogravimetric (TG) and differential thermal analysis (DTA). The melting point of grown crystal is fairly high, at around 259 °C. The nonlinear optical (NLO) properties of LLTS crystal were demonstrated by powder SHG experiment and also by quantum chemical calculations. The powder SHG efficiency of LLTS crystal is relatively low and very different from theoretical calculation results.
Number of references: 42
Main heading: Crystal structure

Controlled terms: Spectrum analysis - Thermogravimetric analysis - X ray diffraction - Quantum chemistry - Single crystals - Differential thermal analysis - Harmonic generation - Optical properties - Spectroscopic analysis - Thermodynamic properties - Amino acids - Solutions
Uncontrolled terms: Molecular configurations - Molecule spectroscopy - Nonlinear optical properties - Quantum chemical calculations - Single-crystal X-ray diffraction studies - Spectroscopic investigations - Theoretical calculations - Thermal properties of crystals
Classification code: 641.1 Thermodynamics - 741.1 Light/Optics - 801 Chemistry - 801.4 Physical Chemistry - 804.1 Organic Compounds - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice
Numerical data indexing: Size 2.80e-07m, Temperature 5.32e+02K
DOI: 10.1016/j.molstruc.2015.11.019
Funding Details: Number: BS2011CL025, Acronym: -, Sponsor: -; Number: -, Acronym: SEM, Sponsor: Society for Experimental Mechanics; Number: 50872067, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: SRF, Sponsor: Smoking Research Foundation; Number: 2015JM6327, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 2015BS40, Acronym: XSYU, Sponsor: Xi'an Shiyou University; Number: 201510705223, Acronym: -, Sponsor: National College Students Innovation and Entrepreneurship Training Program;
Funding text: This work was supported by National Natural Science Foundation of China (No. 50872067), the SRF for ROCS, SEM and the Youth Scientist Fund of Shandong Province (BS2011CL025), Natural Science Foundation of Shaanxi Province (No. 2015JM6327), National College Students' Training Programs for Innovation and Entrepreneurship (201510705223) and Youth Science and Technology Innovation Fund Project at Xi'an Shiyou University (2015BS40).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

27. Theoretical investigation on the interfacial properties of carbon deposited on β–SiC(111) substrate

Accession number: 20160101757659
Authors: Yang, Yan-Qing (1); Li, Jian (1, 2); Luo, Xian (1)
Author affiliation: (1) State Key Laboratory of Solidification Processing, School of Materials, Northwestern Polytechnical University, Xi'an; 710072, China; (2) School of Materials Science and Engineering, Xi'An Shiyou University, Xi'an; 710065, China
Corresponding author: Yang, Yan-Qing(yqyang@nwpu.edu.cn)
Source title: Diamond and Related Materials
Abbreviated source title: Diamond Relat. Mat.
Volume: 62
Issue date: February 2016
Publication year: 2016
Pages: 22-29
Language: English
ISSN: 09259635
CODEN: DRMTE3
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: The deposition process of carbon atoms on SiC(111) substrates is simulated step by step using density functional theory calculations. Three stacking sites [center-, hollow- and top-sites on clean SiC(111)], two deposition rates (one or two carbon layers per step), two substrate areas [SiC(111) (1 × 1) and (2 × 2)], and two SiC(111) terminations (C- and Si-terminations) are considered respectively. The interfacial atomic structure, binding energy and electronic structures are calculated. The results show that interfacial carbon layers tend to epitaxially deposit on SiC(111) with ordered diamond-like stacking style. Regardless of the different deposition rates and different substrate areas, the diamond-like stacking style always exists in the equilibrium structures. However, due to the perturbations caused by uncontrolled factors, this stacking style disappears after some carbon layers deposited, and the amorphous carbon layer will form. Besides that, the deposited carbon atoms have stronger interfacial bonding on C-terminated SiC(111) than Si-terminated substrate. © 2015 Published by Elsevier B.V.
Number of references: 30
Main heading: Silicon carbide
Controlled terms: Binding energy - Substrates - Atoms - Amorphous carbon - Chemical bonds - Deposition rates - Crystal atomic structure - Amorphous silicon - Density functional theory - Electronic structure

Uncontrolled terms: Amorphous carbon layer - Carbon deposition - Different substrates - Equilibrium structures - Interfacial atomic structure - Interfacial bonding - Interfacial property - Theoretical investigations
Classification code: 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 801.4 Physical Chemistry - 804.2 Inorganic Compounds - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933.1.1 Crystal Lattice - 933.2 Amorphous Solids
DOI: 10.1016/j.diamond.2015.12.008
Funding Details: Number: 51071122,51271147, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: B08040, Acronym: -, Sponsor: Higher Education Discipline Innovation Project;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

28. Classification of iron ore based on acidity and alkalinity by laser induced breakdown spectroscopy coupled with: N -nearest neighbours (N3)

Accession number: 20163402724379
Authors: Yan, Chunhua (1); Wang, Zhanmei (1); Ruan, Fangqi (1); Ma, Junxiu (1); Zhang, Tianlong (1); Tang, Hongsheng (1); Li, Hua (1, 2)
Author affiliation: (1) Institute of Analytical Science, College of Chemistry and Material Science, Northwest University, Xi'an; 710069, China; (2) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an; 710065, China
Corresponding author: Li, Hua(huali@nwu.edu.cn)
Source title: Analytical Methods
Abbreviated source title: Anal. Methods
Volume: 8
Issue: 32
Issue date: August 28, 2016
Publication year: 2016
Pages: 6216-6221
Language: English
ISSN: 17599660
E-ISSN: 17599679
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: Laser induced breakdown spectroscopy (LIBS) coupled with N-nearest neighbours (N3) method was developed for classification and identification of four types of iron ore (acid iron ore, seiili-self fluxing iron ore, self-fluxing iron ore and alkaline iron ore). The parameters included spectral pretreatment methods and spectral range selection and the model parameter α was optimized at the same time by 5-fold cross validation and evaluated by average classification error rate. The region of 400-600 nm was normalized by maximum integrated intensity and used to construct the N3 and KNN (K nearest neighbor) models. The N3 and KNN models were evaluated and applied to discriminate iron ore. The classification accuracy is 100% for the N3 model, which shows better predictive capabilities than the KNN model for the classification of iron ore. Therefore, LIBS technique combined with N3 could be a promising method for real-time online, rapid analysis in mining and mineral processing industries. © The Royal Society of Chemistry 2016.
Number of references: 34
Main heading: Iron ores
Controlled terms: Atomic emission spectroscopy - Laser induced breakdown spectroscopy - Nearest neighbor search
Uncontrolled terms: Classification accuracy - Classification and identifications - Classification error rate - Integrated intensities - Laserinduced breakdown spectroscopy (LIBS) - Mineral processing industry - Predictive capabilities - Spectral pre treatments
Classification code: 504.3 Heavy Metal Mines - 545.1 Iron - 921.5 Optimization Techniques - 931.1 Mechanics
Numerical data indexing: Percentage 1.00e+02%, Size 4.00e-07m to 6.00e-07m
DOI: 10.1039/c6ay01396a
Funding Details: Number: 21375105, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2011YQ030113, Acronym: -, Sponsor: National Key Scientific Instrument and Equipment Development Projects of China;

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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

29. Quantitative analysis of the major components of coal ash using laser induced breakdown spectroscopy coupled with a wavelet neural network (WNN)

Accession number: 20160902015738
Authors: Wei, Jiao (1); Dong, Juan (1); Zhang, Tianlong (1); Wang, Zhanmei (1); Li, Hua (1, 2)
Author affiliation: (1) Institute of Analytical Science, College of Chemistry and Material Science, Northwest University, Xi'an; 710069, China; (2) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an; 710065, China
Corresponding author: Li, Hua(huali@nwu.edu.cn)
Source title: Analytical Methods
Abbreviated source title: Anal. Methods
Volume: 8
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Issue date: February 21, 2016
Publication year: 2016
Pages: 1674-1680
Language: English
ISSN: 17599660
E-ISSN: 17599679
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: A laser induced breakdown spectroscopy (LIBS) technique was applied to detect the major components of coal ash based on a wavelet neural network (WNN). Prior to constructing the WNN model, the spectra were preprocessed using wavelet threshold de-noising and Kalman filtering, and the principle components (PC), extracted using principle component analysis (PCA), were used as the input variables. Afterwards, the quantitative analysis of the major components in coal ash samples was completed using the WNN with the optimized WNN model parameters consisting of the number of hidden neurons (NHN), the number of iterations (NI), the learning rate (LR) and the momentum based on the root mean square error (RMSE). Finally, an artificial neural network (ANN) and the WNN were evaluated comparatively on their ability to predict the content of major components of test coal ash samples in terms of correlation coefficient (R) and RMSE, demonstrating that LIBS combined with a WNN model exhibited better prediction for coal ash, and is a promising technique for combustion process control even in the online mode. © The Royal Society of Chemistry 2016.
Number of references: 33
Main heading: Neural networks
Controlled terms: Laser induced breakdown spectroscopy - Wavelet analysis - Coal ash - Atomic emission spectroscopy - Coal combustion - Mean square error - Principal component analysis - Coal
Uncontrolled terms: Correlation coefficient - Laserinduced breakdown spectroscopy (LIBS) - Number of hidden neurons - Number of iterations - Principle component analysis - Root mean square errors - Wavelet neural networks - Wavelet threshold de-noising
Classification code: 521 Fuel Combustion and Flame Research - 524 Solid Fuels - 921 Mathematics - 922.2 Mathematical Statistics - 931.1 Mechanics
DOI: 10.1039/c5ay02994e
Funding Details: Number: 21375105, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2011YQ030113, Acronym: -, Sponsor: National Key Scientific Instrument and Equipment Development Projects of China; Number: 20126101110019, Acronym: SRFDP, Sponsor: Specialized Research Fund for the Doctoral Program of Higher Education of China;
Funding text: The work was supported by the National Major Scientific Instruments and Equipment Development Projects of China (No. 2011YQ030113), National Natural Science Foundation of China (No. 21375105), and the Research Fund for the Doctoral Program of Higher Education of China (No. 20126101110019).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

30. Improved method of processing downhole pressure data on smart wells

Accession number: 20163202703160
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Source title: Journal of Natural Gas Science and Engineering
Abbreviated source title: J. Nat. Gas Sci. Eng.
Volume: 34
Issue date: August 1, 2016
Publication year: 2016
Pages: 1115-1126
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: New methods are presented in this paper to address the limitations and defects of existing methods of pressure data processing for smart wells. An absolute-deviation decision filtering method based on Hampel estimation is utilized to eliminate outliers. The conditional combination of wavelet threshold denoising is optimized through an orthogonal experiment. The data are reduced by using pressure and time thresholds and a derivative method to identify the transients of pressure data in accordance with different stages of pressure change. Results show that the new methods have a good practical value because they can solve problems in pressure data processing for smart wells. © 2016 Elsevier B.V.
Number of references: 22
Main heading: Data reduction
Uncontrolled terms: Filtering method - Pressure data - Smart wells - Transient identification - Wavelet threshold
Classification code: 723.2 Data Processing and Image Processing
DOI: 10.1016/j.jngse.2016.08.002
Funding Details: Number: 14JK1587, Acronym: -, Sponsor: -; Number: 51274165,U1262105, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The authors are grateful for the financial support provided by the National Natural Science Foundation of China [A Study of Multi-layer Commingling with Intelligent Well Completion for the Optimization of the Node Combination Model (No. 51274165) and A Study of Intelligent Well System Design and the Production Optimization of a Control Model (No. U1262105)] and the Education Department of Shaanxi Provincial Government Special Scientific Research Projects in China [Water Invasion Monitoring and Optimization Control Model of a Horizontal Intelligent Well in a Low-Permeability Reservoir (No. 14JK1587)].
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

31. Numerical simulation of soot combustion process in a bubbling fluidized bed with segregation behavior

Accession number: 20155101678082
Authors: Zhong, Hanbin (1); Lan, Xingying (2); Gao, Jinsen (2)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an, Shaanxi; 710065, China; (2) State Key Laboratory of Heavy Oil Processing, China University of Petroleum, Beijing; 102249, China
Corresponding author: Lan, Xingying(lanxy@cup.edu.cn)
Source title: Asia-Pacific Journal of Chemical Engineering
Abbreviated source title: Asia-Pac. J. Chem. Eng.
Volume: 11
Issue: 1
Issue date: January 1, 2016
Publication year: 2016
Pages: 140-150
Language: English

ISSN: 19322135
E-ISSN: 19322143
Document type: Journal article (JA)
Publisher: John Wiley and Sons Ltd
Abstract: Although only about 1 wt.% soot is formed after asphalt gasification, it is generally recognized that handling of the soot places a considerable financial burden on the integrated deasphalting-gasification process, because the disposal of the filter soot to landfill or other destinations causes serious environment problems. The bubbling fluidized bed combustion process, which takes the advantage of segregation behavior, was proposed to solve soot handling problem. A multi-fluid model based on an Eulerian-Eulerian approach was developed to reveal the characteristics of segregation and combustion behavior. The distributions of flow, temperature, and species concentration were obtained, and the simulation results demonstrate that the segregation behavior is beneficial to discharge particle mixtures with low soot content at the bottom of the bed, which will favor the following vanadium recovering process. The effects of several key operating conditions, such as excess air coefficient, superficial gas velocity and initial static bed height were also discussed. © 2015 Curtin University of Technology and John Wiley & Sons, Ltd.
Number of references: 23
Main heading: Soot
Controlled terms: Air - Gasification - Fluidized beds - Numerical models - Dust - Segregation (metallography) - Bubble formation
Uncontrolled terms: Bubbling fluidized bed - Bubbling fluidized bed combustion - Combustion behavior - Eulerian-Eulerian approach - Excess air coefficient - Gasification process - Species concentration - Superficial gas velocities
Classification code: 451.1 Air Pollution Sources - 531.2 Metallography - 631.1.2 Gas Dynamics - 802.3 Chemical Operations - 804 Chemical Products Generally - 921 Mathematics
DOI: 10.1002/apj.1951
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

32. A novel spectral clustering method with superpixels for image segmentation

Accession number: 20155001675494
Authors: Yang, Yifang (1, 3); Wang, Yuping (2); Xue, Xingsi (2)
Author affiliation: (1) School of Mathematics and Statistics, Xidian University, Xi'an; 710071, China; (2) School of Computer Science and Technology, Xidian University, Xi'an; 710071, China; (3) College of Science, Xi'An Shiyou University, Xi'an; 710065, China
Corresponding author: Yang, Yifang(yangyifang@xsyu.edu.cn)
Source title: Optik
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Volume: 127
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Issue date: January 1, 2016
Publication year: 2016
Pages: 161-167
Language: English
ISSN: 00304026
Document type: Journal article (JA)
Publisher: Elsevier GmbH
Abstract: Similarity measure is critical to the performance of spectral clustering. The most commonly used similarity measure for spectral clustering is Gaussian kernel similarity measure. However, the selection of accurate scaling parameter in Gaussian kernel function is difficult. To reduce the sensitivity of scaling parameter, in this paper, a novel spectral clustering method with superpixels for image segmentation (SCS) is proposed. In particular, a novel kernel fuzzy similarity measure is presented, which uses membership distribution in partition matrix obtained by kernel fuzzy C-means clustering(KFCM). In addition, the superpixel is introduced into image segmentation to alleviate the computational burden of affinity matrix. The experimental results show that our approach is able to perform steadily under different parameters, and obtain good clustering results on various natural images. Moreover, the evaluation comparisons also indicate that our method can achieve comparable accuracy and significantly outperform most state-of-the-art algorithms. © 2015 Elsevier GmbH. All rights reserved.
Number of references: 38
Main heading: Image segmentation
Controlled terms: Cluster analysis - Superpixels - Fuzzy clustering - Clustering algorithms

Uncontrolled terms: Computational burden - Fuzzy C means clustering - Fuzzy similarity measure - Gaussian kernel functions - Partition matrixes - Spectral clustering - Spectral clustering methods - State-of-the-art algorithms
Classification code: 723 Computer Software, Data Handling and Applications - 903.1 Information Sources and Analysis
DOI: 10.1016/j.ijleo.2015.10.053
Funding Details: Number: 61472297,61503082,U1404622, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work was supported by the National Natural Science Foundation of China under Grant No. 61472297 , U1404622 and 61503082 .
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

33. Acidity analysis of iron ore based on calibration-free laser-induced breakdown spectroscopy (CF-LIBS) combined with a binary search algorithm (BSA)

Accession number: 20163502741949
Authors: Wang, Zhanmei (1); Yan, Chunhua (1); Dong, Juan (1); Zhang, Tianlong (1); Wei, Jiao (1); Li, Hua (1, 2)
Author affiliation: (1) Institute of Analytical Science, College of Chemistry and Materials Science, Northwest University, Xi'an; 710069, China; (2) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an; 710065, China
Corresponding author: Li, Hua(huali@nwu.edu.cn)
Source title: RSC Advances
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Volume: 6
Issue: 80
Issue date: 2016
Publication year: 2016
Pages: 76813-76823
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: Calibration-free laser-induced breakdown spectroscopy (CF-LIBS) combined with a binary search algorithm (BSA) is proposed to determine the acidity (CaO/SiO2 mass ratios) of iron ore. It is based on the idea that different samples with a similar matrix ablated in the same conditions have the same plasma temperature. Ca I/Si I molar ratios are obtained by the intercepts on the Boltzmann plots drawn by using corrected spectral lines without self-absorption, and the number concentrations of primary ionization ions of the elements are evaluated by the Saha equation. Furthermore, one standard sample matrix-matched with unknown samples along with BSA is employed to obtain a more accurate plasma temperature. Noteworthily, BSA is a classical search method and utilized to search the optimal plasma temperature for the first time in CF-LIBS. The acidity of the iron ores can be calculated according to the obtained value of Ca/Si molar ratios. The calculated acidity of the unknown samples were close to the certified acidity based on the root mean square error (RMSE) and mean relative error (MRE) which were 0.0145 and 4.01%, respectively. The proposed CF-LIBS method can be used to determine the acidity of iron ores, and it provides a new method and technology for selection and quality control of iron ore. © The Royal Society of Chemistry 2016.
Number of references: 29
Main heading: Mean square error
Controlled terms: Boltzmann equation - Calcium compounds - Atomic emission spectroscopy - Quality control - Calibration - Iron ores - Electron temperature - Laser induced breakdown spectroscopy - Learning algorithms
Uncontrolled terms: Binary search algorithm - Calibration free - Mean relative error - Number concentration - Plasma temperature - Root mean square errors - Self absorption - Standard samples
Classification code: 504.3 Heavy Metal Mines - 545.1 Iron - 723.4.2 Machine Learning - 913.3 Quality Assurance and Control - 922 Statistical Methods - 922.2 Mathematical Statistics - 931.1 Mechanics
Numerical data indexing: Percentage 1.45e-02%, Percentage 4.01e+00%
DOI: 10.1039/c6ra13038k
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

34. Effects of reaction pathway and particle heat absorption on gasifier: a numerical study

Accession number: 20161002072979
Authors: Zhong, Hanbin (1); Lan, Xingying (2); Gao, Jinsen (2)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) State Key Laboratory of Heavy Oil Processing, China University of Petroleum-Beijing, Beijing; 102249, China
Corresponding author: Lan, Xingying(lanxy@cup.edu.cn)
Source title: Huagong Jinzhan/Chemical Industry and Engineering Progress
Abbreviated source title: Huagong Jinzhan/Chem. Ind. Eng. Prog.
Volume: 35
Issue: 2
Issue date: February 5, 2016
Publication year: 2016
Pages: 376-382
Language: Chinese
ISSN: 10006613
Document type: Journal article (JA)
Publisher: Materials China
Abstract: The gasification technology is an efficient way to process inferior crude oil, unconventional oil and coal with lower emissions, and numerical simuation is an important method to reveal the complex flow and reaction behavior in the gasifier. In order to evaluate the influence of volatile reaction pathway and particle reaction heat absorption ratio, the Orimulsion gasification process in an entrained-flow gasifier was simulated with Eulerian-Lagrangian method. The homogenous reactions and heterogeneous reactions were described by the finite-rate/eddy-dissipation model and particle surface reaction model, respectively. The simulation results demonstrate that the reaction pathway of volatile mainly affects temperature and species distributions in the near-nozzle region, while those at the outlet of the gasifier change only slightly. However, the effect of particle heat absorption ratio is almost negligible due to the lower amount of fixed carbon in the Orimulsion and the small reaction heat of coke combustion. © 2016, Chemical Industry Press. All right reserved.
Number of references: 13
Main heading: Crude oil
Controlled terms: Coal combustion - Gasification - Lagrange multipliers - Numerical methods - Surface reactions
Uncontrolled terms: Entrained flow gasifiers - Eulerian-Lagrangian method - Gasification technologies - Heat absorption - Heterogeneous reactions - Numerical study - Orimulsion - Reaction pathways
Classification code: 512.1 Petroleum Deposits - 521 Fuel Combustion and Flame Research - 524 Solid Fuels - 802.2 Chemical Reactions - 802.3 Chemical Operations - 921.6 Numerical Methods
DOI: 10.16085/j.issn.1000-6613.2016.02.006
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

35. Geochemical characteristics, sedimentary environment and tectonic setting of Huangqikou Formation, Ordos Basin

Accession number: 20163602766419
Authors: Song, Lijun (1, 2); Liu, Chiyang (2, 3); Zhao, Hongge (2, 3); Wang, Jianqiang (2, 3); Zhang, Xiaolong (2, 3)
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Source title: Diqiu Kexue - Zhongguo Dizhi Daxue Xuebao/Earth Science - Journal of China University of Geosciences
Abbreviated source title: Diqiu Kexue Zhongguo Dizhi Daxue Xuebao

Volume: 41
Issue: 8
Issue date: August 1, 2016
Publication year: 2016
Pages: 1295-1308 and 1321
Language: Chinese
ISSN: 10002383
CODEN: DIKEEL
Document type: Journal article (JA)
Publisher: China University of Geosciences
Abstract: A set of ultra-thick Middle Proterozoic clastic sedimentary rocks deposited in and around southwestern Ordos basin, with the Huangqikou Formation(HKF) as the most typical one, has great potential for oil and gas exploration. However, our understanding of HKF needs to be enhanced. Thus, by means of main-trace, rare elements and detrital component method, we probed into the sedimentary environment and tectonic setting of the HKF. The sedimentary environment discrimination diagrams of both main and trace elements show that the HKF was deposited wholly under a dry environment with fresh water oxidized, or an oxygen-enriched environment, with an average paleoseawater temperature of 32. The tectonic environment discrimination diagrams of clastic composition, and main and trace elements all show similarity to those of the East African rift basin, and gradual increasing of the quartz sandstone content from the lower to the upper parts, suggesting that HKF deposited under an intracontinental rift tectonic-sedimentary setting, which may have been caused by the counterclockwise rotation of North China Craton. It is concluded that the HKF was deposited in an intracontinental rift basin in the fresh water, and the tectonic setting became more stable from early to late stage, which was intra-continental rift in the early stage and post-rift depression in the late one. © 2016, Editorial Department of Earth Science. All right reserved.
Number of references: 48
Main heading: Tectonics
Controlled terms: Water - Metamorphic rocks - Trace elements - Petroleum prospecting - Sedimentary rocks - Sedimentology - Geochemistry
Uncontrolled terms: Counter clockwise rotation - Discrimination diagram - Geochemical characteristic - Huangqikou Formation (HKF) - Oil and gas exploration - Ordos Basin - Sedimentary environment - Tectonic settings
Classification code: 481.1 Geology - 481.2 Geochemistry - 482.2 Minerals - 512.1.2 Petroleum Deposits : Development Operations
DOI: 10.3799/dqkx.2016.105
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

36. A new configuration of winglet longitudinal vortex generator to enhance heat transfer in a rectangular channel

Accession number: 20162102412529
Authors: Tang, L.H. (1); Chu, W.X. (2); Ahmed, N. (2); Zeng, M. (2)
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Source title: Applied Thermal Engineering
Abbreviated source title: Appl Therm Eng
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Issue date: July 5, 2016
Publication year: 2016
Pages: 74-84
Language: English
ISSN: 13594311
CODEN: ATENFT
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: In this study, a new configuration of winglet longitudinal vortex generator (LVG) to enhance heat transfer in rectangular channel is introduced. Furthermore, the effects of two new types of LVGs, i.e. the common-flow-up

rectangular winglet combined with elliptical pole (Case E) and the common-flow-up delta winglet combined with elliptical pole (Case F), on flow and heat transfer characteristics in a rectangular channel are investigated in detail by three-dimensional CFD numerical simulations. Comparing with the traditional types of winglet LVG (Case A, common-flow-down rectangular winglet; Case B, common-flow-down delta winglet; Case C, common-flow-up rectangular winglet; and Case D, common-flow-up delta winglet), the result reveals that Case F provides the best effectiveness of the heat transfer enhancement. The results were analyzed from the prospective of field synergy principle, it was found that the intersection angles between velocity and temperature gradient of all vortex generator (VG) configurations were smaller than that of smooth channel due to influence of LVGs, which was consistent with the field synergy principle, i.e.; the smaller the synergy angle the larger the Nusselt number. Compared by the performance evaluation parameter, the average JF factor in the Reynolds number range for Case A, Case B, Case C, Case D, Case E, and Case F were -5.1%, 3.6%, 0.9%, 6.5%, 1.3%, and 7.4% higher than that of smooth channel, which means Case F had the best overall heat transfer performances.
Number of references: 44
Main heading: Reynolds number
Controlled terms: Vorticity - Computational fluid dynamics - Heat transfer - Poles - Vortex flow - Delta wing aircraft
Uncontrolled terms: CFD numerical simulations - Evaluation parameters - Field synergy principle - Flow and heat transfer - Heat Transfer enhancement - Longitudinal vortex generators - Overall heat transfer performance - Rectangular channel
Classification code: 408.2 Structural Members and Shapes - 631.1 Fluid Flow, General - 641.2 Heat Transfer - 652.1 Aircraft, General - 723.5 Computer Applications - 931.1 Mechanics
Numerical data indexing: Percentage -5.10e+00%, Percentage 1.30e+00%, Percentage 3.60e+00%, Percentage 6.50e+00%, Percentage 7.40e+00%, Percentage 9.00e-01%
DOI: 10.1016/j.applthermaleng.2016.05.056
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

37. High-bandwidth large-dynamic frequency control of an optical comb by tuning polarization state

Accession number: 20162902595557
Authors: Zhang, Yanyan (1, 2); Yan, Lulu (1); Fan, Songtao (1, 2); Chen, Maoqiang (1, 2); Guo, Wenge (1, 3); Zhang, Shougang (1); Jiang, Haifeng (1)
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Source title: 2016 European Frequency and Time Forum, EFTF 2016
Abbreviated source title: Eur. Freq. Time Forum, EFTF
Part number: 1of1
Issue title: 2016 European Frequency and Time Forum, EFTF 2016
Issue date: May 23, 2016
Publication year: 2016
Article number: 7477792
Language: English
ISBN-13: 9781509007202
Document type: Conference article (CA)
Conference name: 30th European Frequency and Time Forum, EFTF 2016
Conference date: April 4, 2016 - April 7, 2016
Conference location: York, United kingdom
Conference code: 121865
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: We report a new method to precisely control carrier-envelope frequency (fceo) of a nonlinear-polarizationrotation mode-locked Er:fiber optical frequency comb. The fceo is phase-locked onto an RF reference frequency by rotating polarization state with a special home-made intra-cavity electrooptic modulator (EOM). The

EOM is inserted right after the PBS of a well-known ring mode-locked laser's loop and rotates polarization state with a coefficient of about 1.2 × 10-4 rad/v in ellipticity. The frequency control range of the EOM is two orders of magnitude larger than the traditional ones. Benefiting from fast response of the EOM, in-loop frequency stabilities of the fceo is below 2×10-17 at 1 second, and the corresponding timing jitter is about 0.16 rad. © 2016 IEEE.
Number of references: 12
Main heading: Locks (fasteners)
Controlled terms: Light modulators - Light modulation - Laser mode locking - Mode-locked fiber lasers - Optical signal processing - Polarization - Electrooptical devices
Uncontrolled terms: Carrier-envelope - Dynamic frequency controls - Electro-optic modulators - High bandwidth - Optical combs - Orders of magnitude - Polarization state - Reference frequency
Classification code: 714 Electronic Components and Tubes - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 744.1 Lasers, General
Numerical data indexing: Time 1.00e+00s
DOI: 10.1109/EFTF.2016.7477792
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

38. Quantitative evaluation on the performance and feature enhancement of stochastic resonance for bearing fault diagnosis

Accession number: 20162602533148
Authors: Li, Guoying (1, 2); Li, Jimeng (3); Wang, Shibin (1); Chen, Xuefeng (1)
Author affiliation: (1) State Key Laboratory for Manufacturing Systems Engineering, School of Mechanical Engineering, Xi'An Jiaotong University, Xi'an; 710049, China; (2) Xi'An Shiyou University, Xi'an; 710065, China; (3) Yanshan University, Hebei; 066004, China
Corresponding author: Chen, Xuefeng(chenxf@mail.xjtu.edu.cn)
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Language: English
ISSN: 08883270
E-ISSN: 10961216
CODEN: MSSPEP
Document type: Journal article (JA)
Publisher: Academic Press
Abstract: Stochastic resonance (SR) has been widely applied in the field of weak signal detection by virtue of its characteristic of utilizing noise to amplify useful signal instead of eliminating noise in nonlinear dynamical systems. How to quantitatively evaluate the performance of SR, including the enhancement effect and the degree of waveform distortion, and how to accurately extract signal amplitude have become two important issues in the research on SR. In this paper, the signal-To-noise ratio (SNR) of the main component to the residual in the SR output is constructed to quantitatively measure the enhancement effect of the SR method. And two indices are constructed to quantitatively measure the degree of waveform distortion of the SR output, including the correlation coefficient between the main component in the SR output and the original signal, and the zero-crossing ratio. These quantitative indices are combined to provide a comprehensive quantitative index for adaptive parameter selection of the SR method, and eventually the adaptive SR method can be effective in enhancing the weak component hidden in the original signal. Fast Fourier Transform and Fourier Transform (FFT+FT) spectrum correction technology can extract the signal amplitude from the original signal and effectively reduce the difficulty of extracting signal amplitude from the distorted resonance output. The application in vibration analysis for bearing fault diagnosis verifies that the proposed quantitative evaluation method for adaptive SR can effectively detect weak fault feature of the vibration signal during the incipient stage of bearing fault. © 2016 Elsevier Ltd.
Number of references: 40
Main heading: Failure analysis
Controlled terms: Fault detection - Signal to noise ratio - Circuit resonance - Fast Fourier transforms - Stochastic systems - Dynamical systems - Magnetic resonance - Nonlinear dynamical systems - Electric distortion - Signal processing - Signal distortion - Vibration analysis

Uncontrolled terms: Adaptive - Bearing fault diagnosis - Correlation coefficient - Quantitative evaluation - Quantitative evaluation methods - Quantitative indices - Stochastic resonances - Weak signal detection
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena - 703.1 Electric Networks - 716.1 Information Theory and Signal Processing - 731.1 Control Systems - 921 Mathematics - 921.3 Mathematical Transformations - 961 Systems Science
DOI: 10.1016/j.ymssp.2016.02.055
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Funding text: This work is supported by National Natural Science Foundation of China (Nos. 51225501 , 51335006) and the National Key Basic Research Program of China (No. 2015CB057400).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

39. Optical comb frequency-controlled by rotating polarization state

Accession number: 20164202911142
Authors: Zhang, Yanyan (1, 2); Yan, Lulu (1); Fan, Songtao (1, 2); Chen, Maoqiang (1, 2); Zhao, Wenyu (1); Guo, Wenge (1, 3); Zhang, Shougang (1); Jiang, Haifeng (1)
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Source title: 2016 IEEE International Frequency Control Symposium, IFCS 2016 - Proceedings
Abbreviated source title: IEEE Int. Freq. Control Symp., IFCS - Proc.
Part number: 1of1
Issue title: 2016 IEEE International Frequency Control Symposium, IFCS 2016 - Proceedings
Issue date: August 16, 2016
Publication year: 2016
Article number: 7546769
Language: English
ISBN-13: 9781509020911
Document type: Conference article (CA)
Conference name: 70th IEEE International Frequency Control Symposium, IFCS 2016
Conference date: May 9, 2016 - May 12, 2016
Conference location: New Orleans, LA, United states
Conference code: 123734
Sponsor: CRC Press Taylor and Francis Group; IEEE UFFC; National Institute of Standards and Technology (NIST) U.S. Department of Commerce; Synergy Microwave Corporation
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: We report a control method to stabilize frequencies of a nonlinear polarization rotation mode-locked laser by tuning polarization state with a home-made intra-cavity electro-optic modulator (EOM). The EOM rotates polarization state about 1.2 × 10-4 rad/v in ellipticity, and enables wide range frequency control of carrier-envelope-offset frequency (fceo) or repetition rate (fr). By stabilizing the fr, fceo and a comb teeth @ 1550 nm with the EOM respectively, we obtain that frequency control dynamic ranges increase at least one order in comparison with the traditional intra-cavity EOM technique. In additional, this technique exhibits less side-effect than traditional frequency control methods. © 2016 IEEE.
Number of references: 12
Main heading: Light modulation
Controlled terms: Electrooptical devices - Light modulators - Optical signal processing - Polarization
Uncontrolled terms: Carrier envelope offset frequencies - Control dynamic - Control methods - Electro-optic modulators - Nonlinear polarization rotation - Optical combs - Polarization state - Repetition rate
Classification code: 714 Electronic Components and Tubes - 741.1 Light/Optics - 741.3 Optical Devices and Systems
Numerical data indexing: Size 1.55e-06m
DOI: 10.1109/FCS.2016.7546769
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

40. A particle filter based multi-person tracking with occlusion handling (*Open Access*)

Accession number: 20170803366547
Authors: Yu, Ruixing (1); Zhu, Bing (2); Li, Wenfeng (3); Kong, Xianglong (3)
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Source title: ICINCO 2016 - Proceedings of the 13th International Conference on Informatics in Control, Automation and Robotics
Abbreviated source title: ICINCO - Proc. Int. Conf. Inf. Control, Auto. Robot.
Volume: 2
Part number: 2 of 2
Issue title: ICINCO 2016 - Proceedings of the 13th International Conference on Informatics in Control, Automation and Robotics
Issue date: 2016
Publication year: 2016
Pages: 201-207
Language: English
ISBN-13: 9789897581984
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Conference name: 13th International Conference on Informatics in Control, Automation and Robotics, ICINCO 2016
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Conference location: Lisbon, Portugal
Conference code: 123755
Sponsor: Fundacao para a Ciencia e Tecnologia (FCT); Institute for Systems and Technologies of Information, Control and Communication (INSTICC)
Publisher: SciTePress
Abstract: A multi-person tracking method is proposed concerning how to conquer the difficulties such as occlusion and changes in appearance which makes algorithm hard to get the correct positions of object. First, we indicate whether the target is blocked or not, through computing the Reliability of Tracklets (RT) based on the length of tracklets, appearance affinity and the size. Then, we propose a "correct" observation sample selection method and only update the weights of particle filter when the RT is high. Last, the greedy bipartite algorithm is used to realize data association. Experiments show that tracking can be successfully achieved even under severe occlusion.
Number of references: 24
Main heading: Bandpass filters
Controlled terms: Computer vision - Monte Carlo methods
Uncontrolled terms: Bipartite algorithm - Multi-person tracking - Occlusion - Occlusion handling - Particle filter - Sample selection - Severe occlusions - Tracklets
Classification code: 703.2 Electric Filters - 723.5 Computer Applications - 741.2 Vision - 922.2 Mathematical Statistics
DOI: 10.5220/0005961602010207
Funding Details: Number: 2013K09-18, Acronym: -, Sponsor: -; Number: 61101191, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 20130153003, Acronym: -, Sponsor: Aeronautical Science Foundation of China; Number: SAST201342,SAST2015040, Acronym: SAST, Sponsor: School of Aerospace Science and Technology;
Funding text: This work was supported, in part, by the National Natural Science Foundation of China (Grant No. 61101191), Aeronautical Science Foundation of China (Grant No. 20130153003), Science and technology research of Shaanxi Province(Grant No. 2013K09-18), and SAST Foundation (Grant No. SAST201342, No. SAST2015040)
Compendex references: YES
Open Access type(s): All Open Access, Hybrid Gold, Green
Database: Compendex
Data Provider: Engineering Village

41. Effect of hydro-thermal treatment on active phases and catalytic thioetherification performance of Mo-Ni/Al2O3 catalyst

Accession number: 20165003125403
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Corresponding author: Ke, Ming(keming@cup.edu.cn)
Source title: Shiyou Xuebao, Shiyou Jiagong/Acta Petrolei Sinica (Petroleum Processing Section)
Abbreviated source title: Shiyou Xuebao Shiyou Jiagong
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Issue date: December 25, 2016
Publication year: 2016
Pages: 1106-1112
Language: Chinese
ISSN: 10018719
CODEN: SXSHEY
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Mo-Ni/Al2O3 catalysts were hydro-thermally treated to investigate the properties of the microscopic pore structure and the active metals supported on the carriers. Meanwhile, the catalytic performance of the Mo-Ni/Al2O3 catalysts were also tested for the thioetherification process in a conventional fixed bed reactor. The results showed that the hydro-thermal treatment could increase the average pore diameter, which contributed to molecular diffusion of isomerized thiother products, and promote catalytic stability. The hydro-thermal treatment of the catalysts could decrease the interaction of the metals and carriers, which could improve the sulfidation degree of the metals and increase the amount of Ni-Mo-S active sites. However, the results was also proved that as the sulfidation degree of the metals supported on the carriers was raised, not only the catalytic performance of thioetherification reaction and selective hydrogenation of diene were improved, but also hydrogenation of olefin was enhanced, which caused the dramatic loss of product octane value.
Number of references: 21
Main heading: Heat treatment
Controlled terms: Hydrogenation - Olefins - Sulfur compounds - Metals - Nickel compounds - Catalyst activity - Molybdenum compounds - Chemical reactors
Uncontrolled terms: Hydrogenation of olefins - Hydrothermal treatments - Ni/Al2O3 catalyst - Selective hydrogenation - Thioetherification
Classification code: 537.1 Heat Treatment Processes - 802.1 Chemical Plants and Equipment - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds
DOI: 10.3969/j.issn.1001-8719.2016.06.004
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

42. Microstructures and phase transformations of Ti-30Zr-xNb (x = 5, 7, 9, 13 at.%) shape memory alloys

Accession number: 20164402957665
Authors: Qu, Wentao (1); Sun, Xuguang (1); Yuan, Bifei (1); Xiong, Chengyang (2); Zhang, Fei (2); Li, Yan (2); Sun, Baohui (3)
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Corresponding author: Li, Yan(liyan@buaa.edu.cn)
Source title: Materials Characterization
Abbreviated source title: Mater Charact
Volume: 122
Issue date: December 1, 2016
Publication year: 2016
Pages: 1-5
Language: English
ISSN: 10445803
CODEN: MACHEX

Document type: Journal article (JA)
Publisher: Elsevier Inc.
Abstract: The microstructures, phase transformations and shape memory properties of Ti-30Zr-xNb (x = 5, 7, 9, 13 at. %) alloys were investigated. The X-ray diffraction and transmission electron microscopy observations showed that the Ti-30Zr-5Nb, Ti-30Zr-7/9Nb and Ti-30Zr-13Nb alloys were composed of the hcp α'_martensite, orthorhombic α''_martensite and β phases, respectively. The results indicated the enhanced β_stabilizing effect of Nb in Ti-30Zr-xNb alloys than that in Ti-Nb alloys due to the high content of Zr. The differential scanning calorimetry test indicated that the Ti-30Zr-5Nb alloy displayed a reversible transformation with a high martensitic transformation start temperature of 776 K and a reverse martensitic transformation start temperature (As) of 790 K. For the Ti-30Zr-7Nb and Ti-30Zr-9Nb alloys, the martensitic transformation temperatures decreased with the increasing Nb content. Moreover, an ω phase transformation occurred in the both alloys upon heating at a temperature lower than the corresponding As, which is prompted by more addition of Nb. Although the critical stress in tension of the three martensitic alloys decreased with increasing Nb content, the Ti-30Zr-9Nb alloy showed a critical stress of as high as 300 MPa. Among all the alloys, the Ti-30Zr-9Nb alloy exhibited the maximum shape memory effect of 1.61%, due to the lowest critical stress for the martensite reorientation. © 2016 Elsevier Inc.
Number of references: 35
Main heading: Microstructure
Controlled terms: Niobium alloys - Differential scanning calorimetry - Ternary alloys - Zirconium alloys - High resolution transmission electron microscopy - X ray diffraction - Martensite - Shape memory effect - Titanium alloys - Binary alloys - Martensitic transformations
Uncontrolled terms: Beta-stabilizing effect - Martensite reorientation - Martensitic alloys - Martensitic transformation temperatures - Reversible transformation - Shape-memory properties - Ti-zr alloys - Transmission electron microscopy observation
Classification code: 531.2 Metallography - 542.3 Titanium and Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 741.3 Optical Devices and Systems - 931.2 Physical Properties of Gases, Liquids and Solids - 944.6 Temperature Measurements - 951 Materials Science
Numerical data indexing: Percentage 1.61e+00%
DOI: 10.1016/j.matchar.2016.10.019
Funding Details: Number: TC150B5C0/03, Acronym: -, Sponsor: -; Number: 51371016, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work is supported by the National Natural Science Foundation of China (NSFC, no. 51371016) and the Industrial Transformation & Upgrading of Strong Base Project of China (TC150B5C0/03).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

43. Liquid level sensor using fiber Bragg grating assisted by multimode fiber core

Accession number: 20161402203505
Authors: Shao, Min (1); Qiao, Xueguang (2); Zhao, Xue (1); Zhang, Yunshan (1); Fu, Haiwei (1)
Author affiliation: (1) Key Laboratory on Photoelectric Oil-Gas Logging and Detecting, School of Science, Ministry of Education, Xi'an Shiyou University, Xi'an; 710065, China; (2) School of Physics, Northwest University, Xi'an; 710069, China
Source title: IEEE Sensors Journal
Abbreviated source title: IEEE Sensors J.
Volume: 16
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Pages: 2374-2379
Article number: 7374651
Language: English
ISSN: 1530437X
E-ISSN: 15581748
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: A liquid level sensor based on a fiber Bragg grating (FBG) assisted by a section of multimode fiber core (MMFC) was demonstrated. Since the coupling coefficients between the MMFC and the single-mode fiber changes and FBG reflection modes keep still as surrounding liquid level varying, the liquid level can be determined by measuring the power of the FBG reflection core mode. Experimental results show that the sensor achieves a linear sensitivity of 0.29

dB/mm within the liquid level range of 0-30 mm. The refractive index response and the temperature measurement were described. Such a simple, low-cost, and power-detect FBG-based liquid level sensor has great potential in industrial applications. © 2016 IEEE.
Number of references: 19
Main heading: Multimode fibers
Controlled terms: MEMS - Temperature measurement - Liquids - Refractive index - Fiber Bragg gratings - Single mode fibers
Uncontrolled terms: Core modes - Coupling coefficient - Linear sensitivity - Liquid level - Liquid level sensors - Low costs - Reflection modes
Classification code: 704.2 Electric Equipment - 741.1 Light/Optics - 741.1.2 Fiber Optics - 944.6 Temperature Measurements
Numerical data indexing: Size 0.00e+00m to 3.00e-02m
DOI: 10.1109/JSEN.2015.2513413
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

44. Numerical simulation of directional propagation of hydraulic fracture guided by vertical multi-radial boreholes

Accession number: 20163502755530
Authors: Guo, Tiankui (1); Qu, Zhanqing (1); Gong, Diguang (1); Lei, Xin (2); Liu, Ming (3)
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Source title: Journal of Natural Gas Science and Engineering
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Volume: 35
Issue date: September 1, 2016
Publication year: 2016
Pages: 175-188
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The conventional hydraulic fracturing is not effective in the target oil development zone (remaining oil or gas, trap reservoir, etc.) with available wellbores located in the azimuth of non-maximum horizontal in-situ stress. The technology of directional propagation of hydraulic fracture guided by vertical multi-radial boreholes was innovatively developed. In order to verify the technology, a 3D extended finite element numerical model of hydraulic fracturing promoted by vertical multi-radial boreholes was established using Abaqus Software, and the influence of horizontal in-situ stress differences, azimuth, diameters, spacing, and lengths of radial boreholes, rates and viscosities of fracturing fluids, Young modulus and Poisson's ratio of rock, and reservoir permeability on propagation of hydraulic fracture guided by radial borehole row were comprehensively analyzed. Moreover, the term ‘Guidance factor (G)’ was introduced for the first time to effectively quantify guidance of radial borehole row. Finally, the guidance of the above ten factors is comprehensively evaluated through gray correlation analysis. The results showed that the directional propagation of hydraulic fracture is realized through scientifically arranged vertical radial borehole row, and ‘G’ reflects the real guidance strength of radial borehole row to hydraulic fracture. The azimuth of radial borehole row increases by 75°, G increases by 18 times. Horizontal in-situ stress difference increases by 9 MPa, G increases by 95%. The borehole diameter increases by 4 cm, G decreases by 54%. The borehole spacing increases by 0.5 m, G increases by 18%. The borehole length increases by 10 m, G decreases by 40%. Young's modulus of reservoir rock increases by 20 GPa, G decreases by 23%. Poisson's ratio increases by 0.1, G increases by 57%. Permeability of reservoir increases by 100 times, G increases by 3.3 times. Injection rate increases by 9 m3/min, G decreases by 63%. Both excessively high and low viscosities are adverse to guidance of radial borehole to hydraulic fracture, and 50 mPa s fracturing fluid creates best guidance to propagation of hydraulic fracture. The gray correlation analysis showed that the influences (from strong to weak) of the above factors on guidance of radial borehole were listed as follows: azimuth of radial borehole > injection rate of fracturing fluid > horizontal in-situ stress differences > Young's modulus of rock > viscosity of fracturing fluid > borehole diameter of radial borehole > radial borehole spacing > reservoir permeability > length of radial borehole > Poisson's ratio. This study provided theoretical evidence for directional

propagation of hydraulic fracture promoted by radial borehole, and it predicted the guidance of radial borehole to hydraulic fracture in a certain extent, which is helpful for planning well-completion and fracturing operation in technology of hydraulic fracturing promoted by radial borehole. © 2016 Elsevier B.V.
Number of references: 40
Main heading: Hydraulic fracturing
Controlled terms: ABAQUS - Fracture - Elastic moduli - Finite element method - Correlation methods - Fracturing fluids - Low permeability reservoirs - Numerical models - Oil wells - Poisson ratio - Viscosity - Factor analysis - Stresses - Boreholes - Petroleum reservoir engineering
Uncontrolled terms: ABAQUS software - Extended finite elements - Fracture propagation - Fracturing operations - Gray correlation analysis - Injection rates - Reservoir permeability - Reservoir rock
Classification code: 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 723.5 Computer Applications - 921 Mathematics - 921.6 Numerical Methods - 922.2 Mathematical Statistics - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Numerical data indexing: Percentage 1.80e+01%, Percentage 2.30e+01%, Percentage 4.00e+01%, Percentage 5.40e+01%, Percentage 5.70e+01%, Percentage 6.30e+01%, Percentage 9.50e+01%
DOI: 10.1016/j.jngse.2016.08.056
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

45. Critical heat flux prediction model for low quality flow boiling of water in vertical circular tube

Accession number: 20161602254885
Authors: Pan, Jie (1); Li, Ran (1); Yang, Dong (2); Wu, Gang (1)
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Source title: International Journal of Heat and Mass Transfer
Abbreviated source title: Int. J. Heat Mass Transf.
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Issue date: August 1, 2016
Publication year: 2016
Pages: 243-251
Language: English
ISSN: 00179310
CODEN: IJHMAK
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Based on the viewpoint of bubble crowding in near-wall bubble layer, a critical heat flux (CHF) prediction model was developed for low quality flow boiling of water in uniformly heated vertical circular tube under high pressure and low flow rate conditions. In this model, a CHF formula was derived from the conservation equations of mass, momentum and energy, where the transverse mass transport between the near-wall bubble layer and core is assumed to be limited. Taking account of the convective shear effect caused by the frictional drag on the wall-attached bubbles, the limiting transverse interchange of mass flux crossing the bubble layer-core interface was determined from the momentum balance equations. A new formula of bubble departure diameter considering the effect of buoyancy was put forward and used to solve the model with numerous other empirical correlations (e.g. bubble departure point, turbulence velocity profile, void fraction and so on). The model shows good agreements with the experimental data of uniformly heated circular tube. Based on this, the effects of flow variables such as pressure, mass flux and inlet subcooling on CHF prediction results were also discussed.
Number of references: 23
Main heading: Heat flux
Controlled terms: Bubbles (in fluids) - Heat transfer - Two phase flow - Void fraction - Shear flow - Forecasting

Uncontrolled terms: Bubble departure diameter - Critical heat flux(CHF) - Flow boiling - Heat transfer deterioration - Low qualities - Momentum balance equations - Prediction model - Vertical circular tubes
Classification code: 631.1 Fluid Flow, General - 631.1.2 Gas Dynamics - 641.2 Heat Transfer - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
DOI: 10.1016/j.ijheatmasstransfer.2016.03.072
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

46. Inactivation analysis and degradation mechanism of natural gas desulfurized solutions

Accession number: 20170203225434
Authors: Fan, Zheng (1); Huang, Feng-Lin (1); Wang, Di (1); Li, Wen-Hong (2); Xia, Yong (3)
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Source title: Gao Xiao Hua Xue Gong Cheng Xue Bao/Journal of Chemical Engineering of Chinese Universities
Abbreviated source title: Gao Xiao Hua Xue Gong Cheng Xue Bao
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Publication year: 2016
Pages: 1436-1444
Language: Chinese
ISSN: 10039015
CODEN: GHGXEG
Document type: Journal article (JA)
Publisher: Zhejiang University
Abstract: Composition and percentage of suspended solids, heat-stable salts and organic compounds in N-methyldiethanolamine solutions of desulfurized inactive natural gas were analyzed. Effects of various contaminants under different concentrations were determined with an inactivation evaluation apparatus. The mechanism of thermal and oxidative degradation was studied by dynamic thermogravimetry to obtain degradation kinetic model. The results show that except SiO2, Fe3O4 and Fe3C, other contaminants with an order of FeS, Na+, K+, Ca2+, Mg2+, Cl-, SO42-, C2O42-, F-, triethylene glycol, methanol, N, N-dimethylethanolamine, ethylene glycol, N-methylmonoethanolamine, trimethylamine and 1, 4-dimethylpiperazine have promotion effects for inactivation when their concentration increases. Thermal degradation of desulphurized solvents is accomplished by a one-step mass loss process, while oxidative degradation is a two-step process. The fitting curves of each stage show good correlation, and the latter degradation process has lower initial degradation temperature and easily becomes instable. Increase of heating rate reduces apparent activation energy, which results in faster degradation and quickly induces inactivation. © 2016, Editorial Board of "Journal of Chemical Engineering of Chinese Universities". All right reserved.
Number of references: 24
Main heading: Ethylene glycol
Controlled terms: Ethylene - Thermogravimetric analysis - Natural gas - Degradation - Silica - Magnetite - Activation energy - Curve fitting
Uncontrolled terms: Apparent activation energy - Degradation mechanism - Degradation temperatures - Dynamic thermogravimetry - Gas desulfurization - Inactivation reason - N ,N-Dimethylethanolamine - N-methyldiethanolamine
Classification code: 522 Gas Fuels - 801 Chemistry - 802.2 Chemical Reactions - 804.1 Organic Compounds - 921.6 Numerical Methods
DOI: 10.3969/j.issn.1003-9015.2016.06.028
Compendex references: YES
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47. Influence of Gemini Surfactant with Modified TiO2 Nanoparticles on the Interfacial Tension of Oil/Water

Accession number: 20162002383743

Authors: Lei, Sujuan (1); Xu, Ling (1); Qu, Chengtun (2); Jiao, Huan (1)
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Corresponding author: Jiao, Huan(jiaohuan@snnu.edu.cn)
Source title: Journal of Dispersion Science and Technology
Abbreviated source title: J. Dispersion Sci. Technol.
Volume: 37
Issue: 10
Issue date: October 2, 2016
Publication year: 2016
Pages: 1494-1501
Language: English
ISSN: 01932691
E-ISSN: 15322351
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: The research on the impacts of modified TiO2 nanoparticles (NPs) on interfacial tension (IFT) is in its infancy. Our work focuses on the IFT of the modified TiO2 and Gemini surfactant N,N,N#,N′_tetramethyl-N,N′_ dimyristyl-1,2-ethane diammonium dichlone (YND1233) complex solutions for reservoir stimulation purposes. The factors of YND1233, modified TiO2 NPs, temperature, aging stability, adsorption loss, and mineralized degree were explored with the comparison of unmodified TiO2 NPs and YND1233 as contrast samples. The results indicate that the dynamic IFTs decrease and then increase with the concentrations of YND1233 and modified TiO2 NPs, and the minimum IFT appears at 0.200 and 0.010 wt%, respectively. YND1233/modified TiO2 complex solutions show lower and more stable IFTs, better temperature resistance, longer aging time, and lower adsorption on the surface of quartz sand. The modified TiO2 NPs and YND1233 in the YND1233/modified TiO2 complex solution can be adsorbed to the interface and decrease the IFTs through synergistic effect. A mixed diffusion-kinetic mechanism is provided for the adsorption and interactions with Ca2+/Mg2+ involved in YND1233/modified TiO2 complex solution. © 2016, Copyright © Taylor & Francis Group, LLC.
Number of references: 35
Main heading: Titanium dioxide
Controlled terms: Surface active agents - Adsorption - Magnesium compounds - Surface treatment - Nanoparticles
Uncontrolled terms: Aging stability - Complex solution - Diffusion kinetics - Gemini surfactant - Nanoparticle (NPs) - Reservoir stimulations - Synergistic effect - Temperature resistances
Classification code: 761 Nanotechnology - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804.2 Inorganic Compounds - 933 Solid State Physics
DOI: 10.1080/01932691.2015.1015076
Funding Details: Number: 21141001,51272151,B010303, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: GK20111004,GK201305013,GK201402052, Acronym: -, Sponsor: Fundamental Research Funds for the Central Universities;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

48. Synthesis of memristive circuits based on stateful IMPLY gates using an evolutionary algorithm with a correction function

Accession number: 20164302950902
Authors: Wang, Xiaoxiao (1); Tan, Robin (2); Perkowski, Marek (2)
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Source title: Proceedings of the 2016 IEEE/ACM International Symposium on Nanoscale Architectures, NANOARCH 2016
Abbreviated source title: Proc. IEEE/ACM Int. Symp. Nanoscale Archit., NANOARCH

Part number: 1of1
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Issue date: September 14, 2016
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Article number: 7568633
Language: English
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Document type: Conference article (CA)
Conference name: 2016 IEEE/ACM International Symposium on Nanoscale Architectures, NANOARCH 2016
Conference date: July 18, 2016 - July 20, 2016
Conference location: Beijing, China
Conference code: 123770
Sponsor: Association for Computing Machinery; IEEE; IEEE Computer Society
Publisher: Presses Polytechniques Et Universitaires Romandes
Abstract: Synthesis of stateful memristor-based logic circuits is realized with a multi-stage evolutionary algorithm (IMP-MSEA) which minimizes the total circuit delay. This is done by minimizing the number of pulses to control the circuit. We assume different numbers of working memristors in the circuit and compare the delay results for each. The error of the synthesized circuit is the number of min-terms that differ between the truth table of the function of the resultant circuit and the truth table that specifies this circuit. We formulate a circuit minimization problem in which error should be zero or should be restricted to a small value. The system uses the concept of correction functions when the error is very low and a new round of evolution starts for the correcting function. The logic circuit design includes coding and initialization methods to reduce illegal and redundant solutions of random initial population. Experiments with 2 to 11 input single-output functions demonstrate that the algorithm can deal with various assumed numbers of working memristors and for many benchmark functions it significantly reduces the delay. © 2016 ACM.
Number of references: 14
Main heading: Evolutionary algorithms
Controlled terms: Delay circuits - Integrated circuit manufacture - Computer circuits - Memristors - Logic circuits - Logic Synthesis - Timing circuits - Errors
Uncontrolled terms: Benchmark functions - Circuit synthesis - Correcting function - Initialization methods - Logic circuit design - Memristor - Minimization problems - Minimizing the number of
Classification code: 713.4 Pulse Circuits - 714.2 Semiconductor Devices and Integrated Circuits - 721.2 Logic Elements - 721.3 Computer Circuits - 723.5 Computer Applications
DOI: 10.1145/2950067.2950087
Compendex references: YES
Database: Compendex
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49. Corrosion behavior of super 13Cr martensitic stainless steel in elemental sulfur environment

Accession number: 20161602257891
Authors: Li, Jin-Ling (1); Zhu, Shi-Dong (2, 3); Qu, Cheng-Tun (1); Ma, Hai-Xia (3); Lyu, Lei (2); Wang, Ke (2)
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Abbreviated source title: Cailiao Gongcheng
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Publication year: 2016
Pages: 84-91
Language: Chinese
ISSN: 10014381
CODEN: CAGOEW
Document type: Journal article (JA)

Publisher: Beijing Institute of Aeronautical Materials (BIAM)
Abstract: Corrosion behavior of the domestic super 13Cr martensitic stainless steel (00Cr13Ni5Mo2) was investigated by elemental sulfur suspension experimental method in the simulated high temperature and high pressure environment. Corrosion rate was calculated utilizing mass loss method. The micro-morphologies and chemical compositions of corrosion scales were characterized using scanning electron microscope (SEM), energy dispersive spectrometer (EDS) and X-ray diffraction (XRD), and effects of elemental sulfur on the acidification degree of NaCl solution were measured using pH meter. The results show that corrosion resistance of super 13Cr martensitic stainless steel decreases due to the presence of elemental sulfur. Average corrosion rate increases with the increase of sulfur content, and the maximum corrosion rate is present at 90, while all of them are less than 0.0125 mm/a; the compositions of corrosion scales change from oxides to sulfides, and the percentage of sulfides increases with the increase of elemental sulfur content; pH value on sulfur/metal interface decreases due to the disproportionation reaction between elemental sulfur and water, which decreases corrosion resistance of super 13Cr martensitic stainless steel. The synergistic effect between Cl- and elemental sulfur leads to more serious corrosion.
Number of references: 26
Main heading: Martensitic stainless steel
Controlled terms: Scanning electron microscopy - High temperature corrosion - Corrosion rate - X ray diffraction - Corrosion resistance - Sodium alloys - Chromium alloys - Molybdenum alloys - Sodium chloride - Ternary alloys - Corrosive effects - Steel corrosion - Sulfur compounds - Spectrometers
Uncontrolled terms: Acidification degrees - Average corrosion rates - Chemical compositions - Disproportionation reactions - Elemental sulfur - Energy dispersive spectrometers - High temperature and high pressure - Synergistic effect
Classification code: 539.1 Metals Corrosion - 543.1 Chromium and Alloys - 543.3 Molybdenum and Alloys - 545.3 Steel - 549.1 Alkali Metals - 741.3 Optical Devices and Systems
DOI: 10.11868/j.issn.1001-4381.2016.03.014
Compendex references: YES
Database: Compendex
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50. Feature extraction and recognition of rotational target under the sea background

Accession number: 20170803367773
Authors: Zhu, Bing (1); Gao, Weixin (1); Qin, Yali (2); Li, Wenfeng (3); Kong, Xianglong (3)
Author affiliation: (1) School of Electronic Engineering, Xian Shiyou University, No.18 Dianzi er Road, Xian Shannxi, China; (2) No.210 Institute China Aerospace Science and Technology Corporation, No.8 Dianzi yi Road, Xian Shannxi, China; (3) Shanghai Institute of Satellite Engineering, No.3666 Yuanjiang Road, Shanghai, China
Source title: ICINCO 2016 - Proceedings of the 13th International Conference on Informatics in Control, Automation and Robotics
Abbreviated source title: ICINCO - Proc. Int. Conf. Inf. Control, Auto. Robot.
Volume: 1
Part number: 1 of 2
Issue title: ICINCO 2016 - Proceedings of the 13th International Conference on Informatics in Control, Automation and Robotics
Issue date: 2016
Publication year: 2016
Pages: 508-513
Language: English
ISBN-13: 9789897581984
Document type: Conference article (CA)
Conference name: 13th International Conference on Informatics in Control, Automation and Robotics, ICINCO 2016
Conference date: July 29, 2016 - July 31, 2016
Conference location: Lisbon, Portugal
Conference code: 123755
Sponsor: Fundacao para a Ciencia e Tecnologia (FCT); Institute for Systems and Technologies of Information, Control and Communication (INSTICC)
Publisher: SciTePress
Abstract: Considering the impact of sea clutter on target classification and recognition, a method based on RBF is proposed to restrain the actual sea clutter, which can be converted the sea clutter into random noise. After denosing, a S transform time-frequency approach is used to obtain the two time-frequency distribution images. They are helicopter and propeller aircraft images with nosie. Then extracted the invariant moment features of images for target recognition.

The simulation results have shown an average accuracy of 85%, which validates the effectiveness of this method.
Number of references: 6
Main heading: Clutter (information theory)
Controlled terms: Computer vision - Mathematical transformations - Radar clutter
Uncontrolled terms: Feature extraction and recognition - Invariant moment - Rotate plan - Sea clutters - Target Classification - Time frequency transform - Time-frequency approach - Time-frequency distributions
Classification code: 716.1 Information Theory and Signal Processing - 716.2 Radar Systems and Equipment - 723.5 Computer Applications - 741.2 Vision - 921.3 Mathematical Transformations
Numerical data indexing: Percentage 8.50e+01%
DOI: 10.5220/0005980805080513
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

51. One-Class Support Tensor Machine (*Open Access*)

Accession number: 20160701938249
Authors: Chen, Yanyan (1, 2); Wang, Kuaini (3); Zhong, Ping (1)
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Corresponding author: Zhong, Ping(zping@cau.edu.cn)
Source title: Knowledge-Based Systems
Abbreviated source title: Knowl Based Syst
Volume: 96
Issue date: March 15, 2016
Publication year: 2016
Pages: 14-28
Language: English
ISSN: 09507051
CODEN: KNSYET
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: In fault diagnosis, face recognition, network anomaly detection, text classification and many other fields, we often encounter one-class classification problems. The traditional vector-based one-class classification algorithms represented by One-Class Support Vector Machine (OCSVM) have limitations when tensor is considered as input data. This work addresses one-class classification problem with tensor-based maximal margin classification paradigm. To this end, we formulate the One-Class Support Tensor Machine (OCSTM), which separates most samples of interested class from the origin in the tensor space, with maximal margin. The benefits of the proposed algorithm are twofold. First, the use of direct tensor representation helps to retain the data topology more efficiently. The second benefit is that tensor representation can greatly reduce the number of parameters. It helps overcome the overfitting problem caused mostly by vector-based algorithms and especially suits for high dimensional and small sample size problem. To solve the corresponding optimization problem in OCSTM, the alternating projection method is implemented, for it is simplified by solving a typical OCSVM optimization problem at each iteration. The efficiency of the proposed method is illustrated on both vector and tensor datasets. The experimental results indicate the validity of the new method.
Number of references: 34
Main heading: Support vector machines
Controlled terms: Face recognition - Computer aided diagnosis - Fault detection - Iterative methods - Tensors - Vectors - Character recognition - Optimization - Classification (of information) - Text processing
Uncontrolled terms: Alternating projection method - Network anomaly detection - One-class Classification - One-class classification algorithm - One-class support vector machines (OCSVM) - Optimization problems - Small sample size problems - Support tensor machines
Classification code: 461.1 Biomedical Engineering - 716.1 Information Theory and Signal Processing - 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 903.1 Information Sources and Analysis - 903.3 Information Retrieval and Use - 921.1 Algebra - 921.5 Optimization Techniques - 921.6 Numerical Methods
DOI: 10.1016/j.knosys.2016.01.007
Funding Details: Number: 11171346, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: Zk10201513, Acronym: BUU, Sponsor: Beijing Union University;

Funding text: The work is supported by the National Science Foundation of China (Grant No. 11171346) and the "New Start" Academic Research Projects of Beijing Union University (Zk10201513). The authors also gratefully acknowledge the helpful comments and suggestions of the reviewers, which have improved the presentation.
Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

52. Experimental study of gromwell extraction on activities of serum- enzymes and anti-oxidation protection of hepatic tissue in endurance-trained rats

Accession number: 20170503319281
Authors: Xu, Xiaoxian (1); Qu, Honggang (2)
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Corresponding author: Xu, Xiaoxian(xuxiaoxian0108@163.com)
Source title: Carpathian Journal of Food Science and Technology
Abbreviated source title: Carpathian J. Sci. Technol. Food
Volume: 8
Issue: 4
Issue date: 2016
Publication year: 2016
Pages: 128-134
Language: English
ISSN: 20666845
Document type: Journal article (JA)
Publisher: North University of Baia Mare, 76 Victoriei, Baia Mare, 430 122, Romania
Abstract: Through the observation of biochemical indicator with hepatic tissue and blood serum in once exhausting with endurance-trained Rats, discussing the biological mechanism of Gromwell extract impacting to delay sports fatigue. Method: Choose 24 rats, and divide them into 3 groups--Exercise groups (group A), exhausted exercise group (group B), Gromwell with exhausted exercise group (group C). Three groups all have been trained 6 weeks. At last time, Group A was not trained as usually and adopted samples immediately, Group B and C were trained by exhausted exercise and then adopted samples. Result: After the exhaustive exercise, the activities of serum- enzymes with Group B can improve greatly (P<0.05 or P<0.01), the anti-oxidation ability of serum with Group B can lower greatly (P<0.05). compared with the Group B, The activities of serumenzymes with Group C can lower greatly(P<0.05), The anti-oxidation ability of serum and hepatic tissue with Group C can improve greatly(P<0.05). Conclusion: Gromwell extract supplement can maintain the of ability anti-oxidation in high- intensity and long-time exercises, decrease oxidative stress injury of liver, prolong the exhaustive time of endurance-trained Rats.
Number of references: 21
Main heading: Extraction
Controlled terms: Tissue - Ablation - Rats - Body fluids - Enzymes - Oxidation
Uncontrolled terms: Anti-oxidation - Biochemical indicators - Biological mechanisms - Blood serum - Exhaustive exercise - Hepatic tissue - High intensity
Classification code: 461.2 Biological Materials and Tissue Engineering - 641.2 Heat Transfer - 802.2 Chemical Reactions - 802.3 Chemical Operations
Numerical data indexing: Age 1.15e-01yr
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

53. Tribological properties of NiCr–ZrO2(Y2O3)–SrSO4 composites at elevated temperatures

Accession number: 20162302459362
Authors: Liu, Feng (1, 2); Zhou, Yong (1); Zhang, Xiaoyong (1); Cao, Weifeng (1); Jia, Junhong (2)
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou; 730000, China
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Source title: Ceramics International
Abbreviated source title: Ceram Int
Volume: 42
Issue: 11
Issue date: August 15, 2016
Publication year: 2016
Pages: 12981-12987
Language: English
ISSN: 02728842
CODEN: CINNDH
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: The effect of SrSO4 content on the tribological properties of NiCr–30wt%ZrO2(Y2O3) (NC30Z) cermet was evaluated over a wide temperature range from room temperature to 1000 °C. The results indicated that the inclusion of SrSO4 effectively improved the friction coefficients and wear rates of NC30Z cermet above 400 °C. NC30Z–5SrSO4 composite against alumina ball exhibited satisfactory tribological performance, which was attributed to synergistic lubrication of pseudocubic-SrZrO3 and NiCr2O4 between 400 °C and 800 °C and cubic-SrZrO3, NiCr2O4, NiO and Cr2O3 at 1000 °C. © 2016 Elsevier Ltd and Techna Group S.r.l.
Number of references: 27
Main heading: Aluminum oxide
Controlled terms: Nickel oxide - Chromium compounds - Zirconia - Alumina - Friction - Cermets - Tribology - Strontium compounds
Uncontrolled terms: Alumina balls - Elevated temperature - Friction coefficients - Pseudocubic - Tribological performance - Tribological properties - Wear rates - Wide temperature ranges
Classification code: 531 Metallurgy and Metallography - 804.2 Inorganic Compounds - 812.1 Ceramics - 931 Classical Physics; Quantum Theory; Relativity
Numerical data indexing: Temperature 1.07e+03K, Temperature 1.27e+03K, Temperature 6.73e+02K
DOI: 10.1016/j.ceramint.2016.05.071
Funding Details: Number: 2015BS52, Acronym: -, Sponsor: -; Number: 51175490,51505378, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The authors acknowledge the financial supports by the National Natural Science Foundation of China (Grant No. 51175490 , 51505378) and the Scientific Research Foundation for Doctoral Program of Xi’an Shiyou University (Grant No. 2015BS52).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

54. Structure, stability and magnetic properties of (NiAl)n(n#6) clusters

Accession number: 20162102426687
Authors: Wen, Jun-Qing (1, 2); Zhang, Jian-Min (1); Chen, Guo-Xiang (2); Zhang, Xiao-Zhen (2); Wen, Zhen-Yi (3)
Author affiliation: (1) College of Physics and Information Technology, Shaanxi Normal University, Xi'an; 710062, China; (2) College of Science, Xi'an Shiyou University, Xi'an; 710065, China; (3) Institute of Modern Physics, Northwest University, Xi'an; 710069, China
Corresponding author: Wen, Jun-Qing(wenjq2013@163.com)
Source title: Journal of Physics and Chemistry of Solids
Abbreviated source title: J Phys Chem Solids
Volume: 96-97
Issue date: September 1, 2016
Publication year: 2016
Pages: 68-74
Language: English
ISSN: 00223697
CODEN: JPCSAW
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: In this paper, density functional theory with generalized gradient approximation (GGA) for the exchange-correlation potential has been used to calculate the energetically global-minimum geometries and electronic states of (NiAl)n(n#6) clusters. Full structural optimizations, analysis of energy and frequency calculation are performed. The most stable structures of (NiAl)n clusters are all three-dimensional structures except NiAl. The average bond lengths of

(NiAl)n clusters are larger than that of Ni2n, and are smaller than that of Al2n. The binding energy per atom of Ni2n and (NiAl)n has the same change trend, and that are larger than that of Al2n. Stability analysis shows that Ni8, (NiAl)2 and Al10 clusters have higher relative stability than other clusters. Mulliken analysis indicates that charges always transfer from Al atoms to Ni atoms, and the average charges of transfer from Al atoms to Ni atoms have a maximum at (NiAl)6, implying the strong interaction between Al and Ni atoms in (NiAl)6. The average atomic magnetic moments of (NiAl)n are smaller than that of true Ni2n. The analysis of the static polarizability shows that the electronic structures of (NiAl)n clusters tend to be compact with the increase of atoms.
Number of references: 42
Main heading: Density functional theory
Controlled terms: Stability - Aluminum - Atoms - Electronic states - Electronic structure - Nickel - Aluminum compounds - Global optimization - Nickel compounds - Binding energy - Magnetic moments - Structural optimization
Uncontrolled terms: Atomic magnetic moment - Exchange-correlation potential - Frequency calculations - Generalized gradient approximations - Nickel aluminum - Relative stabilities - Static polarizabilities - Three-dimensional structure
Classification code: 541.1 Aluminum - 548.1 Nickel - 701.2 Magnetism: Basic Concepts and Phenomena - 801.4 Physical Chemistry - 921.5 Optimization Techniques - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933.3 Electronic Structure of Solids
DOI: 10.1016/j.jpcs.2016.05.002
Funding Details: Number: 2014KJXX-70, Acronym: -, Sponsor: -; Number: 2014JQ6206, Acronym: -, Sponsor: -; Number: 11104175, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2013JK0629, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: The authors acknowledge computational support from the National Natural Science Foundation of China under No. 11247229 , 11104175 and 11304246 , the Scientific Research Program Fund by Shaanxi Provincial Education Department under No. 2013JK0629 , the Shaanxi Province Science and Technology Foundation No. 2014KJXX-70 , the Natural Science Basic Research Plan in Shaanxi Province of China No. 2014JQ6206 .
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

55. An approach to placement optimization of gas detectors based on leakage scenario set

Accession number: 20170103211748
Authors: Zhang, Bo (1); Wang, Zhigang (2); Wang, Yanfu (1); Cai, Wenbin (3); Zou, Niuyang (1)
Author affiliation: (1) College of Mechanical and Electronic Engineering in China University of Petroleum, Qingdao; 266580, China; (2) Guangxi Gas Pipeline Company Limited, Beihai; 536000, China; (3) Petroleum Engineering Academy, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Zhongguo Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of China University of Petroleum (Edition of Natural Science)
Abbreviated source title: Zhongguo Shiyou Daxue Xuebao (Ziran Kexue Ban)
Volume: 40
Issue: 6
Issue date: December 20, 2016
Publication year: 2016
Pages: 156-162
Language: Chinese
ISSN: 16735005
Document type: Journal article (JA)
Publisher: University of Petroleum, China
Abstract: The traditional gas detector placement method using typical or equal probability leakage scenarios can not reflect the actual risk, and the detection efficiency is also low. Basing on the approximate real leakage scenario set, this article proposes a new approach to gas detector placement optimization. It combines leaking condition and wind field to build leakage scenes that will probably occur and predicts the probability of each leakage scenario quantatively. The probability weighting method was applied to establish the quantitative evaluation index for the detector layout. With the constraint of detector number, the stochastic optimization model was developed. The gas leakage empirical model was also integrated to define the risk index for leakage scenario and the most credible scenario was selected to perform a CFD-based dispersion simulation. To obtain the optimal gas detectors placement efficiently, the quantum particle swarm optimization(QPSO) was employed to solve this model. The method mentioned above was applied to the optimization of hydrogen sulfide detectors for a diesel hydrogenation unit. The results demonstrate that the optimal

hydrogen sulfide detectors placement can significantly improve the detection efficiency compared with the original layout.
Number of references: 22
Main heading: Stochastic programming
Controlled terms: Particle swarm optimization (PSO) - Risk perception - Efficiency - Hydrogen sulfide - Gas detectors - Stochastic models - Gases - Stochastic systems - Sulfur determination
Uncontrolled terms: Detection efficiency - Dispersion simulations - Oil refineries - Placement optimization - Probability weighting - Quantitative evaluation - Quantum particle swarm optimization - Stochastic optimization model
Classification code: 723 Computer Software, Data Handling and Applications - 731.1 Control Systems - 801 Chemistry - 804.2 Inorganic Compounds - 913.1 Production Engineering - 914.1 Accidents and Accident Prevention - 921.5 Optimization Techniques - 922.1 Probability Theory - 943.3 Special Purpose Instruments - 961 Systems Science
DOI: 10.3969/j.issn.1673-5005.2016.06.020
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

56. Rock classification based on features form color space and morphological gradient of rock thin section image

Accession number: 20163502763418
Authors: Liu, Ye (1); Cheng, Guojian (1); Ma, Wei (2); Guo, Chao (3)
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an; 710065, China; (2) Library of Xi'an University of Technology, Xi'an; 710048, China; (3) Research Institute of Shaanxi Yanchang Petroleum (Group) Co. Ltd., Xi'an; 710075, China
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Source title: Zhongnan Daxue Xuebao (Ziran Kexue Ban)/Journal of Central South University (Science and Technology)
Abbreviated source title: Zhongnan Daxue Xuebao (Ziran Kexue Ban)
Volume: 47
Issue: 7
Issue date: July 26, 2016
Publication year: 2016
Pages: 2375-2382
Language: Chinese
ISSN: 16727207
CODEN: ZDXZAC
Document type: Journal article (JA)
Publisher: Central South University of Technology
Abstract: A new high efficiency automatic rock classification method for thin section images of rocks was proposed to solve the problems caused by subjective errors and the difference of capture equipments and conditions. This classification method, whose basic data were from polarizing microscope, was based on original color space and morphology gradient features to build the relationship between these features extracted from images and rock types with SVM. Practical test data set composed of 100 image samples was from Sulige gas field in Ordos basin. The results show that the accuracy of this method reaches 95%, which proves the method is stable and dependable both in theoretical and practical aspects.
Number of references: 21
Main heading: Rocks
Controlled terms: Image classification - Gas industry - Classification (of information) - Color - Statistical tests
Uncontrolled terms: Classification methods - Color space - Gradient feature - Morphological gradient - Polarizing microscopes - Practical tests - Rock classification - Sulige gas field
Classification code: 522 Gas Fuels - 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 741.1 Light/Optics - 903.1 Information Sources and Analysis - 922.2 Mathematical Statistics
Numerical data indexing: Percentage 9.50e+01%
DOI: 10.11817/j.issn.1672-7207.2016.07.027
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

57. Viscoelastic Drag of Particles Settling in Wormlike Micellar Solutions of Varying Surfactant Concentration

Accession number: 20155001676305
Authors: Wang, Zhiguo (1, 2); Wang, Shuzhong (1); Jing, Zefeng (1); Luo, Xiangrong (1)
Author affiliation: (1) Key Laboratory of Thermo-Fluid Science and Engineering of MOE, School of Energy and Power Engineering,Xi'an Jiaotong University, Xi'an; 710049, China; (2) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, China
Corresponding author: Wang, Shuzhong(szwang@aliyun.com)
Source title: Journal of Dispersion Science and Technology
Abbreviated source title: J. Dispersion Sci. Technol.
Volume: 37
Issue: 3
Issue date: March 3, 2016
Publication year: 2016
Pages: 442-449
Language: English
ISSN: 01932691
E-ISSN: 15322351
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: Wormlike micellar octadecyl trimethyl ammonium chloride (OTAC) solution is a self-assembled fracturing fluid used to carry proppants into fractures in oil recovery. Slow settling velocity of proppant is desirably resulted from the viscoelastic drag with low viscosity of fracturing fluids for fracturing work. Steel spheres, as a substitute for proppants, fall into three semi-dilute OTAC solutions. The steady rheology demonstrates that OTAC solutions are divided into shear-thickening and shear-thinning regimes by the critical shear rate. The applied steel spheres always lie in the shear-thickening regime of the 2.8 wt% OTAC solution with aggregated micelles as their characteristic shear rates are less than the critical shear rate of the solution. Strong shear-thickening viscous drag results in lower settling velocity of steel spheres. Most of the applied steel spheres, on the other hand, lie in the shear-thinning regime of the 4 wt% OTAC solution with orientated micelles. Although the latter solution has small dissipation coefficient, high Weissenberg number, and consequently high elastic effect, the shear-thinning viscosity results in higher settling velocity of steel spheres.
Number of references: 41
Main heading: Shear thinning
Controlled terms: Drag - Micelles - Proppants - Spheres - Non Newtonian flow - Viscoelasticity - Chlorine compounds - Fracturing fluids - Shear flow - Shear deformation
Uncontrolled terms: Critical shear rates - Dissipation coefficients - Drag of particles - Micellar fluids - Shear-induced structures - Surfactant concentrations - Weissenberg number - Wormlike micellar solutions
Classification code: 511.1 Oil Field Production Operations - 631.1 Fluid Flow, General - 801.3 Colloid Chemistry - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.1080/01932691.2015.1045597
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

58. Parameters Optimization of Fin-and-Tube Heat Exchanger with a Novel Vortex Generator Fin by Taguchi Method

Accession number: 20153801277075
Authors: Tang, Ling-Hong (1); Tan, Si-Chao (2); Gao, Pu-Zhen (2); Zeng, Min (3)
Author affiliation: (1) School of Mechanical Engineering, Xian Shiyou University, Xian, Shaanxi, China; (2) National Defense Key Subject Laboratory for Nuclear Safety and Simulation Technology, Harbin Engineering University, Harbin, Heilongjiang, China; (3) Key Laboratory of Thermo-Fluid Science and Engineering, Ministry of Education, Xian Jiaotong University, Xian, Shaanxi; 710049, China
Corresponding author: Zeng, Min(zengmin@mail.xjtu.edu.cn)
Source title: Heat Transfer Engineering
Abbreviated source title: Heat Transfer Eng
Volume: 37

Issue: 3-4
Issue date: March 3, 2016
Publication year: 2016
Pages: 369-381
Language: English
ISSN: 01457632
E-ISSN: 15210537
CODEN: HTEND2
Document type: Conference article (CA)
Publisher: Taylor and Francis Ltd.
Abstract: In this study, the effects of various vortex generator configurations on the heat transfer and flow friction characteristics are investigated by numerical method. Compared with common-flow-down configuration, the Nusselt numbers of common-flow-up configuration increase by 2.7-2.9% in the range of studied Reynolds number, while the friction factors reduce by 7.8-10.0%. A comparative study of the effects of location of axial dimension, location of spanwise dimension, attack angle, and length and height of vortex generator on fin performance is conducted. The results show that the intensity of heat transfer can be greatly increased with decreasing the location and attack angle of vortex generator, and with increasing height of vortex generator, accompanying with the increase of pressure drop. The Nusselt number and friction factors first increase and then decrease with increasing length of vortex generator. The parameters of the vortex generator fin-and-tube heat exchanger are optimized by the Taguchi method. Sixteen kinds of models are made by compounding levels on each factor, and the heat transfer and flow friction characteristics of each model are analyzed. The results allow us to quantitatively estimate the various parameters affecting heat exchanger performance, and the main factors for optimal design of a heat exchanger are selected. The two optimal conditions are acquired, and the reproducibility of the results is verified by two analytical results. © 2016 Copyright © Taylor & Francis Group, LLC.
Number of references: 21
Main heading: Location
Controlled terms: Taguchi methods - Fins (heat exchange) - Numerical methods - Vortex flow - Nusselt number - Friction - Reynolds number - Tribology - Vorticity
Uncontrolled terms: Analytical results - Comparative studies - Fin and tube heat exchanger - Heat exchanger performance - Heat transfer and flows - Optimal conditions - Parameters optimization - Vortex generators
Classification code: 616.1 Heat Exchange Equipment and Components - 631.1 Fluid Flow, General - 641.2 Heat Transfer - 913.3 Quality Assurance and Control - 921.6 Numerical Methods - 922.2 Mathematical Statistics - 931 Classical Physics; Quantum Theory; Relativity
Numerical data indexing: Percentage 2.70e+00% to 2.90e+00%, Percentage 7.80e+00% to 1.00e+01%
DOI: 10.1080/01457632.2015.1052715
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

59. Sedimentary environment and tectonic backgrounds of the Wangquankou Formation carbonate rock sequences in southwestern Ordos Basin

Accession number: 20162102408442
Authors: Song, Lijun (1, 2); Liu, Chiyang (2, 3); Li, Guangxiang (1); Zhao, Hongge (2, 3); Wang, Jianqiang (2, 3); Zhang, Xiaolong (2, 3); Wang, Yuping (2, 3)
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Corresponding author: Liu, Chiyang(lcy@nwu.edu.cn)
Source title: Oil and Gas Geology
Abbreviated source title: Oil Gas Geol.
Volume: 37
Issue: 2
Issue date: April 28, 2016
Publication year: 2016
Pages: 224-237
Language: Chinese
ISSN: 02539985
Document type: Journal article (JA)

Publisher: Editorial Department of Oil and Gas Geology
Abstract: A very thick Middle Proterozoic carbonate strata represented by the Wangquankou Formation is distributed in the southwestern Ordos basin. In order to forecast its petroleum exploration prospects, major and trace elements were measured on samples to reveal the rock characteristics, sedimentary environment, tectonic settings and origin of siliceous rocks of the Wangquankou Formation. The Wangquankou Formation mainly consists of dolomites, siliceous dolomites and silicalites, with minor quartz sandstones. Geochemical features of siliceous materials in silicalites and siliceous dolomites clearly show a biochemical origin, with almost no influences from epicontinental clastic input. Discrimination diagrams of redox environment, such as V/Cr, Ni/Co, V/ (V+Ni) and Ce/La, indicate that the Wangquankou Formation was deposited in aerobic or transitional dysaerobic shallow water. Paleo-temperature data, in good agreement with Sr/Cu values, suggest that regional temperatures were highest during deposition of the Wangquankou Formation, further indicating an arid and scorching climate background. Sr/Ba and CaO/(CaO+MgO) environment discriminant graphs, Y abnormity and (La/Nd)pass ratio show that the carbonate rocks formed in marine saltwater or transitional semi-saltwater environment. A comprehensive analysis of various diagrams, such as La-Th-Sc, Th-Co-Zr/10 and 100Eu/#REE-LREE/HREE graphs, indicates that carbonate samples from the Wangquankou Formation carry information of active continental margin, continental island arc and middle continent-shallow water sedimentary system. Samples from regions of Long Country Guguan, Tanshan, and Zhuozishan located at the basin margin are all characterized by high REEs, indicating a tectonic background of continental back-arc depression during the Wangquankou Stage. In conclusion, siliceous rocks and carbonate rocks of biochemical origin in this region were deposited in mild-oxidizing, marine-continental transition environment, with the backgrounds of desiccation and torridness with the tectonic settings of epicontinental back-arc depression. © 2016, Editorial Office of Oil and Gas Geology. All right reserved.
Number of references: 46
Main heading: Dolomite
Controlled terms: Carbonation - Sedimentology - Graphic methods - Hafnium alloys - Silica - Magnesia - Tectonics - Sedimentary rocks - Thorium alloys - Cobalt alloys - Strontium alloys - Ternary alloys - Lanthanum compounds - Trace elements
Uncontrolled terms: Carbonate rock - Ordos Basin - Sedimentary environment - Tectonic settings - Wangquankou Formation
Classification code: 481.1 Geology - 482.2 Minerals - 549.2 Alkaline Earth Metals - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 622.1 Radioactive Materials, General - 802.2 Chemical Reactions - 804.2 Inorganic Compounds
DOI: 10.11743/ogg20160211
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

60. Genesis and source of the Ordovician mid-assemblage natural gas in the east side of the central paleo-uplift, Ordos Basin

Accession number: 20163202695193
Authors: Li, Jun (1, 2); Zhao, Jingzhou (1, 2); Wang, Daxing (3); Sun, Liuyi (3); Ren, Junfeng (3); Wu, Chunying (3); Wu, Weitao (1, 2); Zhao, Zilong (1, 2); Qu, Futao (1, 2)
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Corresponding author: Li, Jun(lijun@xsyu.edu.cn)
Source title: Shiyou Xuebao/Acta Petrolei Sinica
Abbreviated source title: Shiyou Xuebao
Volume: 37
Issue: 7
Issue date: July 1, 2016
Publication year: 2016
Pages: 821-831
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press

Abstract: With the continuous deepening of Ordovician natural gas exploration in Ordos Basin, a great advancement has been achieved in the mid-assemblage natural gas exploration of Sub-member 5 to Sub-member 10 of Member 5, Ordovician Majiagou Formation in the east side of the central paleo-uplift. However, there is still insufficient research on the genesis and source of natural gas. Based on the geochemical characteristics of natural gas, the development characteristics of paleo-oil reservoirs and other analysis results, in combination with geological conditions of natural gas accumulation, the genesis and source of Ordovician mid-assemblage natural gas in the east side of the central paleo-uplift, Ordos Basin are determined. The research indicates that Ordovician mid-assemblage natural gas in Ordos Basin is a mixture of the coal-type gas derived from Upper Paleozoic coaly source rocks and the oil-associated gas generated from Lower Paleozoic carbonate rocks, dominated by Upper Paleozoic coal-type gas. Among the current natural gas compositions of gas reservoirs, the methane is mainly sourced from the Upper Paleozoic coaly source rocks, the ethane in a small part of upper-assemblage and mid-assemblage natural gas is mostly derived from the Lower Paleozoic oil-associated gas, while the ethane and heavy hydrocarbon of most mid-assemblage natural gas are originated from the Upper Paleozoic coaly source rocks.
Number of references: 44
Main heading: Natural gas
Controlled terms: Coal - Exploratory geochemistry - Petroleum reservoir engineering - Geochronology - Petroleum prospecting - Petroleum reservoirs - Carbon - Gases - Metamorphic rocks
Uncontrolled terms: Carbon isotopes - Coal types - Gas-source correlations - Ordos Basin - Ordovician
Classification code: 481.1 Geology - 481.2 Geochemistry - 481.3 Geophysics - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 522 Gas Fuels - 524 Solid Fuels - 804 Chemical Products Generally
DOI: 10.7623/syxb201607001
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

61. A method to achieve uniform clamp force in a bolted rotor with curvic couplings

Accession number: 20163802818052
Authors: Yuan, Shuxia (1); Zhang, Youyun (2); Fan, Yuguang (1); Zhang, Yingchun (2, 3)
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Source title: Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering
Abbreviated source title: Proc. Inst. Mech. Eng. Part E J. Process Mech. Eng.
Volume: 230
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Pages: 335-344
Language: English
ISSN: 09544089
E-ISSN: 20413009
CODEN: PMEEEF
Document type: Journal article (JA)
Publisher: SAGE Publications Ltd
Abstract: The preloading process is essential for circumferential bolted rotors with curvic couplings and preloading effects determining the rotor performance. A nonuniform clamp load of each bolt will destroy the periodicity of the rotor and affect its strength, stiffness, and stability. In this paper, the finite element method was adopted, the influence of elastic interaction on two types of preload methods (one by one and group) was investigated and the mechanism about elastic interaction was analyzed, and a method to achieve a uniform clamp force of spindle bolts was proposed. This method is based on displacement, and by ensuring equal relative displacements of each bolt and nut during the preloading process, the uniform clamp force can be obtained. The validity of the proposed method is experimentally verified.
Number of references: 10
Main heading: Couplings
Controlled terms: Bolts - Finite element method

Uncontrolled terms: Clamp force - Clamp load - Elastic interactions - Pre loads - Preloading effects - Preloading process - Relative displacement - Rotor performance
Classification code: 605 Small Tools and Hardware - 921.6 Numerical Methods
DOI: 10.1177/0954408914550017
Funding text: This work was supported by the National Basis Research Program (i.e. 973 Program) of China (grant number 2007CB707706).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

62. Parametric modeling and experimental research of stiffness characteristics of curvic coupling of gas turbine

Accession number: 20161002049504
Authors: Xi, Wenkui (1); Jiang, Xiangjun (2); Yang, Xudong (3); Xu, Jianning (1)
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Corresponding author: Xi, Wenkui(xiwenkui@xsyu.edu.cn)
Source title: Harbin Gongye Daxue Xuebao/Journal of Harbin Institute of Technology
Abbreviated source title: Harbin Gongye Daxue Xuebao
Volume: 48
Issue: 1
Issue date: January 30, 2016
Publication year: 2016
Pages: 165-171
Language: Chinese
ISSN: 03676234
CODEN: HPKYAY
Document type: Journal article (JA)
Publisher: Harbin Institute of Technology
Abstract: To study the effects of stiffness characteristics on the working behavior of bolted joint with curvic coupling of heavy duty gas turbine, a stiffness analytical model was established with parametric modeling method. The curvic contact pressure, rotation stiffness, compression deformation have been derived by the proposed method, the deformation and stiffness change of all parts of the curvic coupling are investigated during the bolt tightening by finite element analysis and experimental method. The validity of the method is proved by experiments and finite element simulation. The results show that the bending behavior on the curvic and the cylinder part of the disc in bolt tightening, the curvic compression stiffness increases sharply and the stiffness data of other parts decreases slightly during bolt tightening process. The change laws including deformation, stiffness, contact stress, contact status of contact surfaces in curvic coupling are different from those in usual couplings. © 2016, Harbin Institute of Technology. All right reserved.
Number of references: 16
Main heading: Stiffness
Controlled terms: Deformation - Bolts - Bolted joints - Gas turbines - Finite element method
Uncontrolled terms: Compression deformation - Experimental research - Finite element simulations - Heavy-duty gas turbines - Parametric modeling - Stiffness analysis - Stiffness characteristics - Structural deformation
Classification code: 408.2 Structural Members and Shapes - 605 Small Tools and Hardware - 612.3 Gas Turbines and Engines - 921.6 Numerical Methods - 951 Materials Science
DOI: 10.11918/j.issn.0367-6234.2016.01.025
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

63. Solvent strategy for unleashing the Lewis acidity of titanocene dichloride for rapid Mannich reactions

Accession number: 20160801971945
Authors: Wu, Ya (1, 2); Wang, Xiu (1); Luo, Yanlong (1); Wang, Jing (1); Jian, Yajun (1); Sun, Huaming (1); Zhang, Guofang (1); Zhang, Weiqiang (1); Gao, Ziwei (1)

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Corresponding author: Zhang, Weiqiang
Source title: RSC Advances
Abbreviated source title: RSC Adv.
Volume: 6
Issue: 19
Issue date: 2016
Publication year: 2016
Pages: 15298-15303
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: The remarkable activation effect of alcohol solvent on kinetically inert titanocene dichloride was found to promote rapid three-component Mannich reactions. NMR and ESI-MS analyses as well as a control experiment of catalytic active species elucidated that the coordination of MeOH to the titanocene moiety unleashed the Lewis acid [Cp2Ti(OMe)2] and Brønsted acid HCl, which led to the enhanced catalytic activity of [Cp2TiCl2]. © 2016 The Royal Society of Chemistry.
Number of references: 46
Main heading: Catalyst activity
Controlled terms: Chemical reactions
Uncontrolled terms: Activation effect - Active species - Alcohol solvent - Control experiments - Enhanced catalytic activity - Mannich reactions - Three component - Titanocene dichloride
Classification code: 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally
DOI: 10.1039/c5ra27094d
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

64. Influencing factors and prediction model of apparent viscosity of heavy oil O/W emulsion

Accession number: 20163902858030
Authors: Sun, Nana (1, 2); Jing, Jiaqiang (2, 3); Jiang, Huayi (1); Qi, Hongyuan (2); Jiang, Xuantao (2)
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Corresponding author: Sun, Nana(bingyuxuan6666@126.com)
Source title: Shiyou Xuebao, Shiyou Jiagong/Acta Petrolei Sinica (Petroleum Processing Section)
Abbreviated source title: Shiyou Xuebao Shiyou Jiagong
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Issue: 5
Issue date: September 25, 2016
Publication year: 2016
Pages: 987-996
Language: Chinese
ISSN: 10018719
CODEN: SXSHEY
Document type: Journal article (JA)
Publisher: Science Press
Abstract: The effects of the contents of nonionic/amphoteric surfactant and organic/inorganic alkali and oil, mixing speed and emulsifying temperature on the apparent viscosity of heavy oil O/W emulsion were studied by using the single factor experiments, based on which the orthogonal test of six factors with three levels was carried out and the results were nonlinearly fitted by using the SPSS software to get a model for apparent viscosity prediction to further theoretically discuss the importance degree of these factors. The experimental results showed that the apparent

viscosity of heavy oil O/W emulsion increased with the increase of formulated surfactant content. The organic/inorganic alkali played a twofold role on the apparent viscosity of the O/W emulsion, that is, to promote the ionization of these interfacial active components and to compress the diffused double layer, the competition of both of which with each other determined that the apparent viscosity increased or decreased. With the increase of oil content, the apparent viscosity increased, while with the increase of emulsifying temperature the apparent viscosity decreased. When the mixing speed increased in the range of 500-1000 r/min, the apparent viscosity of emulsion increased. When the mixing speed increased in the range of 1000-1500 r/min, the apparent viscosity changed a little. The rise of emulsifying temperature resulted in a decrease of the apparent viscosity. The apparent viscosity predicted by the established model agreed with the experimental one.
Number of references: 26
Main heading: Crude oil
Controlled terms: Nonionic surfactants - Mixing - Emulsification - Software testing - Viscosity - Forecasting - Heavy oil production
Uncontrolled terms: Apparent viscosity - Mixing speed - O/W emulsions - Oil contents - Organic alkali - Orthogonal test - Spss softwares
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 631.1 Fluid Flow, General - 723.5 Computer Applications - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Rotational_Speed 1.00e+03RPM to 1.50e+03RPM, Rotational_Speed 5.00e+02RPM to 1.00e+03RPM
DOI: 10.3969/j.issn.1001-8719.2016.05.017
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

65. Microscopic choked flow for a highly compressible gas in porous media (*Open Access*)

Accession number: 20163502754198
Authors: Jiang, Hailong (1); Dou, Yihua (1); Xi, Zhongchen (2); Chen, Mian (3); Jin, Yan (3)
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Corresponding author: Dou, Yihua(douyhxapi@163.com)
Source title: Journal of Natural Gas Science and Engineering
Abbreviated source title: J. Nat. Gas Sci. Eng.
Volume: 35
Issue date: September 1, 2016
Publication year: 2016
Pages: 42-53
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Choked flow can impact the gas flow rate from a high-pressure gas well with a vertical fracture of finite conductivity and the development of tensile stress near the wellbore. Traditionally, the choking condition of the flow of a highly compressible gas in porous media is obtained by considering the porous media to be a homogeneous porous medium at the macroscopic scale. In reality, when the average existing pressure of the porous medium decreases, if the compressible gas flow is choked in only one microscopic basic structural unit, the gas flow is choked in the macroscopic porous medium. In this paper, the choking condition of a compressible gas flow in a basic structural unit is studied. It is shown that for the given inlet pressure and temperature, the choked flow occurs first in the basic structural unit with a constant cross-section and with lower porosity and shorter flow distance. If the roughness of the basic structural unit is more complicated or its flow distance is shorter, this basic structural unit requires a lower pressure drop when the gas flow is choked. Whether the basic structural unit is a pipe with finite wall thickness or a single pore, the choking condition first occurs in the position with the smallest porosity or permeability near the exit. It is found that for microscopic choked flow, the outlet-to-inlet pressure under conditions of varying friction is substantially lower than that under the effect of constant friction.
Number of references: 33
Main heading: Flow of gases
Controlled terms: Friction - Compressibility of gases - Porosity - Porous materials - Gases - Natural gas wells

Uncontrolled terms: Choked flow - Compressible gas - Finite conductivity - High pressure gas wells - Lower pressures - Macroscopic scale - Structural unit - Vertical fracture
Classification code: 512.2.1 Natural Gas Fields - 631.1.2 Gas Dynamics - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
DOI: 10.1016/j.jngse.2016.08.039
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Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

66. Data analysis of the real-time pressure and temperature along the wellbore in intelligent well Lei 632 with commingling production in LH oilfield

Accession number: 20160301812041
Authors: Wang, Jinlong (1, 2); Zhang, Ningsheng (1, 2); Chen, Junbin (2); Wang, Yingru (3)
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Corresponding author: Wang, Jinlong(shuifengzou520@126.com)
Source title: Journal of Petroleum Science and Engineering
Abbreviated source title: J. Pet. Sci. Eng.
Volume: 138
Issue date: February 01, 2016
Publication year: 2016
Pages: 18-30
Language: English
ISSN: 09204105
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Data on reservoir parameters, production rate, and water cut are considered key parameters in the control and matching of production in each layer of intelligent well wellbores. Owing to the complicated conditions in the downhole, no permanent downhole flowmeter is installed in the current simple intelligent well system of onshore oilfields in China. Furthermore, necessary real-time data on reservoir parameters, production rate, and water cut in each producing layer cannot be obtained. On the basis of mass conservation equation, momentum conservation equation, and theories of heat transfer, thermodynamics, and fluid mechanics in porous medium, this study establishes the energy conservation equation of fluids in the tubing and annulus. By using the single-point real-time data of the pressure and temperature in the tubing and annulus, the temperature gradient in each producing layer can be deduced. Moreover, the temperature profile, data on reservoir parameters, production rate, and water cut in each producing layer can be calculated. This approach is used to solve the problem of flow measurement in each producing layer of intelligent well systems without permanent downhole flowmeters in onshore Chinese oilfields. According to the production data of intelligent well Lei 632, the temperature distribution along the wellbore is analyzed, the water yield formation is diagnosed, and the reservoir parameters, production rate, and water cut in each producing layer are calculated. The analytic solution of the method agrees well with that of the conventional production logging, thus indicating the feasibility of the method in realizing the dynamic monitoring of intelligent wells and in solving the actual problem in real time. The proposed method fills in the gaps in theories on intelligent well technology in China. © 2015 Elsevier B.V.
Number of references: 63
Main heading: Flow measurement
Controlled terms: Flowmeters - Oil field equipment - Oil well flooding - Fluid mechanics - Heat transfer - Porous materials - Temperature
Uncontrolled terms: Commingling production - Energy conservation equations - Intelligent wells - Mass conservation equations - Momentum conservation equations - Permanent downhole flowmeters - Steady-state flows - Well monitoring

Classification code: 511.1 Oil Field Production Operations - 511.2 Oil Field Equipment - 631.1 Fluid Flow, General - 641.1 Thermodynamics - 641.2 Heat Transfer - 931.1 Mechanics - 943.1 Mechanical Instruments - 943.2 Mechanical Variables Measurements - 951 Materials Science
DOI: 10.1016/j.petrol.2015.11.024
Funding Details: Number: U1262105, Acronym: -, Sponsor: -; Number: 51274165, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The authors would like to acknowledge the financial support from the projects of National Natural Science Foundation of China (A study of Multilayer Commingling with Intelligent Well Completion the Optimization of Node Combination Model (No. 51274165) and A study of Intelligent Well System Design and the Production Optimization of Control Model (No. U1262105)). Permission to publish this paper by the LH Oilfield Company, PetroChina, is gratefully acknowledged.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

67. Actuator fault-tolerant robust control of an uncertain networked control system with random time delays

Accession number: 20170103222316
Authors: Wu, Yanpeng (1); Wu, Ying (2)
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Corresponding author: Wu, Yanpeng(wuyanpengxuat@163.com)
Source title: International Journal of Modelling, Identification and Control
Abbreviated source title: Int. J. Model. Ident. Control
Volume: 26
Issue: 4
Issue date: 2016
Publication year: 2016
Pages: 372-379
Language: English
ISSN: 17466172
E-ISSN: 17466180
Document type: Journal article (JA)
Publisher: Inderscience Enterprises Ltd., 29, route de Pre-Bois, Case Postale 856, CH-1215 Geneva 15, CH-1215, Switzerland
Abstract: In this paper, a novel robust fault-tolerant control scheme of networked flight control system against actuator faults with consideration of both norm-bounded uncertainties and time delays is proposed. Different from other research results on actuator fault-tolerant control methods, a complete fault model of actuators with partial failure is developed to represent the type and degree of actuator faults in an integrated parameterised way. Moreover, both of the time delays that are induced by avionic-bus and system uncertainties are considered to be described as mathematic parameters in complete fault model. By employing multiple parameter-dependent Lyapunov-Krasovskii functions, sufficient stability conditions of uncertain networked flight control systems with actuator faults are derived, and robust fault mode depended controllers are obtained in terms of linear matrix inequalities (LMIs), which is capable of accommodating uncertainties in the presence of actuator faults. Finally, examples are provided to illustrate the effectiveness of the proposed method. Copyright © 2016 Inderscience Enterprises Ltd.
Number of references: 11
Main heading: Time delay
Controlled terms: Flight control systems - Uncertainty analysis - Fault tolerance - Linear matrix inequalities - Timing circuits - Actuators - Delay control systems - Networked control systems - Robust control
Uncontrolled terms: Actuator failures - Fault tolerant control - Fault-tolerant - LMIs - Lyapunov Krasovskii function - Norm-bounded uncertainty - System uncertainties - Uncertainties
Classification code: 652.3 Aircraft Instruments and Equipment - 713 Electronic Circuits - 713.4 Pulse Circuits - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 731.2 Control System Applications - 732.1 Control Equipment - 921.1 Algebra - 922.1 Probability Theory
DOI: 10.1504/IJMIC.2016.081142
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

68. Strain induced martensite stabilization and shape memory effect of Ti-20Zr-10Nb-4Ta alloy

Accession number: 20160601910336
Authors: Xiong, Chengyang (1); Yao, Li (1); Yuan, Bifei (2); Qu, Wentao (2); Li, Yan (1, 3)
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Corresponding author: Li, Yan(liyan@buaa.edu.cn)
Source title: Materials Science and Engineering: A
Abbreviated source title: Mater. Sci. Eng. A
Volume: 658
Issue date: March 21, 2016
Publication year: 2016
Pages: 28-32
Language: English
ISSN: 09215093
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: The phase transformation, the microstructure and the shape memory effect of the Ti-20Zr-10Nb-4Ta alloy are investigated. The X-ray diffraction measurements indicated that the alloy is composed of single orthorhombic α″_martensite. The alloy showed a two-stage yielding behavior upon tension at 0.5% and 6% strain with a yield stress of 215 MPa and 565 MPa, respectively. The strain induced martensite stabilization was identified because the reverse martensite transformation start temperature of the alloy increases from 348 to 405 K, with the pre-strain increasing from 0% to 8%. This can be ascribed to the martensite reorientation that occurred at a low strain level and the dislocations formed at a large strain level. The maximum shape memory strain is 3.3% in the Ti-20Zr-10Nb-4Ta alloy. © 2016 Elsevier B.V.
Number of references: 42
Main heading: Shape memory effect
Controlled terms: Binary alloys - Martensite - Martensitic transformations - Niobium alloys - Stabilization - Tantalum alloys - Titanium alloys - X ray diffraction - Yield stress - Zirconium alloys
Uncontrolled terms: Martensite stabilization - Martensite transformations - Phases transformation - Shape-memory effect - Strain levels - Strain-induced martensite - Ti-zr - Transformations start temperatures - X-ray diffraction measurements - Yielding behavior
Classification code: 531.2 Metallography - 542.3 Titanium and Alloys - 543.4 Tantalum and Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Numerical data indexing: Percentage 0.00e+00% to 8.00e+00%, Percentage 3.30e+00%, Percentage 5.00e-01%, Percentage 6.00e+00%, Pressure 2.15e+08Pa, Pressure 5.65e+08Pa, Temperature 3.48e+02K to 4.05e+02K
DOI: 10.1016/j.msea.2016.01.104
Funding Details: Number: 51371016, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2014ZF51070, Acronym: -, Sponsor: Aeronautical Science Foundation of China; Number: 2012CB619400, Acronym: -, Sponsor: National Basic Research Program of China (973 Program);
Funding text: This work is supported by the National Basic Research Program of China (No. 2012CB619400), the National Natural Science Foundation of China (NSFC, No. 51371016) and the Aeronautical Science Foundation of China (2014ZF51070).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

69. Partial differential equation based image edge enhancement and its application in measuring shaft

Accession number: 20164903100985
Authors: Zhou, Chuande (1); Yin, Aijun (2); Li, Zelun (1); Huang, Yan (3)

Author affiliation: (1) College of Mechanical and Power Engineering, Chongqing University of Science and Technology, Chongqing; 401331, China; (2) College of Mechanical Engineering, Chongqing University, Chongqing; 400044, China; (3) College of Mechanical Engineering, Xi'An Shiyou University, Xi'an; 710065, China
Source title: 2016 13th International Conference on Ubiquitous Robots and Ambient Intelligence, URAI 2016
Abbreviated source title: Int. Conf. Ubiquitous Robots Ambient Intell., URAI
Part number: 1of1
Issue title: 2016 13th International Conference on Ubiquitous Robots and Ambient Intelligence, URAI 2016
Issue date: October 21, 2016
Publication year: 2016
Pages: 972-978
Article number: 7734121
Language: English
ISBN-13: 9781509008216
Document type: Conference article (CA)
Conference name: 13th International Conference on Ubiquitous Robots and Ambient Intelligence, URAI 2016
Conference date: August 19, 2016 - August 22, 2016
Conference location: Xian, China
Conference code: 124463
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In this study, the conventional image edge detection methods for the geometric measurement are first introduced. The problems existing in actual detection, the principles of image denoising based on partial differential equation (PDE), and the local adaptability of nonlinear PDE deployed to complete image filtering, edge sharpening enhancement and edge extraction are then analyzed Finally, a linear geometric measurement method based on edge fitting is proposed and applied into the shaft parts measurement on the basis of a self-developed multi-parameter detection system. It was suggested in findings that the proposed measurement method is precise and effective in its detection of such parameters as shaft diameter and parallel degree. © 2016 IEEE.
Number of references: 26
Main heading: Partial differential equations
Controlled terms: Image denoising - Edge detection - Image enhancement - Nonlinear equations - Parameter estimation
Uncontrolled terms: Edge enhancements - Geometric measurements - Image edge detection - Image edge enhancement - Measurement methods - Multi-parameter detection - Partial differential equations (PDE) - Shaft
Classification code: 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 921.2 Calculus
DOI: 10.1109/URAI.2016.7734121
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

70. Research on fracturing extension by radial hydraulic jet in low permeability reservoirs

Accession number: 20162202445216
Authors: Zhang, Dingyong (1); Yuan, Shibao (2); Tian, Xianglei (1); Zhang, Wei (1); Zuo, Jiaqiang (3)
Author affiliation: (1) Xianhe Oil Production Plant of Shengli Oilfield, SINOPEC, Dongying; 257068, China; (2) College of Petroleum Engineering in Xi'an Shiyou University, Xi'an; 710065, China; (3) Research Institute of Production Engineering of Shengli Oilfield, SINOPEC, Dongying; 257000, China
Source title: Zhongguo Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of China University of Petroleum (Edition of Natural Science)
Abbreviated source title: Zhongguo Shiyou Daxue Xuebao (Ziran Kexue Ban)
Volume: 40
Issue: 2
Issue date: April 20, 2016
Publication year: 2016
Pages: 129-134
Language: Chinese
ISSN: 16735005
Document type: Journal article (JA)
Publisher: University of Petroleum, China
Abstract: Based on the extended finite element method and combining with the criterion of tensile resistance failure, a three-dimensional finite element model of radical hydraulic jet fracturing fracture was built to study the influences of

drilling pore diameter, drilling pore azimuth and depth on formation fracturing pressure. The results show that, with the increase of drilling pore diameter, the initiation fracture pressure has a significant linearly decreasing tendency. The formation fracturing pressure increases with the increase of perforation azimuth. 40° is the allowed critical perforation azimuth to obtain the low formation fracturing pressure. A angle less than 40° between the optimizing bore and the maximum horizontal stress is better. The propagation law of fracturing fracture varies under different perforation angles. © 2016, University of Petroleum, China. All right reserved.
Number of references: 12
Main heading: Fracture
Controlled terms: Low permeability reservoirs - Petroleum reservoir engineering - Finite element method
Uncontrolled terms: Extended finite element method - Fracture pressures - Fracturing pressure - Horizontal stress - Low permeability - Pore diameters - Tensile resistance - Three dimensional finite element model
Classification code: 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 921.6 Numerical Methods - 951 Materials Science
DOI: 10.3969/j.issn.1673-5005.2016.02.016
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

71. A highly effective corrosion inhibitor by use of gemini imidazoline

Accession number: 20164502979699
Authors: Yang, Jiang (1, 2); Gao, Liyang (1); Liu, Xuan (1); Qin, Wenlong (1); Yin, Chengxian (3); Zhang, Juantao (3)
Author affiliation: (1) Xi'an Petroleum University, China; (2) China University of Petroleum (East China), China; (3) Tubular Goods R and D Center, PetroChina, China
Source title: SPE Journal
Abbreviated source title: SPE J
Volume: 21
Issue: 5
Issue date: October 2016
Publication year: 2016
Pages: 1743-1746
Language: English
ISSN: 1086055X
CODEN: SPJRFW
Document type: Conference article (CA)
Publisher: Society of Petroleum Engineers (SPE)
Abstract: Corrosion inhibitors are widely used to control corrosion under the sweet and sour environments in the oil and gas industry. More effective and environmentally friendly corrosion inhibitors need to be developed. This paper studies a new gemini imidazoline (GIM) corrosion inhibitor, in which two hydrocarbon chains and two head groups are linked by a rigid spacer. The GIM was synthesized through the reaction of oleic acid with triethylene tetramine at 2:1 molar ratio. The performance of the GIM on inhibition of carbon dioxide (CO2) corrosion was evaluated by linear polarization resistance in sparged-beaker testing. Rotating-wheel testing was performed to evaluate the film persistency of the test inhibitors. The results showed that corrosion inhibition of the GIM was more effective at lower concentration than that of conventional imidazoline. The mixture of GIM and fatty acid also showed better film persistency than conventional imidazoline. The emulsion tendency of the GIM was less than that of conventional imidazoline. The mechanism of the highly effective GIM was studied. It showed that GIM has much-higher surface activity than conventional imidazoline. The critical micelle concentration (CMC) of GIM is several times lower than that of conventional imidazoline. Hence, the new GIM corrosion inhibitor and its mixture give more-effective corrosion inhibition at low concentration; there is also a lesser environmental effect. Copyright © 2016 Society of Petroleum Engineers.
Number of references: 14
Main heading: Corrosion inhibitors
Controlled terms: Fatty acids - Critical micelle concentration - Molar ratio - Corrosion - Emulsification - Mixtures - Carbon dioxide - Gas industry
Uncontrolled terms: Corrosion inhibition - Critical micelle concentration (cmc) - Hydrocarbon chains - Linear polarization resistance - Low concentrations - Oil and Gas Industry - Sour environment - Surface activities
Classification code: 522 Gas Fuels - 539.2.1 Protection Methods - 801.3 Colloid Chemistry - 801.4 Physical Chemistry - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 804.2 Inorganic Compounds
DOI: 10.2118/173777-PA

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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

72. Structural, electronic, and magnetic properties of 3d transition metal doped GaN nanosheet: A first-principles study

Accession number: 20161102098128
Authors: Chen, Guo-Xiang (1); Wang, Dou-Dou (2); Wen, Jun-Qing (1); Yang, A-Ping (1); Zhang, Jian-Min (3)
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Corresponding author: Chen, Guo-Xiang(guoxchen@xsyu.edu.cn)
Source title: International Journal of Quantum Chemistry
Abbreviated source title: Int J Quantum Chem
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Language: English
ISSN: 00207608
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CODEN: IJQCB2
Document type: Journal article (JA)
Publisher: John Wiley and Sons Inc
Abstract: We have performed the first-principles calculations on the structural, electronic, and magnetic properties of 3d transition-metal™ (Cr, Mn, Fe, Co, and Ni) atoms doped 2D GaN nanosheet. The results show that 3d TM atom substituting one Ga leads to a structural reconstruction around the 3d TM impurity compared to the pristine GaN nanosheet. The doping of TM atom can induce magnetic moments, which are mainly located on the 3d TM atom and its nearest-neighbor N atoms. It is found that Mn- and Ni-doped GaN nanosheet with 100% spin polarization characters seem to be good candidates for spintronic applications. When two Ga atoms are substituted by two TM dopants, the ferromagnetic (FM) ordering becomes energetically more favorable for Cr-, Mn-, and Ni-doped GaN nanosheet with different distances of two TM atoms. On the contrary, the antiferromagnetic (AFM) ordering is energetically more favorable for Fe-doped GaN nanosheet. In addition, our GGA + U calculations show the similar results with GGA calculations. © 2016 Wiley Periodicals, Inc.
Number of references: 44
Main heading: Nanosheets
Controlled terms: Transition metals - Spin polarization - Doping (additives) - Gallium nitride - Chromium compounds - Gallium - Iron compounds - Atoms - Magnetic moments - Calculations - III-V semiconductors - Magnetic properties - Manganese compounds - Antiferromagnetism - Nickel compounds
Uncontrolled terms: 3d transition metals - Antiferromagnetic orders - First principles - First-principles calculation - First-principles study - Nearest neighbors - Spintronic applications - Structural reconstruction
Classification code: 531 Metallurgy and Metallography - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 701.2 Magnetism: Basic Concepts and Phenomena - 712.1 Semiconducting Materials - 761 Nanotechnology - 921 Mathematics - 931.3 Atomic and Molecular Physics - 932.1 High Energy Physics - 933 Solid State Physics
Numerical data indexing: Percentage 1.00e+02%
DOI: 10.1002/qua.25118
Funding Details: Number: 2014KJXX-70, Acronym: -, Sponsor: -; Number: 11247228,11304246, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2014JQ6206,2014JQ8335, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province;
Funding text: Contract grant sponsor: National Natural Science Foundation of China; contract grant numbers: 11304246 and 11247228. Contract grant sponsor: Shaanxi Province Science and Technology Foundation; contract grant number: 2014KJXX-70. Contract grant sponsor: Natural Science Basic Research Plan in Shaanxi Province of China; contract grant numbers: 2014JQ6206 and 2014JQ8335.

Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

73. Strain capacity of girth weld joint cracked at "near-seam zone"

Accession number: 20161202139876
Authors: Chen, H.Y. (1, 2, 3); Niu, J. (1); Chi, Q. (2, 3); Bi, Y. (4); Wang, Y.L. (2, 3); Yang, F. (2, 3); Ren, J.C. (2, 3)
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Corresponding author: Chen, H.Y.(chenhongyuan@cnpc.com.cn)
Source title: International Journal of Pressure Vessels and Piping
Abbreviated source title: Int. J. Press. Vessels Pip.
Volume: 139-140
Issue date: March 1, 2016
Publication year: 2016
Pages: 77-85
Language: English
ISSN: 03080161
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Cracking occurs often at "near-seam zone" in the girth weld joint of an X70 pipeline in tensile test, which is considered unacceptable for strain-based design pipelines according to some current standards. The tensile strain capacity of girth weld joints for X70 pipelines with "near-seam zone" cracks has thus been studied via the approach of crack driving force and fracture resistance curve. The high strain capacity has been demonstrated by resistance curve tangency approach and curved wide plate test. The results prove that the girth weld joint has considerable fracture resistance and is thus of high strain capacity. © 2016 Elsevier Ltd.
Number of references: 14
Main heading: Tensile strain
Controlled terms: Tensile testing - Pipelines - Fracture toughness - Welds - Fracture - Cracks
Uncontrolled terms: Curved wide plate tests - Single edge notches - Strain-based design - Tensile strain capacities - Weld joints
Classification code: 538.2 Welding - 619.1 Pipe, Piping and Pipelines - 931.1 Mechanics - 951 Materials Science
DOI: 10.1016/j.ijpvp.2016.03.006
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

74. A better range-free localization algorithm in wireless sensor networks

Accession number: 20163702798507
Authors: Liu, Yan (1); Zhang, Yaming (2)
Author affiliation: (1) School of Communication and Information Engineering, Xi'an University of Science and Technology, Yanta Road No.58, Xi'an, Shaanxi; 710054, China; (2) School of Electronics Engineering, Xi'an Shiyou University, No.18, 2nd Dianzi Road, Xi'an, Shaanxi; 710065, China
Source title: Proceedings - 2016 IEEE International Symposium on Computer, Consumer and Control, IS3C 2016
Abbreviated source title: Proc. - IEEE Int. Symp. Comput., Consum. Control, IS3C
Part number: 1of1
Issue title: Proceedings - 2016 IEEE International Symposium on Computer, Consumer and Control, IS3C 2016
Issue date: August 16, 2016
Publication year: 2016
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Article number: 7545154
Language: English
ISBN-13: 9781509030712
Document type: Conference article (CA)
Conference name: 2016 IEEE International Symposium on Computer, Consumer and Control, IS3C 2016

Conference date: July 4, 2016 - July 6, 2016
Conference location: Xi'an, China
Conference code: 123406
Sponsor: et al.; IEEE; IEEE Computer Society; IEEE Industrial Electronics Society; National Chin-Yi University of Technology; National Chung Hsing University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Localization is a fundamental issue for many applications in wireless sensor networks. This paper proposes a better range-free algorithm based on DV-Hop, which increases localization accuracy without increasing hardware or communication costs. First, this algorithm utilizes average hop-size correction to reduce ranging errors. Second, the algorithm uses an improved equation solving method to reduce the impact of errors inherent in distance measurement, and the weighted least square method to improve localization accuracy. Finally, the algorithm uses additional information in the equation solving process to correct node coordinates. Simulation results show that the performance of the proposed algorithm is significantly better than the basic DV-Hop algorithm and other similar algorithms. © 2016 IEEE.
Number of references: 12
Main heading: Maximum likelihood estimation
Controlled terms: Least squares approximations - Sensor nodes
Uncontrolled terms: Communication cost - DV-Hop - Dv-hop algorithms - Localization accuracy - Node localization - Range free - Range free localization - Weighted least square method
Classification code: 716.3 Radio Systems and Equipment - 722 Computer Systems and Equipment - 921.6 Numerical Methods - 922 Statistical Methods
DOI: 10.1109/IS3C.2016.44
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

75. Demodulation of acoustic telemetry binary phase shift keying signal based on high-order Duffing system

Accession number: 20164102893138
Authors: Yan, Bing-Nan (1, 2); Liu, Chong-Xin (1); Ni, Jun-Kang (1); Zhao, Liang (3)
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Source title: Chinese Physics B
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Volume: 25
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Issue date: October 2016
Publication year: 2016
Article number: 100502
Language: English
ISSN: 16741056
E-ISSN: 20583834
Document type: Journal article (JA)
Publisher: IOP Publishing Ltd
Abstract: In order to grasp the downhole situation immediately, logging while drilling (LWD) technology is adopted. One of the LWD technologies, called acoustic telemetry, can be successfully applied to modern drilling. It is critical for acoustic telemetry technology that the signal is successfully transmitted to the ground. In this paper, binary phase shift keying (BPSK) is used to modulate carrier waves for the transmission and a new BPSK demodulation scheme based on Duffing chaos is investigated. Firstly, a high-order system is given in order to enhance the signal detection capability and it is realized through building a virtual circuit using an electronic workbench (EWB). Secondly, a new BPSK demodulation scheme is proposed based on the intermittent chaos phenomena of the new Duffing system. Finally, a system variable crossing zero-point equidistance method is proposed to obtain the phase difference between the system and the BPSK signal. Then it is determined that the digital signal transmitted from the bottom of the well is '0' or '1'. The simulation results show that the demodulation method is feasible. © 2016 Chinese Physical Society and IOP Publishing Ltd.
Number of references: 22

Main heading: Demodulation
Controlled terms: Binary phase shift keying - Optical variables measurement - Phase shift - Telemetering equipment
Uncontrolled terms: Acoustic telemetry - Binary Phase Shift Keying(BPSK) - Binary phase-shift keying signals - Demodulation method - Detection capability - Duffing system - Electronic workbench - Logging while drilling technologies
Classification code: 941.4 Optical Variables Measurements
DOI: 10.1088/1674-1056/25/10/100502
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Funding text: Project supported by the National Natural Science Foundation of China (Grant No. 51177117) and the National Key Science and Technology Special Projects, China (Grant No. 2011ZX05021-005).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

76. 3D seismic characterization and evolution of terminal distributary channel-mouth bar: a case study of Well Ying79 in Gulong sag, Songliao Basin

Accession number: 20165103153280
Authors: Li, Lei (1, 2); Xu, Lu (1, 2); Liu, Hao (3); Tan, Zhuo (4); Tang, Wen (1, 2)
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Corresponding author: Li, Lei(lilei@xsyu.edu.cn)
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Publication year: 2016
Pages: 1394-1402
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Taking Gulong sag in the Songliao Basin as an example, the seismic characterization of terminal distributary channel-mouth bar was performed based on drilling, well logging and 3D seismic data. In combination with observations of mouth bar deposits in the modern Ganjiang Delta, this paper analyzes the dynamic formation mechanism of mouth bar and summarizes the depositional evolvement model of distributary channel-mouth bar. Three stages of distributary channel-mouth bar can be identified in the 3rd Member of Nenjiang Formation in Well Ying79, Gulong sag. From the early stage to the late stage, mudstone color changes from black gray, dark gray to gray green and mouth bar gradually thins (10 m, 8.5 m and 4.25 m), indicating the lake water from deep to shallow (17 m, 14 m and 7 m). The documented mouth bars show coarsening upward trend and funnel-shaped well-log patterns, and display high frequency, middle-low amplitude, lenticular reflection configuration. Fine-grained sediment-laden flows debouch into the lake in a form of turbulent jet at the outlet of terminal distributary channel, thus forming the Level 1 mouth bar. When the water depth above the interpreted mouth bars is shallow enough, the Level 1 mouth bar stagnates. Water flows bifurcate at the two sides of Level 1 mouth bar and are channelized, thus forming the lower-level distributary channel-mouth bar. Due to the different water depth and width of distributary channel, mouth bar groups with various levels, scales and distribution characteristics are developed at the end of the distributary channel. The width of mouth bar is positively correlated with its length, and the length is exponentially related to the width of corresponding distributary channel.
Number of references: 36
Main heading: Seismology
Controlled terms: Fighter aircraft - Lakes - Well logging
Uncontrolled terms: Distributary channels - Distribution characteristics - Fine-grained sediment - Formation mechanism - Gulong Sag - Reflection configuration - Songliao basin - Turbulent jet

Classification code: 484.1 Earthquake Measurements and Analysis - 652.1.2 Military Aircraft
Numerical data indexing: Size 1.00e+01m, Size 1.40e+01m, Size 1.70e+01m, Size 4.25e+00m, Size 7.00e+00m, Size 8.50e+00m
DOI: 10.7623/syxb201611007
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

77. Decomposition of interference hyperspectral images using improved morphological component analysis

Accession number: 20160101768468
Authors: Wen, Jia (1, 2); Zhao, Jun-Suo (2); Wang, Cai-Ling (3); Xia, Yu-Li (2)
Author affiliation: (1) School of Electronics Engineering, Tianjin Polytechnic University, Tianjin; 300387, China; (2) Science and Technology on Integrated Information System Laboratory, Institute of Software, Chinese Academy of Sciences, Beijing; 100190, China; (3) College of Computer Science, Xi'an Shiyou University, Xi'an; 710065, China
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Publication year: 2016
Pages: 254-258
Language: Chinese
ISSN: 10000593
CODEN: GYGFED
Document type: Journal article (JA)
Publisher: Science Press
Abstract: As the special imaging principle of the interference hyperspectral image data, there are lots of vertical interference stripes in every frames. The stripes' positions are fixed, and their pixel values are very high. Horizontal displacements also exist in the background between the frames. This special characteristics will destroy the regular structure of the original interference hyperspectral image data, which will also lead to the direct application of compressive sensing theory and traditional compression algorithms can't get the ideal effect. As the interference stripes signals and the background signals have different characteristics themselves, the orthogonal bases which can sparse represent them will also be different. According to this thought, in this paper the morphological component analysis (MCA) is adopted to separate the interference stripes signals and background signals. As the huge amount of interference hyperspectral image will lead to slow iterative convergence speed and low computational efficiency of the traditional MCA algorithm, an improved MCA algorithm is also proposed according to the characteristics of the interference hyperspectral image data, the conditions of iterative convergence is improved, the iteration will be terminated when the error of the separated image signals and the original image signals are almost unchanged. And according to the thought that the orthogonal basis can sparse represent the corresponding signals but cannot sparse represent other signals, an adaptive update mode of the threshold is also proposed in order to accelerate the computational speed of the traditional MCA algorithm, in the proposed algorithm, the projected coefficients of image signals at the different orthogonal bases are calculated and compared in order to get the minimum value and the maximum value of threshold, and the average value of them is chosen as an optimal threshold value for the adaptive update mode. The experimental results prove that whether LASIS and LAMIS image data, the traditional MCA algorithm can separate the interference stripes signals and background signals very well, and make the interference hyperspectral image decomposition perfectly, and the improved MCA algorithm not only keep the perfect results of the traditional MCA algorithm, but also can reduce the times of iteration and meet the iterative convergence conditions much faster than the traditional MCA algorithm, which will also provide a very good solution for the new theory of compressive sensing. © 2016, Science Press. All right reserved.
Number of references: 8
Main heading: Compressed sensing
Controlled terms: Hyperspectral imaging - Image enhancement - Independent component analysis - Spectroscopy - Computation theory - Iterative methods - Image analysis - Image compression - Separation - Computational efficiency

Uncontrolled terms: Compression algorithms - Compressive sensing - Convergence conditions - Horizontal displacements - Hyperspectral image datas - Morphological component analysis - Morphological component analysis (MCA) - Sparse representation
Classification code: 716.1 Information Theory and Signal Processing - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 746 Imaging Techniques - 802.3 Chemical Operations - 921.6 Numerical Methods
DOI: 10.3964/j.issn.1000-0593(2016)01-0254-05
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

78. Dynamic characteristic analysis on streak image tube with high temporal resolution

Accession number: 20164302952417
Authors: Liu, Rong (1, 2); Tian, Jin-Shou (2); Miao, Run-Cai (1); Wang, Qiang-Qiang (2); Wen, Wen-Long (2); Li, Yan (3); Wang, Jun-Feng (2); Xu, Xiang-Yan (2); Lu, Yu (2); Liu, Hu-Lin (2); Wang, Xing (2)
Author affiliation: (1) School of Optoelectronic Engineering, Xi'an Technological University, Xi'an; 710032, China; (2) State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Science, Xi'an; 710119, China; (3) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Tian, Jin-Shou(tianjs@opt.ac.cn)
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Abbreviated source title: Guangzi Xuebao
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Issue date: October 1, 2016
Publication year: 2016
Article number: 1012001
Language: Chinese
ISSN: 10044213
CODEN: GUXUED
Document type: Journal article (JA)
Publisher: Chinese Optical Society
Abstract: Aim to high temporal resolution of the streak image tube in streak camera, the factors which influence the physical temporal dispersion, technical temporal dispersion and time jitter of the sweep circuit were discussed. The streak image tube was optimized, in which a pair of traveling wave deflectors was located before a magnetic solenoid lens. The inner time-varying electric field of traveling wave deflectors was simulated by CST electromagnetic studio. And the propagation velocity of electromagnetic wave was calculated. The results show that when leg length is 8 mm, leg width is 1mm, interval is 0.24 mm, pin length is 2.5 mm, deflector thickness is 1 mm and deflector length is 17.12 mm, the moving velocity of electrons and propagation velocity of the electromagnetic wave are matching. Based on the electron trajectory tracing method and the Rayleigh criterion, dynamic temporal and spatial characteristics of the streak image tube were analyzed, a dynamic temporal resolution of 200 fs in single sweep mode, dynamic temporal resolution of 208 fs in synchronized sweep mode, and a dynamic spatial resolution of above 20 lp/mm were obtained.
Number of references: 15
Page count: 7
Main heading: Sweep circuits
Controlled terms: Circular waveguides - Electromagnetic waves - Dispersion (waves) - Image analysis - Image resolution - Tubes (components)
Uncontrolled terms: Dynamic characteristics - Rayleigh criterion - Spatial resolution - Streak image tube - Temporal resolution - Ultrafast optics
Classification code: 619.1 Pipe, Piping and Pipelines - 711 Electromagnetic Waves - 713.4 Pulse Circuits - 714.3 Waveguides
Numerical data indexing: Size 1.00e-03m, Size 1.71e-02m, Size 2.40e-04m, Size 2.50e-03m, Size 8.00e-03m, Time 2.00e-13s, Time 2.08e-13s
DOI: 10.3788/gzxb20164510.1012001
Funding Details: Number: 13GDYJY01, Acronym: -, Sponsor: -; Number: 61501363, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 15JK1351, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department;

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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

79. Blind deblurring from single motion image based on adaptive weighted total variation algorithm

Accession number: 20163102658095
Authors: Wen, Jia (1, 2); Zhao, Junsuo (2); Cailing, Wang (3); Yan, Shuxia (1); Wang, Wen (1)
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Corresponding author: Wen, Jia(448680289@qq.com)
Source title: IET Signal Processing
Abbreviated source title: IET Signal Proc.
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Issue date: August 1, 2016
Publication year: 2016
Pages: 611-618
Language: English
ISSN: 17519675
E-ISSN: 17519683
Document type: Journal article (JA)
Publisher: Institution of Engineering and Technology, United States
Abstract: Blind image deblurring is an important topic which is widely used in many research fields such as photography, optics, astronomy, medical images, monitoring, military and so on. Although many algorithms have been proposed to improve the deblurring result in the past years, most of them cannot perform perfectly in some challenging cases. This study presents a novel blind deblurring method based on an adaptive weighted total variation (TV) algorithm. The blur kernel estimation is based on the image structure, the sparsity and continuity prior of point spread function is also taken into account. To get better effect of removing the ringing artefacts, adaptive weight calculated according to the property of the higher-order partial derivatives in the local image is proposed in TV algorithm to alleviate the ill-posed inverse problem and stabilise the solution for latent image restoration. The experimental results prove that the proposed algorithm can suppress the ringing artefacts to a great extent in the latent image, and can get much better effect in both vision and theoretical results than traditional algorithms. © The Institution of Engineering and Technology 2016.
Number of references: 23
Main heading: Optical transfer function
Controlled terms: Image reconstruction - Inverse problems - Image enhancement - Medical imaging - Military photography
Uncontrolled terms: Adaptive weights - Blind deblurring - Blur kernel estimations - ILL-posed inverse problem - Image deblurring - Image Structures - Partial derivatives - Weighted total variations
Classification code: 404.1 Military Engineering - 461.1 Biomedical Engineering - 741.1 Light/Optics - 742.1 Photography - 746 Imaging Techniques
DOI: 10.1049/iet-spr.2015.0458
Funding Details: Number: 41301382,61401439, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The research work was supported by the National Natural Science Foundation of China under grant no. 61401439, 41301382.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

80. Rock breaking efficiency of the self-propelled swirling jet bit

Accession number: 20162502515341
Authors: Bi, Gang (1); Li, Gensheng (2); Qu, Zhan (1); Niu, Jilei (2); Huang, Zhongwei (2); Xi, Zhongchen (3); Dou, Liangbin (1)
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Corresponding author: Bi, Gang(8bigang@163.com)
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Publication year: 2016
Pages: 680-687
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: To achieve high rock breaking efficiency using the limited discharge rate and increase the extension capacity of radial horizontal wellbore is a key to perform new radial horizontal well technology. The performance of jet bit is the primary problem solved by this key technology. Based on the multi-jet bit, the authors developed a self-propelled swirling jet bit, and analyzed its working principle. Based on experiments, a study was conducted on the rock breaking and drilling laws of jet bits with the changes in time, jet pressure and standoff distance, including self-propelled swirling single-hole jet bit, self-propelled straight-swirling single-hole jet bit, self-propelled swirling multi-hole jet bit and self-propelled straight-swirling multi-hole jet bit. The results indicate that when standoff distance is 9-12 mm and jet pressure is 20-35 MPa, and under the same conditions of standoff distance and jet pressure, the rock breaking efficiency of self-propelled straight-swirling multi-hole jet bit is better than that of self-propelled swirling multi-hole jet bit, and that of self-propelled straight-swirling multi-hole jet bit (1+4 holes) was optimal. The designed new jet bit is able to improve the drilling rate of radial horizontal well.
Number of references: 23
Main heading: Efficiency
Controlled terms: Rocks - Oil well drilling - Bits - Rock drilling - Horizontal wells - Horizontal drilling
Uncontrolled terms: Discharge rates - Drilling rates - Key technologies - Radial horizontal wells - Rock breaking efficiencies - Single jet - Stand-off distance (SoD) - Swirling jets
Classification code: 511.1 Oil Field Production Operations - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 603.2 Machine Tool Accessories - 913.1 Production Engineering
Numerical data indexing: Pressure 2.00e+07Pa to 3.50e+07Pa, Size 9.00e-03m to 1.20e-02m
DOI: 10.7623/syxb201605012
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

81. Impact Parameter Dependence of π^-/π^+ Ratio in Probing the Nuclear Symmetry Energy Using Heavy-Ion Collisions (*Open Access*)

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Authors: Wei, Gao-Feng (1, 2); He, Guo-Qiang (3); Cao, Xin-Wei (1); Lu, Yi-Xin (1)
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Source title: Advances in High Energy Physics
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Publication year: 2016
Article number: 9317873
Language: English
ISSN: 16877357
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Document type: Journal article (JA)
Publisher: Hindawi Limited
Abstract: The impact parameter dependence of π_{-}/π^{+} ratio is examined in heavy-ion collisions at 400 MeV/nucleon within a transport model. It is shown that the sensitivity of π_{-}/π^{+} ratio on symmetry energy shows a transition from central to peripheral collisions; that is, the stiffer symmetry energy leads to a larger π_{-}/π^{+} ratio in peripheral collisions while the softer symmetry energy always leads this ratio to be larger in central collisions. After checking the kinematic energy distribution of π_{-}/π^{+} ratio, we found this transition of sensitivity of π_{-}/π^{+} ratio to symmetry energy is mainly from less energetic pions; that is, the softer symmetry energy gets the less energetic pions to form a smaller π_{-}/π^{+} ratio in peripheral collisions while these pions generate a larger π_{-}/π^{+} ratio in central collisions. Undoubtedly, the softer symmetry energy can also lead more energetic pions to form a larger π_{-}/π^{+} ratio in peripheral collisions. Nevertheless, considering that most of pions are insufficiently energetic at this beam energy, we therefore suggest the π_{-}/π^{+} ratio as a probe of the high-density symmetry energy effective only in central at most to midcentral collisions, thereby avoiding the possible information of low-density symmetry energy carried in π_{-}/π^{+} ratio from peripheral collisions. © 2016 Gao-Feng Wei et al.
Number of references: 38
Main heading: Ion sources
Controlled terms: Colliding beam accelerators - Hadrons - Heavy ions
Uncontrolled terms: Beam energies - Energy distributions - Heavy-ion collisions - Impact-parameter - Kinematic energy - Lower density - Nuclear symmetry energy - Parameter dependence - Symmetry energies - Transport modelling
Classification code: 931.3 Atomic and Molecular Physics - 932.1 High Energy Physics - 932.1.1 Particle Accelerators
Numerical data indexing: Electron volt 4.00E+08eV
DOI: 10.1155/2016/9317873
Funding Details: Number: 11405128, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: CXY1352WL29, Acronym: -, Sponsor: Beijing Science and Technology Planning Project;
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Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

82. Effect of coiling temperature on microstructure and properties of X100 pipeline steel

Accession number: 20161802330424
Authors: Cheng, Shixia (1); Zhang, Xiaoyong (2); Zhang, Jianxun (1); Feng, Yaorong (3); Ma, Jing (4); Gao, Huilin (2)
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Source title: Materials Science and Engineering: A
Abbreviated source title: Mater. Sci. Eng. A
Volume: 666
Issue date: June 1, 2016
Publication year: 2016
Pages: 156-164
Language: English
ISSN: 09215093
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Multiphase structure of bainite and M/A(martensite/austenite constituent) can be obtained through coiling continuous-HOP (Heating On-line Partitioning) technology, resulting in excellent deformability for X100 pipeline steel. The microstructure and properties of the steel at different coiling temperatures were investigated by means of mechanical properties test, microscopic analysis and X-ray diffraction method. The results show that with the increase

of coiling temperature, the strength decreases and the ductility increases because of the widening of bainite laths, the decrease of bainite content and dislocation density. However, because of the formation of martensite, the precipitation of carbides and the decrease of retained austenite at high coiling temperatures, the strength increases and the ductility decreases. Low yield ratio, high uniform elongation and high strain hardening exponent can be achieved at appropriate coiling temperatures through coiling continuous-HOP technology, which endows the steel with good ductility and excellent deformability. © 2016 Elsevier B.V..
Number of references: 19
Main heading: Ductility
Controlled terms: Bainite - Carbides - Deformation - Martensite - Microstructure - Pipelines - Steel pipe - Strain hardening - X ray diffraction
Uncontrolled terms: Coiling continuous-HOP - Coiling temperature - Excellent deformability - Martensite-austenite constituents - Mechanical properties test - Microscopic analysis - Microstructure and properties - Multi-phase structures - X-ray diffraction method - X100 pipeline steels
Classification code: 531.2 Metallography - 537.1 Heat Treatment Processes - 545.3 Steel - 619.1 Pipe, Piping and Pipelines - 804.2 Inorganic Compounds - 812.1 Ceramics - 951 Materials Science
DOI: 10.1016/j.msea.2016.04.066
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Funding text: The authors acknowledge the support of the National Natural Science Foundation of China (No. 51174165) and the Opening Foundation of State Key Laboratory for Mechanical Behavior of Materials (No. 20121211).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

83. Experimental study on the discharging characteristics of pulsed high-voltage discharge technology in oil plug removal

Accession number: 20170203225269
Authors: Bingnan, Yan (1, 2); Jing, Zhou (2); Liang, Zhao (3); Chongxin, Liu (1); Meng, Fanli (4)
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Source title: Journal of Power Technologies
Abbreviated source title: J. Power Technol.
Volume: 96
Issue: 4
Issue date: 2016
Publication year: 2016
Pages: 261-268
Language: English
ISSN: 20834187
E-ISSN: 20834195
Document type: Journal article (JA)
Publisher: Warsaw University of Technology
Abstract: Oil plugging of the downhole during oilfield development leads to a decline in well yield. A new plug removal method based on pulsed high-voltage discharge technology was proposed in this paper to solve this plugging problem. A low-carbon steel high-pressure sealed drum was developed to simulate a downhole operating environment with high static pressure. Four sealed contact pins were designed on the drum cover. These pins were used to insert the high-voltage cable into the drum body while ensuring the drum is leakproof. The maximum static pressure borne by the drum was 40 MPa. An experimental system of pulsed high-voltage discharge was designed based on the drum. A platform for the discharging experiment was established according to the system principle diagram. The effects of variation in static pressure on discharging voltage, discharging current, critical breakdown field strength, discharging time and its data discretization, and other parameters were determined with water and crude oil as the discharging media. Experimental results indicate that increasing static pressure increases discharging time, enhances pulsed discharging randomness, reduces the strength of impact waves generated in the discharging media, and weakens the fracture-generating effect on the cement tube. Increasing the working voltage achieves better plug removal. However,

the requirements for size, texture, and insulativity of plug removal equipment are elevated accordingly. This study provides a basis for the application of pulsed high-voltage discharge technology in oil reservoir plug removal.
Number of references: 18
Main heading: Crude oil
Controlled terms: Low carbon steel - Petroleum reservoir engineering - Oil field development - Petroleum reservoirs - Heavy oil production
Uncontrolled terms: Discharging characteristics - Discharging current - Experimental system - High voltage cable - Operating environment - Plugging problems - Pulsed high voltage discharge - Static pressure
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 545.3 Steel
Numerical data indexing: Pressure 4.00e+07Pa
Funding Details: Number: 51177117, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

84. Project investment decision making with fuzzy information: A literature review of methodologies based on taxonomy

Accession number: 20162302463663
Authors: Dong, Ming-Gao (1, 2, 3); Li, Shou-Yi (1)
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Corresponding author: Li, Shou-Yi(lishouyi@126.com)
Source title: Journal of Intelligent and Fuzzy Systems
Abbreviated source title: J. Intelligent Fuzzy Syst.
Volume: 30
Issue: 6
Issue date: April 30, 2016
Publication year: 2016
Pages: 3239-3252
Language: English
ISSN: 10641246
E-ISSN: 18758967
Document type: Journal article (JA)
Publisher: IOS Press BV
Abstract: Project investment decision making with fuzzy information (PIDMFI) has been investigated in a lot of literature. The aim of this paper is to discover the features, state of the art, interrelations, and research directions of existing methodologies for PIDMFI. To do this, a literature review of the methodologies including theories, methods and models as well as applications is conducted from a taxonomic perspective of methodology. The hierarchical cluster analysis in SPSS V19 is employed to construct a methodological taxonomy framework which consists of fuzzy discounted cash flow (FDCF), fuzzy real option (FRO) and fuzzy multi-criteria decision making (FMCDM). Some hybrids of these methodologies are also shown. Additionally, a discussion is presented. Finally, a conclusion with new research directions is delineated.
Number of references: 104
Main heading: Taxonomies
Controlled terms: Decision making - Hierarchical systems - Cluster analysis - Investments
Uncontrolled terms: Discounted cash flow - Fuzzy - Multi criteria decision making - Investment decision making - Literature reviews - Real Options
Classification code: 723 Computer Software, Data Handling and Applications - 903 Information Science - 912.2 Management - 961 Systems Science
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Funding Details: Number: 11071281,60703117,61005042, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;

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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

85. Slow light and fast light in microfiber double-knot resonator with a parallel structure

Accession number: 20164302952756
Authors: Xu, Yiping (1); Ren, Liyong (2); Ma, Chengju (3); Kong, Xudong (2); Ren, Kaili (2)
Author affiliation: (1) School of Physics and Optoelectronic Engineering, Yangtze University, Jingzhou; 434023, China; (2) State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, Xi'an; 710119, China; (3) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Xu, Yiping(ypxu@yangtzeu.edu.cn)
Source title: Applied Optics
Abbreviated source title: Appl. Opt.
Volume: 55
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Publication year: 2016
Pages: 8612-8617
Language: English
ISSN: 1559128X
E-ISSN: 21553165
CODEN: APOPAI
Document type: Journal article (JA)
Publisher: OSA - The Optical Society
Abstract: Based on the theoretical model of a microfiber double-knot resonator with a parallel structure, numerical simulations on the transmission spectrum, the phase, and the group time delay of the resonator as a function of wavelengths are given. We find that with this kind of resonator both slow light and fast light can be obtained at different resonant wavelengths. Experimentally, such a kind of microfiber resonator was fabricated successfully. The transmission spectrum of the fabricated resonator is well consistent with the theoretical simulation. A slow-light delay of about 38 ps and a fast-light advance of about 40 ps are demonstrated at different wavelengths, which might benefit the resonator to the applications in data delay lines, optical buffers, and optical memories. © 2016 Optical Society of America.
Number of references: 33
Main heading: Resonators
Controlled terms: Slow light - Group delay
Uncontrolled terms: Micro-fiber - Optical buffer - Parallel structures - Resonant wavelengths - Slow-light delay - Theoretical modeling - Theoretical simulation - Transmission spectrums
Classification code: 703.1 Electric Networks - 741.1 Light/Optics
Numerical data indexing: Time 3.80e-11s, Time 4.00e-11s
DOI: 10.1364/AO.55.008612
Funding Details: Number: 801080010128, Acronym: -, Sponsor: -; Number: 61275149,61535015,61605018, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: OG201613, Acronym: CUPB, Sponsor: China University of Petroleum, Beijing;
Funding text: National Natural Science Foundation of China (NSFC) (61275149, 61605018, 61535015); Doctoral Scientific Research Startup Foundation of Yangtze University (YU) (801080010128); Research Foundation of Beijing Key Laboratory of Optical Detection Technology for Oil and Gas China University of Petroleum, Beijing (CUPB) (OG201613).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

86. Layer effects on electronic structures of multi-walled armchair silicon carbide nanotubes

Accession number: 20163702796975
Authors: Song, Jiuxu (1, 2); Liu, Hongxia (3); Henry, David J. (2)

Author affiliation: (1) Shaanxi Key Laboratory of Measurement and Control Technology for Oil and Gas Wells, School of Electronic Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) School of Engineering and Information Technology, Murdoch University, Perth; 6150, Australia; (3) Xi'an Institute of Microelectronic Technology, Xi'an; 710054, China
Corresponding author: Henry, David J.(D.Henry@murdoch.edu.au)
Source title: Computational Materials Science
Abbreviated source title: Comput Mater Sci
Volume: 125
Issue date: December 1, 2016
Publication year: 2016
Pages: 117-122
Language: English
ISSN: 09270256
CODEN: CMMSEM
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The electronic structures of triple-, quadruple- and quintuple-walled armchair silicon carbide nanotubes (SiCNTs) are investigated using first-principle calculations based on dispersion-corrected density functional theory. Band shifts narrow the band gaps of multi-walled SiCNTs and form significant coupling in different layers of the nanotubes, which originate from the differences in the work functions and band gaps of the individual layers. With the increase of the layer number of the multi-walled SiCNT, the similarity in the electronic structures of the two outer layers is increased and the influence of the band shifts is weakened. Therefore, the electronic properties of SiCNTs formed with more than three layers are largely independent of their layer number. © 2016 Elsevier B.V.
Number of references: 27
Main heading: Density functional theory
Controlled terms: Energy gap - Yarn - Electronic structure - Silicon carbide - Nanotubes - Electronic properties
Uncontrolled terms: Different layers - Dispersion-corrected density functional - First principle calculations - Layer number - Multi-walled - Outer layer - Silicon carbide nanotubes - Three-layer
Classification code: 761 Nanotechnology - 804.2 Inorganic Compounds - 819.4 Fiber Products - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933.1 Crystalline Solids
DOI: 10.1016/j.commatsci.2016.08.029
Funding Details: Number: 2013K07-14, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 14JK1581, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: This work is supported by the fund of Shaanxi Provincial Educational Department (No. 14JK1581) and the Natural Science Basic Research Plan in Shaanxi Province of China (2013K07-14). We also gratefully acknowledge the Australian National Computational Infrastructure (NCI) facility for computing time.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

87. Thermal tunability of photonic bandgaps in liquid crystal filled polymer photonic crystal fiber

Accession number: 20161702282107
Authors: Wang, Doudou (1); Chen, Guoxiang (2); Wang, Lili (3)
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Corresponding author: Wang, Doudou(doudouwang@opt.ac.cn)
Source title: Optical Fiber Technology
Abbreviated source title: Opt. Fiber Technol.
Volume: 29
Issue date: May 2016
Publication year: 2016
Pages: 95-99
Language: English
ISSN: 10685200
CODEN: OFTEFV
Document type: Journal article (JA)

Publisher: Academic Press Inc.
Abstract: A highly tunable bandgap-guiding polymer photonic crystal fiber is designed by infiltrating the cladding air holes with liquid crystal 5CB. Structural parameter dependence and thermal tunability of the photonic bandgaps, mode properties and confinement losses of the designed fiber are investigated. Bandgaps red shift as the temperature goes up. Average thermal tuning sensitivity of 30.9 nm/°C and 20.6 nm/°C is achieved around room temperature for the first and second photonic bandgap, respectively. Our results provide theoretical references for applications of polymer photonic crystal fiber in sensing and tunable fiber-optic devices.
Number of references: 26
Main heading: Energy gap
Controlled terms: Photonic band gap - Spontaneous emission - Filled polymers - Photonic bandgap fibers - Finite element method - Liquid crystals - Crystal whiskers
Uncontrolled terms: Cladding air holes - Confinement loss - Fiber-optic devices - Liquid crystal 5Cb - Polymer photonic crystals - Structural parameter - Thermal tuning - Tunable Band-gap
Classification code: 711 Electromagnetic Waves - 741.1.2 Fiber Optics - 921.6 Numerical Methods - 933.1.1 Crystal Lattice - 951 Materials Science
DOI: 10.1016/j.yofte.2016.04.004
Funding Details: Number: 11504292, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2015M582766XB, Acronym: -, Sponsor: China Postdoctoral Science Foundation; Number: 2014JQ6206,2014JQ8335, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province;
Funding text: The authors would like to acknowledge the Natural Science Basic Research Plan in Shaanxi Province of China (Program Nos. 2014JQ8335 , 2014JQ6206), China Postdoctoral Science Foundation (No. 2015M582766XB) and the National Natural Science Foundation of China (Grant No. 11504292) for providing financial support for this research.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

88. A new approach for measuring the permeability of shale featuring adsorption and ultra-low permeability

Accession number: 20161302156132
Authors: Cao, Cheng (1, 2); Li, Tiantai (1, 3); Shi, Juntai (1); Zhang, Lei (2); Fu, Shunxun (4); Wang, Botao (4); Wang, Hui (2)
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Corresponding author: Cao, Cheng(caochengyanlian@163.com)
Source title: Journal of Natural Gas Science and Engineering
Abbreviated source title: J. Nat. Gas Sci. Eng.
Volume: 30
Issue date: March 01, 2016
Publication year: 2016
Pages: 548-556
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Based on the critical issues associated with shale permeability measurements, a new experimental approach by modifying the traditional pressure-pulse decay method was developed. In order to reduce the measurement error caused by the pore volumes of the traditional method, we made a new design that the upstream and downstream reservoir volumes can be changed, In addition, we added a by-pass pipe to measure the bidirectional permeability instantaneously, which can reduce the total test time significantly. Except for nitrogen or helium, methane was utilized to measure the shale permeability in this work, which can be more practical and better understand the real gas transport mechanisms in shale. Furthermore, we modified the conventional interpretation model of permeability measurements by incorporating the physical mechanism of gas adsorption. We also performed a series of experimental measurements and data analyses using different cores from pure shale, sand shale, to sandstone, which are from the Ordos basin (Chang 7 section) in China. The results show that: (1) the error caused by the pore volume errors of the traditional method is decreased by nearly half if variable reservoir volumes are used. The total test time is

reduced by around 7 h by adding the by-pass pipe on the apparatus. The value of permeability measured with methane is higher than that measured with nitrogen while lower than that measured with helium. (2) The effective gas adsorption porosity increases with the increasing Langmuir pressure and decreasing pore pressure. If without considering gas adsorption, the measured permeability value will be underestimated, especially under lower pore pressure, higher adsorption capacity, and higher Langmuir pressure. (3) The total error is less than 10% using this new apparatus and the modified permeability interpretation method. The measured permeability values are reliable by comparing the measurements using the new apparatus and the standard instrument of ProPDP-200 under the same condition. (4) The influence of gas adsorption on permeability measurement in shale cannot be ignored, and the permeability is underestimated by up to 97% in pure shale while by only 7.5% in sandstone if the gas adsorption is not taken into account. © 2016 Elsevier B.V.
Number of references: 29
Main heading: Porosity
Controlled terms: Gas adsorption - Petroleum reservoir engineering - Sandstone - Shale gas - Methane - Gas permeability - Errors - Nitrogen - Petroleum reservoirs - Helium
Uncontrolled terms: Adsorption capacities - Decay methods - Experimental approaches - Interpretation methods - Langmuir pressure - Langmuir volume - Permeability measurements - Ultra low permeability
Classification code: 482.2 Minerals - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 802.3 Chemical Operations - 804 Chemical Products Generally - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Percentage 1.00e+01%, Percentage 7.50e+00%, Percentage 9.70e+01%, Time 2.52e+04s
DOI: 10.1016/j.jngse.2016.02.015
Funding Details: Number: 2013AA064501, Acronym: -, Sponsor: -; Number: 51490650,51504269, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This research was financially supported by the National High Technology Research and Development Program (863 Program, No. 2013AA064501) and the National Natural Science Foundation Projects of China (No. 51504269 and 51490650).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

89. On single valued neutrosophic relations (*Open Access*)

Accession number: 20160801976267
Authors: Yang, Hai-Long (1, 2, 3); Guo, Zhi-Lian (4); She, Yanhong (5); Liao, Xiuwu (3)
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Corresponding author: Yang, Hai-Long(yanghailong@snnu.edu.cn)
Source title: Journal of Intelligent and Fuzzy Systems
Abbreviated source title: J. Intelligent Fuzzy Syst.
Volume: 30
Issue: 2
Issue date: February 9, 2016
Publication year: 2016
Pages: 1045-1056
Language: English
ISSN: 10641246
E-ISSN: 18758967
Document type: Journal article (JA)
Publisher: IOS Press BV
Abstract: Smarandache initiated neutrosophic sets (NSs) which can be used as a mathematical tool for dealing with indeterminate and inconsistent information. In order to apply NSs conveniently, single valued neutrosophic sets (SVNSs) were proposed by Wang et al. In this paper, we propose single valued neutrosophic relations (SVNRs) and study their properties. The notions of anti-reflexive kernel, symmetric kernel, reflexive closure, and symmetric closure of a SVNR are introduced, respectively. Their accurate calculate formulas and some properties are explored. Some examples are also given. Finally, single valued neutrosophic relation mappings and inverse single valued neutrosophic relation mappings are introduced, and some interesting properties are also obtained. © 2016 - IOS Press and the authors. All rights reserved.
Number of references: 14

Main heading: Mapping
Controlled terms: Artificial intelligence
Uncontrolled terms: Inconsistent information - kernels - Mathematical tools - Neutrosophic sets - Relation mappings - single valued neutrosophic relations - Symmetric kernel
Classification code: 405.3 Surveying - 723.4 Artificial Intelligence
DOI: 10.3233/IFS-151827
Funding Details: Number: 11526163,61472471,61473181, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2013M532063, Acronym: -, Sponsor: China Postdoctoral Science Foundation; Number: -, Acronym: -, Sponsor: Shaanxi Province Postdoctoral Science Foundation;
Funding text: Authors are very grateful to the anonymous reviewers for their insightful and constructive comments and suggestions, which have been very helpful in improving the manuscript and our future research. Thiswork is supported by the National Natural Science Foundation of China (Nos. 61473181, 11526163 and 61472471), China Postdoctoral Science Foundation funded project (No. 2013M532063), and Shaanxi Province Postdoctoral Science Foundation funded project (The first batch).
Compendex references: YES
Open Access type(s): All Open Access, Green
Database: Compendex
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90. Effect of different hydrocarbons on phase behavior of dihydrogenated tallowalkyl dimethyl ammonium chloride, hydrocarbon and water

Accession number: 20154601547552
Authors: Yang, Jiang (1, 2); Wang, Xiaoxiang (1); Ji, Sixue (1); Wang, Xiaoling (1); Qin, Wenlong (1); Li, Ran (1)
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Source title: Journal of Molecular Liquids
Abbreviated source title: J Mol Liq
Volume: 213
Issue date: January 2016
Publication year: 2016
Pages: 8-12
Language: English
ISSN: 01677322
CODEN: JMLIDT
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The phase behaviors of dihydrogenated tallowalkyl dimethyl ammonium chloride (DHTDMAC), water and different hydrocarbons were studied. Addition of different hydrocarbons to DHTDMAC and water system formed rich aggregates, including two liquid crystal aggregates and water in oil microemulsion. The polarity of hydrocarbon affects stability and phase behavior of hydrocarbon-DHTDMAC-water. The polar hydrocarbons, cyclohexane and benzene stabilize the phase structure. Interaction of different hydrocarbon molecules with liquid crystal phase was studied by the small angle X-ray diffraction. The results indicate that the variable hydrocarbon and water fraction penetrate into surfactant association structure with the different hydrocarbons, which affects the stability and Kraft point of surfactant aggregates. Less water penetrates into lamellar liquid crystal where more oil penetrates into the same area, which stabilizes the aggregate's phase structure. © 2015 Published by Elsevier B.V.
Number of references: 22
Main heading: Microemulsions
Controlled terms: Chlorine compounds - Aggregates - Phase structure - Crystal structure - Hydrocarbons - Molecules - Phase behavior - Surface active agents - X ray diffraction
Uncontrolled terms: Association structures - Hydrocarbon molecules - Kraft point - Lamellar liquid crystal - Quaternary amines - Small angle x-ray diffractions - Surfactant aggregates - Water-in-oil microemulsions
Classification code: 406 Highway Engineering - 412.2 Concrete Reinforcements - 801.4 Physical Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 933 Solid State Physics - 933.1.1 Crystal Lattice
DOI: 10.1016/j.molliq.2015.10.052

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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

91. Ratiometric Fluorescent Probe for Vicinal Dithiol-Containing Proteins in Living Cells Designed via Modulating the Intramolecular Charge Transfer-Twisted Intramolecular Charge Transfer Conversion Process

Accession number: 20164302952694
Authors: Wang, Yuanyuan (1); Zhong, Yaogang (2); Wang, Qin (1); Yang, Xiao-Feng (1); Li, Zheng (2); Li, Hua (1, 3)
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Corresponding author: Yang, Xiao-Feng(xfyang@nwu.edu.cn)
Source title: Analytical Chemistry
Abbreviated source title: Anal. Chem.
Volume: 88
Issue: 20
Issue date: October 18, 2016
Publication year: 2016
Pages: 10237-10244
Language: English
ISSN: 00032700
E-ISSN: 15206882
CODEN: ANCHAM
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: Vicinal dithiol-containing proteins (VDPs) play a significant role in maintaining the cellular redox homeostasis and are implicated in many diseases. To provide new chemical tools for VDPs imaging, we report here a ratiometric fluorescent probe CAsH2 for VDPs using 7-diethylaminiocoumarin as the fluorescent reporter and cyclic 1,3,2-dithiarsenolane as the specific ligand. CAsH2 shows peculiar dual fluorescence emission from the excited intramolecular charge transfer (ICT) and twisted intramolecular charge transfer (TICT) states in aqueous media. However, upon selective binding of protein vicinal dithiols to the trivalent arsenical of CAsH2, the probe was brought from the polar water media into the hydrophobic protein domain, causing the excited state ICT to TICT conversion to be restricted; as a result, an increase from the ICT emission band and a decrease from the TICT emission band were observed simultaneously. The designed probe shows high selectivity toward VDPs over other proteins and biological thiols. Preliminary experiments show that CAsH2 can be used for the ratiometric imaging of endogenous VDPs in living cells. So far as we know, this is a rare example of the ratiometric fluorescent probe designed via modulating the ICT-TICT conversion process, which provides a new way to construct various protein-specific ratiometric fluorescent probes. © 2016 American Chemical Society.
Number of references: 49
Main heading: Proteins
Controlled terms: Fluorescence spectroscopy - Fluorescence - Charge transfer - Image processing - Excited states - Probes
Uncontrolled terms: Conversion process - Fluorescent probes - Fluorescent reporter - Hydrophobic protein - Intra-molecular charge transfer - Intramolecular charge transfers - Ratiometric imaging - Twisted intra-molecular charge transfers
Classification code: 723.2 Data Processing and Image Processing - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 802.2 Chemical Reactions - 804.1 Organic Compounds - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 941.3 Optical Instruments - 941.4 Optical Variables Measurements
DOI: 10.1021/acs.analchem.6b02923
Funding Details: Number: 12JK0581, Acronym: -, Sponsor: -; Number: 21375105, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;

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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

92. Origin of abnormal high pressure and its relationship with hydrocarbon accumulation in the Dina 2 Gas Field, Kuqa Depression (*Open Access*)

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Abstract: Based on distribution of formation pressure by indirect estimation and formation testing, this study investigates origin of abnormal high pressure in the Dina 2 Gas Field in the Kuqa Depression in combination with the latest research findings. Contribution of major overpressure mechanisms to this gas field is estimated, and generation of the abnormal high pressure as well as its relationship with natural gas accumulation is explored. Disequilibrium compaction, tectonic stress, and overpressure transfer are the major overpressure mechanisms. Overpressure transfer resulted from vertical opening of faults and folding is the most important cause for the overpressure. Gas accumulation and abnormal high pressure generation in the reservoirs of the Dina 2 Gas Field show synchroneity. During the early oil-gas charge in the Kangcun stage, the reservoirs were generally normal pressure systems. In the Kuqa deposition stage, rapid deposition caused disequilibrium compaction and led to generation of excess pressure (approximately 5–10 MPa) in the reservoirs. During the Kuqa Formation denudation stage to the Quaternary, reservoir overpressure was greatly increased to approximately 40–50 MPa as a result of vertical pressure transfer by episodic fault activation, lateral overpressure transfer by folding and horizontal tectonic stress due to intense tectonic compression. The last stage was the major period of ultra-high pressure generation and gas accumulation in the Dina 2 Gas Field. © 2017 Chinese Petroleum Society
Number of references: 32
Main heading: Compaction
Controlled terms: Deposition - Faulting - Gas industry - Gases
Uncontrolled terms: Abnormal high pressure - Dina 2 gas field - Foldings - Gas accumulation - Gas fields - Kuqa depression - Overpressure - Overpressure transfer - Pressure generation - Tectonic compressions
Classification code: 484.1 Earthquake Measurements and Analysis - 522 Gas Fuels - 802.3 Chemical Operations
Numerical data indexing: Pressure 4.00E+07Pa to 5.00E+07Pa, Pressure 5.00E+06Pa to 1.00E+07Pa
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Development of the Tarim Oilfield Company for research assistance and logistic support. This work was funded by National Science and Technology Major Project of China (Grant No. 2008ZX05003, 2011ZX05003001).
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93. Electric field modulated half-metallicity of semichlorinated GaN nanosheets

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Abstract: Through density-functional theory calculations, we investigated the half-metallic properties of semichlorinated gallium nitride (Cl–GaN) nanosheets (NSs) under an electric field F. The results show that the electric field can modulate Cl–GaN NSs efficiently from ferromagnetic metals to half-metals. More interestingly, under a broad range of electric field intensity (-0.10~-1.30 V/Å), Cl–GaN NSs have the excellently half-metallic properties with the band gaps (3.71–0.96 eV) and maximal half-metallic gaps with 0.30 eV in spin-up states and metallic behaviors in spin-down states. Moreover, the total magnetic moment decreases (increases) depending on the negative (positive) F, mainly induced by the unpaired N atoms. Our studies demonstrate that the electronic and magnetic properties of GaN NSs can be delicately tuned by the combined surface modification and electric field, indicating the potential of GaN NSs for developing high-performance spintronic nanodevices. © 2016 Elsevier Ltd
Number of references: 50
Main heading: Nanosheets
Controlled terms: Astrophysics - Calculations - Metals - Surface treatment - Gallium nitride - III-V semiconductors - Magnetic moments - Density functional theory - Electric fields - Energy gap
Uncontrolled terms: Combined surface - E. First principles - Electric field intensities - Electronic and magnetic properties - Half-metallic properties - Half-metallicity - Metallic behaviors - Spintronic nanodevices
Classification code: 657.2 Extraterrestrial Physics and Stellar Phenomena - 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena - 712.1 Semiconducting Materials - 761 Nanotechnology - 921 Mathematics - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933 Solid State Physics
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Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

94. Enhanced 808 nm driven Ce3+ doped red-emitting upconversion nanocrystals by intercalated nanostructures

Accession number: 20162402491890
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Language: English
ISSN: 20507534
E-ISSN: 20507526
CODEN: JMCCCX
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Publisher: Royal Society of Chemistry
Abstract: We report the red but weak upconversion luminescence of core-shell-shell structured upconversion nanocrystals (NaYF4:Yb/Ho/Ce@NaYF4:Nd@NaYF4) under excitation at 808 nm due to high surface Ce3+ concentration in core nanocrystals hindering the energy transfer from the Nd3+ shell to the Yb3+ core. 10.2-fold upconversion luminescence enhancement was achieved by conquering the negative effects of non-uniform Ce3+ distribution phenomena on upconversion processes via intercalating NaYF4:Yb/Ho/Ce, designed as the shell, into the Nd3+ sensitized nanostructure (NaYF4:Nd@NaYF4:Yb/Ho/Ce@NaYF4:Nd@NaYF4:Yb/Ho/Ce@NaYF4). The intercalation nanostructured upconversion nanocrystals show intense red upconversion luminescence with a red-to-green ratio of 5.0. Bright red upconversion luminescence of the Ce3+ doped intercalation nanostructured upconversion nanocrystals embedded in biological tissues can be visualized even at a depth of 5 mm illuminated by 808 nm laser light. High efficiency 808 nm driven red-emitting upconversion nanocrystals are promising for bio-applications. © 2016 The Royal Society of Chemistry.
Number of references: 31
Main heading: Nanocrystals
Controlled terms: Luminescence - Energy transfer - Shells (structures)
Uncontrolled terms: Biological tissues - Distribution phenomenon - High-efficiency - Nano-structured - Red-emitting - Up-conversion luminescence - Up-conversion process - Upconversion nanocrystals
Classification code: 408.2 Structural Members and Shapes - 741.1 Light/Optics - 761 Nanotechnology - 933.1 Crystalline Solids
Numerical data indexing: Size 5.00e-03m, Size 8.08e-07m
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Funding Details: Number: 338020013, Acronym: -, Sponsor: -; Number: 21505104, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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95. Tensile and fatigue behavior of electron beam welded dissimilar joints of Ti-6Al-4V and IMI834 titanium alloys

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Publisher: Elsevier Ltd
Abstract: The aim of this study was to evaluate the microstructure, hardness, tensile and fatigue properties of electron beam welded dissimilar joints between Ti-6Al-4V and IMI834 (Ti-6Al-5Sn-2Zr-1Mo-0.35Si-1Nd) titanium alloys. A significant microstructural change was observed to occur after welding, with martensite in the fusion zone (FZ) and in the heat-affected zone (HAZ) of Ti-6Al-4V side, and martensite plus some retained α phase in the HAZ of IMI834 side. An asymmetrical hardness profile across the dissimilar joint was obtained in the dissimilar joint with a higher hardness value in the FZ. Fatigue life of the dissimilar joint was nearly the same as that of the BMs. The dissimilar joint exhibited cyclic stabilization at lower strain amplitudes up to 0.6%, while cyclic softening occurred after initial cyclic stabilization at higher strain amplitudes. Fatigue failure of the dissimilar joints occurred in the IMI834 BM, with crack initiation from the specimen surface or near-surface defect and crack propagation characterized by fatigue striations along with secondary cracks. © 2015 Elsevier B.V.
Number of references: 56
Main heading: Aluminum alloys
Controlled terms: Cracks - Electron beam welding - Electron beams - Fatigue of materials - Hardness - Heat affected zone - Martensite - Silicon alloys - Stabilization - Surface defects - Ternary alloys - Tin alloys - Titanium alloys
Uncontrolled terms: Cyclic deformations - Dissimilar joints - Electron-beam - Electron-beam welding - Fusion zones - Heat-affected zones - Strain amplitude - Strain controlled fatigue - Tensile behaviors - Titanium (alloys)
Classification code: 531.2 Metallography - 538.2 Welding - 538.2.1 Welding Processes - 541.2 Aluminum Alloys - 542.3 Titanium and Alloys - 546.2 Tin and Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 951 Materials Science
Numerical data indexing: Percentage 6.00e-01%
DOI: 10.1016/j.msea.2015.09.107
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Funding text: The authors would like to thank the State Key Laboratory of Solidification Processing of Northwestern Polytechnical University (SKLSP201505), the National Natural Science Foundation of China (NSFC51505379), and the Natural Sciences and Engineering Research Council of Canada (NSERC) for the financial support. One of the authors (D.L. Chen) is also grateful for the financial support by the Premier's Research Excellence Award (PREA) , the NSERC-Discovery Accelerator Supplement (DAS) Award , the Canada Foundation for Innovation (CFI) , and the Ryerson Research Chair (RRC) Program . The authors would also like to thank Q. Li, A. Machin, J. Amankrah and R. Churaman for easy access to the laboratory facilities of Ryerson University and their assistance in the experiments.
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96. Optical remote sensing object detection based on fused feature contrast of subwindows

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Document type: Journal article (JA)
Publisher: Chinese Academy of Sciences
Abstract: A detection algorithm for optical remote sensing targets was proposed based on the fused features contrast of subwindows. Firstly, a large number of varisized sliding windows were generated in a training image, and four types of scores related to multi-scale saliency, affine invariant region contrast, edge density and superpixel straddling were computed within each window. The feature parameters were learned on validation sets by maximizing localization accuracy and posterior probability. Then, all the features were combined in a Naive Bayesian framework and a classifier was trained. In the target detection step, the multi-scale saliency score was firstly computed within all the windows of test images, and partial windows with higher saliency and proper sizes matching to the objects to be detected were selected preliminarily. Furthermore, other scores were computed within the selected windows, and the posterior probability of each window was computed by using the trained classifier. Finally, windows with high local scores were selected and merged and the final detection results were obtained. The detection experiments were performed on three types of remote targets including planes, oilcans and ships, and the results show that each type of feature appears different properties for targets described, the highest accuracy is 74.21% to 80.32%. The proposed method outperforms all the single feature methods and the accuracy is improved to 80.87% to 87.30%. By compared with the fixed number sliding window algorithm, the accuracy rate is improved from about 80% to 85% and the false alarm rate is reduced from about 20% to 3%. Furthermore, the proposed method shows a 90% reduction in the number of windows and 25% reduction in the detection time due to the selection in the intermediary stage. It concludes that the method improves detection accuracy and algorithm efficiency greatly. © 2016, Science Press. All right reserved.
Number of references: 25
Main heading: Object detection
Controlled terms: Decoding - Object recognition - Communication channels (information theory) - Optical remote sensing - Feature extraction
Uncontrolled terms: Affine invariant - Edge densities - Feature contrasts - Optical remote sensing - Saliency - Subwindow
Classification code: 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 741.3 Optical Devices and Systems
Numerical data indexing: Percentage 2.00e+01% to 3.00e+00%, Percentage 2.50e+01%, Percentage 7.42e+01% to 8.03e+01%, Percentage 8.00e+01% to 8.50e+01%, Percentage 8.09e+01% to 8.73e+01%, Percentage 9.00e+01%
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

97. Multispectral image compression methods for improvement of both colorimetric and spectral accuracy

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Authors: Liang, Wei (1); Zeng, Ping (2, 3); Xiao, Zhaolin (1); Xie, Kun (2)
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Language: English
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Publisher: SPIE
Abstract: We propose that both colorimetric and spectral distortion in compressed multispectral images can be reduced by a composite model, named OLCP(W)-X (OptimalLeaders-Color clustering-PCA-W weighted-X coding). In the model, first the spectral-colorimetric clustering is designed for sparse equivalent representation by generating spatial basis. Principal component analysis (PCA) is subsequently used in the manipulation of spatial basis for spectral redundancy removal. Then error compensation mechanism is presented to produce predicted difference image, and finally combined with visual characteristic matrix W, and the created image is compressed by traditional multispectral image coding schemes. We introduce four model-based algorithms to explain their validity. The first two algorithms are OLCPWKWS (OLC-PCA-W-KLT-WT-SPIHT) and OLCPKWS, in which Karhunen-Loeve transform, wavelet transform, and set partitioning in hierarchical trees coding are applied for the created image compression. And the latter two methods are OLCPW-JPEG2000-MCT and OLCP-JPEG2000-MCT. Experimental results show that, compared with the corresponding traditional coding, the proposed OLCPW-X schemes can significantly improve the colorimetric accuracy of rebuilding images under various illumination conditions and generally achieve satisfactory peak signal-to-noise ratio under the same compression ratio. And OLCP-X methods could always ensure superior spectrum reconstruction. Furthermore, our model has excellent performance on user interaction. © 2016 SPIE and IS&T.
Number of references: 23
Main heading: Principal component analysis
Controlled terms: Colorimetry - Error compensation - Image enhancement - Wavelet transforms - Image coding - Color image processing - Color - Image compression - Signal to noise ratio
Uncontrolled terms: Characteristic matrices - Composite modeling - Multispectral-image compression - Sparse representation - Spectral-colorimetric clustering
Classification code: 716.1 Information Theory and Signal Processing - 741.1 Light/Optics - 921.3 Mathematical Transformations - 922.2 Mathematical Statistics - 941.4 Optical Variables Measurements
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98. A redox-stable direct-methane solid oxide fuel cell (SOFC) with Sr2FeNb0.2Mo0.8O6-# double perovskite as anode material

Accession number: 20163102674607
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Source title: Journal of Power Sources

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CODEN: JPSODZ
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Development of high-performing and redox-stable ceramic oxide electrode materials is a crucial technical step for direct hydrocarbon solid oxide fuel cells (SOFCs) operating at intermediate temperatures (550–700 °C). Here we report a nickel-free double perovskite, Sr2FeNb0.2Mo0.8O6-# (SFNM20), for SOFC anode, and this anode shows outstanding performances with high resistance against carbon build-up and redox cycling in hydrocarbon fuels. At 800 °C, the SFNM20 anode shows electrical conductivity of 5.3 S cm-1 in 5% H2 and peak power densities of 520 and 380 mW cm-2 using H2 and CH4 as the fuel, respectively. The cell exhibits a very stable performance under different constant current loads in H2 and CH4 at 700 °C and high redox stability against the gas environment changes in the anode chamber. In addition, the electrode is structurally stable in various fuels, suggesting that it is a feasible material candidate for the electrode of high-performing SOFCs. © 2016 Elsevier B.V.
Number of references: 32
Main heading: Anodes
Controlled terms: Strontium compounds - Barium compounds - Niobium compounds - Methane - Solid oxide fuel cells (SOFC) - Perovskite - Iron compounds - Carbon - Ceramic materials
Uncontrolled terms: Anode material - Carbon deposition - Double perovskites - Methane oxidation - Redox stability
Classification code: 482.2 Minerals - 702.2 Fuel Cells - 714.1 Electron Tubes - 804 Chemical Products Generally - 804.1 Organic Compounds - 812.1 Ceramics
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99. Effect of carbon nanotubes on rheological properties of wormlike micelle solution

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Publisher: Science Press
Abstract: The rheological properties of cetyltrimethylammonium chloride (CTAC)-sodium salicylata (NaSal) wormlike micelle solution with multi-walled carbon nanotube (MWNT) added were studied by rheological measurements and

cryo-transmission electron microscopy (cryo-TEM). The effects of different types of MWNT, the addition mass fraction of MWNT, total dissolved solid and temperature on the rheological properties of wormlike micelle solution were investigated. The results showed that the viscosity of the wormlike micelle solution was increased significantly because of forming a micelle-MWNT pseudo-crosslink network. The MWNT with high -OH mass fraction and large aspect ratio possessed better thickening efficiency. The zero-shear viscosity of the solution with 0.4% mass fraction MWNT, which was the optimal addition amount, was about 2.2 times that of the base fluids. The viscoelasticity of the wormlike micelle solution was improved significantly at low frequency with the relaxation time of fluids being prolonged and the thermal stability being enhanced after addition of MWNT. The apparent viscosity of was still more than 50 mPa·s at 80 and 170 s-1. With the increase of temperature the viscoelasticity of the MWNT modified CTAC-NaSal viscoelastic solution decreased gradually, to become a viscous fluid when the temperature exceeded 60.
Number of references: 15
Main heading: Viscoelasticity
Controlled terms: Rheology - Yarn - High resolution transmission electron microscopy - Aspect ratio - Thermodynamic stability - Chlorine compounds - Micelles - Multiwalled carbon nanotubes (MWCN)
Uncontrolled terms: Cetyltrimethylammonium chloride - Cryo-transmission electron microscopy (cryo-TEM) - CTAC-NaSal - Rheological measurements - Thickening efficiency - Total dissolved solids - Viscoelastic - Worm-like micelles
Classification code: 641.1 Thermodynamics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801.3 Colloid Chemistry - 819.4 Fiber Products - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 933.1 Crystalline Solids
Numerical data indexing: Percentage 4.00e-01%
DOI: 10.3969/j.issn.1001-8719.2016.05.027
Compendex references: YES
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100. Demonstration of a stable and uniform single-wavelength erbium-doped fiber laser based on microfiber knot resonator

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Authors: Xu, Yiping (1); Ren, Liyong (2); Ma, Chengju (3); Kong, Xudong (2); Ren, Kaili (2)
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Document type: Journal article (JA)
Publisher: SPIE
Abstract: We propose and demonstrate an application of microfiber knot resonator (MKR) in the generation of a stable and uniform single-wavelength erbium-doped fiber laser (EDFL). An MKR was fabricated using a microfiber a few micrometers in diameter. By embedding the MKR to the ring cavity of the EDFL, a laser with a wavelength of 1558.818 nm and a 3-dB linewidth of 0.0149 nm is demonstrated. The side mode suppression ratio of the laser is about 30 dB, and the maximum power fluctuation is about 0.85 dB. The results demonstrate that the MKR can be employed as a high-performance comb filter to realize a stable and uniform fiber laser.
Number of references: 22
Main heading: Fiber lasers

Controlled terms: Erbium - Optical fiber fabrication - Resonators - Optical fiber communication - Optical fibers
Uncontrolled terms: A-stable - Erbium doped fiber laser - Maximum power - Micro-fiber - Micro-fiber knot resonators - Ring cavities - Side mode suppression ratios - Single wavelength
Classification code: 547.2 Rare Earth Metals - 717.1 Optical Communication Systems - 741.1.2 Fiber Optics - 744.4 Solid State Lasers
Numerical data indexing: Decibel 3.00e+00dB, Decibel 3.00e+01dB, Decibel 8.50e-01dB, Size 1.49e-11m, Size 1.56e-06m
DOI: 10.1117/1.OE.55.12.126111
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

101. The influence of composite wave field fluctuation parameters matching to permeability of low permeability reservoirs

Accession number: 20163502738165
Authors: Xiao, Zengli (1); Chen, Junbin (1); Du, Xiangqian (2); Qin, Wenlong (1)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Petroleum University, No. 18, East section of Electronic Road, Xi'an, Shaanxi Province; 710065, China; (2) The No.3 Oil Production Plant of Changqing Oilfield Company, Yinchuan; 750006, China
Corresponding author: Xiao, Zengli(zengzengxiao@163.com)
Source title: International Journal of Smart Home
Abbreviated source title: Int. J. Smart Home
Volume: 10
Issue: 7
Issue date: 2016
Publication year: 2016
Pages: 241-248
Language: English
ISSN: 19754094
Document type: Journal article (JA)
Publisher: Science and Engineering Research Support Society
Abstract: There are essential differences in the influence rules of the binary composite wave generated by the combination of artificial resonance wave and hydraulic impulse wave to two-phase fluid flow of low permeability reservoirs porous media oil-water. When the fluctuation parameters of binary composite wave field reaching the optimal matching, the binary composite wave will have a good synergetic effect on two-phase fluid flow of oil-water, and the improvement effect on two-phase fluid flow of low permeability reservoirs oil-water will generate resonance effect which is far more effective than unary wave field. If the fluctuation parameters of binary composite wave field are not matched well, bad synergetic effect on two-phase fluid flow of oil-water will be generated, not only it can't raise the improvement effect on two-phase fluid flow of oil-water, but also it will make the improvement effect below unary wave field. Even there will be an inhibition effect on fluid flow of oil-water, which reduces the displacement efficiency and the availability of low permeability reservoirs water injection's development. By using the indoor fluctuation oil recovery simulation experiment device, the influence rules of displacement vibration wave and hydraulic impulse binary composite wave field to low permeability reservoirs oil-water single phase and two-phase fluid flow feature were studied. The influence rules of amplitude, frequency, work cycle and the other important parameters of composite wave to the permeability of oil-water single phase was intensively studied. Finally the mechanism of the synergetic effect generated by composite wave to two-phase fluid flow of low permeability reservoirs was analyzed. © 2016 SERSC.
Number of references: 2
Main heading: Low permeability reservoirs
Controlled terms: Oil well flooding - Water injection - Petroleum reservoir engineering - Porous materials - Oil field development
Uncontrolled terms: Binary composites - Displacement efficiency - Fluctuation parameters - Inhibition effect - Optimal matching - Resonance effect - Synergetic effect - Two-phase fluid flow
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 612.1 Internal Combustion Engines, General - 951 Materials Science

DOI: 10.14257/ijsh.2016.10.7.24
Funding Details: Number: 2014JM7251, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 15JS087, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: 51304159, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This study is supported by the Key laboratory research project of Education Department of Shaanxi Province (No.15JS087), the National Natural Science Foundation of China (Grant no. 51304159) and the Natural Science Basic Research Plan in Shaanxi Province (Nos. 2014JM7251).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

102. The quantitative analysis of the face stability on soil tunnel

Accession number: 20162302464962
Authors: Huang, Jun (1, 2); Dang, Faning (3); Zhou, Lei (3); Dang, Kangning (2); Guo, Chanjuan (4); Qin, Yuan (1)
Author affiliation: (1) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) Institute of Water Resources and Hydro-electric Engineering, Xi'an University of Technology, Xi'an; Shaanxi; 710048, China; (3) School of Civil Engineering and Architecture, Xi'an University of Technology, Xi'an; Shaanxi; 710048, China; (4) Northwest Electric Power Design Institute of China Power Engineering Consulting Group, Xi'an; Shaanxi; 710075, China
Source title: Yanshilixue Yu Gongcheng Xuebao/Chinese Journal of Rock Mechanics and Engineering
Abbreviated source title: Yanshilixue Yu Gongcheng Xuebao
Volume: 35
Issue date: May 15, 2016
Publication year: 2016
Pages: 3127-3137
Language: Chinese
ISSN: 10006915
CODEN: YLGXF5
Document type: Journal article (JA)
Publisher: Academia Sinica
Abstract: The quantitative relationship between the face stability and construction conditions on soil tunnel is introduced. First, an implicit function to strength parameters and construction parameters is proposed by analyzing the safety factor of face stability. The implicit function is transformed to the polynomial expression on construction parameters via multi-function Taylor formula. A technical method of getting the approximate expressions of safety factor of face stability under a single construction parameter is introduced. Mainly, the response surface methodology is used to determine the Taylor expansions of Fs=F(t, #t, #s) under multiple variables of construction parameters. It illustrated the applications of the proposed methods in ideal tunneling model. Finally, in the Shizilong tunnel project, the results showed that a first-order Fs model of in the initial region of U1 was appropriate, and then gradient ascent method is used to optimized the regional U2. By the central composite design, a validity second-order Fs model is calculated, and the effectiveness was verified by ANOVA. © 2016, Science Press. All right reserved.
Number of references: 19
Main heading: Soils
Controlled terms: Tunnels - Safety factor - Surface properties - Stability
Uncontrolled terms: Construction parameter - Face stability - Response surface methodology - Taylor formula - Tunnelling engineering
Classification code: 401.2 Tunnels and Tunneling - 483.1 Soils and Soil Mechanics - 914.1 Accidents and Accident Prevention - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
DOI: 10.13722/j.cnki.jrme.2015.0294
Funding Details: Number: 14JK1514, Acronym: -, Sponsor: -; Number: 51409208, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2014M562524XB, Acronym: -, Sponsor: China Postdoctoral Science Foundation;
Funding text: Supported by the National Natural Science Foundation of China(Grant No. 51409208), China Postdoctoral Science Foundation(Grant No. 2014M562524XB) and Foundation of Shaanxi Educational Committee(Grant No. 14JK1514)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

103. Characterization of pores and fracture networks in organic-rich shale and tight sandstone of the Chang-7 member, Triassic Yanchang Formation, Ordos Basin

Accession number: 20162702563998
Authors: Er, Chuang (1, 2); Zhao, Jingzhou (1, 2); Yao, Jingli (3, 4); Ye, Xiaochuang (5); Wu, Weitao (1, 2); Bai, Yubin (1, 2); Deng, Xiuqin (3, 4); Sun, Bo (3, 4)
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) Shaanxi Key Lab of Petroleum Accumulation Geology, Xi'an; Shaanxi; 710065, China; (3) Research Institute of Petroleum Exploration and Deuelopment, PetroChina Changging Oilfield Company, Xi'an; Shaanxi; 710018, China; (4) National Engineering Laboratory for Exploration and Development of Low-Permeability Oil & Gas Fields, Xi'an; Shaanxi; 710018, China; (5) No. 3 Gas Production Plant, PetroChina Changqing Oilfield Company, Xi'an; Shaanxi; 710018, China
Source title: Oil and Gas Geology
Abbreviated source title: Oil Gas Geol.
Volume: 37
Issue: 3
Issue date: June 28, 2016
Publication year: 2016
Pages: 341-353
Language: Chinese
ISSN: 02539985
Document type: Journal article (JA)
Publisher: Editorial Department of Oil and Gas Geology
Abstract: Chang-7 member of the Triassic Yanchang Formation is rich in oil and composed of organic-rich shale and tight sandstone. The shale serves both as source rock to nearby tight sandstone and as reservoirs. An improved appreciation of pores and fracture networks in the shale and tight sandstone reservoirs is of great significance to understand storage space characteristics and migration mechanisms of shale oil and tight oil. Through qualitative description and quantitative chara-cterization, pore types and pore size of the organic-rich shale and tight sandstone were studied by comprehensively utilizing methods including core description, field emission scanning electronic microscope, laser scanning confocal microscopy, nuclear magnetic resonance, high pressure Hg injection, and low-temperature thermal adsorption. Organic-rich shale contains intragranular pores, intergranular pores and organic pores, with most pore size less than 50nm. It also contains micro-fractures. Horizontal, low angle, high angle and vertical fractures can all be observed in the shale. The tight sandstone contains residual primary intergranular pores, inter-crystals pores and secondary pores (the major type). Pore size is mostly larger than 2 μm and pore-throat size is less than 73.5 nm. However, pore-throats that contribute the most to improving permeability are those ranging between 73.5 nm and 735 nm. Microfractures and high angle fractures can also be spotted in the tight sandstone. Forming and evolution of pores both in shale and tight sandstone are suggested to be controlled by sedimentation and diagenesis. Migration and charging of diagenetic fluids and hydrocarbon fluids worked toge-ther to forge organic-rich shale and tight sandstone into an organic whole. The study also distinguishes three kinds of pore and fracture networks and pathway of oil migration in shale and tight sandstone of the Chang-7 member: (1)nonameter-micrometer pores- fracture networks in organic-rich shale (acting as storage space and migration pathway within source rocks); (2)nanometer pore throat-micrometer pores-fracture networks in tight sandstones (acting as storage space of tight oil); (3)differential pore throat structure-microfracture-fracture networks between shale and tight sandstone(acting as migration pathway for oil from source rocks to outside reservoirs).
Number of references: 40
Main heading: Shale
Controlled terms: Pore size - Fracture - Metamorphic rocks - Micrometers - Tight gas - Sandstone - Temperature
Uncontrolled terms: Fracture network - Ordos Basin - Pore - Tight sandstones - Yanchang Formation
Classification code: 482.2 Minerals - 512.2 Natural Gas Deposits - 522 Gas Fuels - 641.1 Thermodynamics - 931.2 Physical Properties of Gases, Liquids and Solids - 943.1 Mechanical Instruments - 951 Materials Science
Numerical data indexing: Size 2.00e-06m, Size 5.00e-08m, Size 7.35e-08m to 7.35e-07m, Size 7.35e-08m
DOI: 10.11743/ogg20160306
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

104. Characteristics and types analysis of gas reservoir in Shan 2 section of Yan'an gasfield, Ordos Basin

Accession number: 20162602540903
Authors: Chen, Zhanjun (1, 2); Ren, Zhanli (1, 2); Zhao, Jingzhou (3); Zhao, Xiaoyan (4); Gao, Xiaoping (5); Qiang, Teng (5); Lei, Yanyun (5); Liu, Tao (6)
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Source title: Zhongnan Daxue Xuebao (Ziran Kexue Ban)/Journal of Central South University (Science and Technology)
Abbreviated source title: Zhongnan Daxue Xuebao (Ziran Kexue Ban)
Volume: 47
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Publication year: 2016
Pages: 1625-1636
Language: Chinese
ISSN: 16727207
CODEN: ZDXZAC
Document type: Journal article (JA)
Publisher: Central South University of Technology
Abstract: Yan'an gasfield in the southwest of Yishan slope was studied. The results show that the reservoir of section 2 of Shanxi Formation exhibits several characteristics. The reservoir distribution is not stable in plane, and the spatial configurations between sand-bodies, or between sand-body and surrounding rock are various. The reservoir is tight, whose porosity mainly ranges from 1.0% to 10.0% and permeability mainly ranges from 0.01×10-3 μm2 to 0.4×10-3 μm2. Stratification and inner heterogeneity are serious. Differentiation of gas and water is not obvious and the reservoir is lacking in a uniform gas-water interface. There is a certain diversity of gas properties among sand-bodies. Methods of distribution direction of sand, orientation and well spacing, logging facies comparison are used to determine the connectivity of sand-bodies between wells. Some sand-bodies are connected, however, the corresponding measured gasfield pressure, gas saturation and component are different, which means the reservoir forming system is generally not the same. According to reservoir forming mechanism analysis, research concludes that inhomogeneity of hydrocarbon accumulation factors which experienced several stages in section 2 of Yan'an gasfield Shanxi formation, and lead to the gas-water distribution inhomogeneity is produced, inherited and retained. This mechanism and process form a seeming "connectivity" in space domain, but actually the reservoir forming system is "non- uniform". The gas reservoir layer possesses three characteristics: inhomogeneity tight reservoir, quasi-connectivity trap distribution, non-uniform reservoir system. Thus, the reservoir type can be defined as a "quasi-consecutive tight gas sandstone reservoir".
Number of references: 45
Main heading: Tight gas
Controlled terms: Water supply systems - Well spacing - Gas industry - Sand - Gases - Petroleum reservoirs - Phase interfaces
Uncontrolled terms: Gas-water distributions - Hydrocarbon accumulation - Quasi-continuous - Reservoir distribution - Shan 2 section - Spatial configuration - Tight gas sandstone reservoirs - Yishan slope
Classification code: 446.1 Water Supply Systems - 483.1 Soils and Soil Mechanics - 512.1.1 Oil Fields - 512.2 Natural Gas Deposits - 522 Gas Fuels - 801.4 Physical Chemistry
Numerical data indexing: Percentage 1.00e+00% to 1.00e+01%
DOI: 10.11817/j.issn.1672-7207.2016.05.024
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

105. Fiber humidity sensor based on fiber Bragg grating sandwiched in SMS fiber structure

Accession number: 20163902850901
Authors: Shao, Min (1, 2); Qiao, Xue-Guang (3); Fu, Hai-Wei (1); Li, Yan (1); Yao, Ni (4); Jia, Zhen-An (1)

Author affiliation: (1) Shaanxi Key Laboratory of Photoelectric Oil-gas Logging and Detecting, School of Science, Xi'an Shiyou University, Xi'an; 710065, China; (2) Shaanxi Key Laboratory of Optical Information Technology, School of Science, Northwestern Polytechnical University, Xi'an; 710072, China; (3) School of Physics, Northwest University, Xi'an; 710069, China; (4) National Key Laboratory of Modern Optical Instrumentation, Department of Optical Engineering, Zhejiang University, Hangzhou; 310027, China
Source title: Guang Pu Xue Yu Guang Pu Fen Xi/Spectroscopy and Spectral Analysis
Abbreviated source title: Guang Pu Xue Yu Guang Pu Fen Xi
Volume: 36
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Issue date: September 1, 2016
Publication year: 2016
Pages: 3008-3013
Language: Chinese
ISSN: 10000593
CODEN: GYGFED
Document type: Journal article (JA)
Publisher: Science Press
Abstract: A fiber humidity sensor based on Fiber-Bragg Grating (FBG) sandwiched in single-mode-multimode fiber core-single mode (SMS) fiber structure is proposed and demonstrated. When the surrounding humidity changes, the central wavelength of FBG remains unchanged for it is insensitive to humidity, while the interference spectrum of SMS fiber structure will shift for it is sensitive to the surrounding humidity. Hence, the shift of the SMS fiber structure interference spectrum with humidity could modulate the FBG core mode. Through measuring the reflected power of the FBG core mode the detection of humidity can be realized. The beam propagation of the SMS fiber structure with different lengths of multimode fiber core (MMFC), diameters of MMFC, and surrounding refractive indices are theoretically simulated with beam propagation method. Theoretical simulation indicates that the output core mode power coefficients shift with surrounding humidity of the SMS fiber structure. Experimental results show that the sensor has a linear response to humidity with enhanced sensitivity of 0.06 dBm·(%RH)-1 in the humidity range of 45%~95%RH with length of 35 mm and diameter of 85 μm. The temperature effect of the sensor is also discussed, the temperature sensitivity is 0.008 nm·-1 in the temperature range of 20~80 and the measurement error of temperature is 0.047% RH·-1. Such cost-effective, high sensitive, and reflective power detection based optical fiber humidity sensor could be used in humidity sensing applications. © 2016, Peking University Press. All right reserved.
Number of references: 14
Main heading: Fiber Bragg gratings
Controlled terms: Refractive index - Multimode fibers - Cost effectiveness - Humidity sensors - Temperature sensors - Single mode fibers
Uncontrolled terms: Central wavelength - Enhanced sensitivity - Humidity sensing - Interference spectrum - Power coefficients - Surrounding refractive indices (SRI) - Temperature sensitivity - Theoretical simulation
Classification code: 443.2 Meteorological Instrumentation - 741.1 Light/Optics - 741.1.2 Fiber Optics - 911.2 Industrial Economics - 944.5 Temperature Measuring Instruments
Numerical data indexing: Size 3.50e-02m, Size 8.50e-05m
DOI: 10.3964/j.issn.1000-0593(2016)09-3008-06
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

106. A novel spatial-spectral sparse representation for hyperspectral image classification based on neighborhood segmentation

Accession number: 20163902850948
Authors: Wang, Cai-Ling (1, 2); Wang, Hong-Wei (3); Hu, Bing-Liang (1); Wen, Jia (4); Xu, Jun (5); Li, Xiang-Juan (2)
Author affiliation: (1) Key Lab of Spectral Imaging, Xi'an Institute of Optics and Precision Mechanics of Chinese Academy of Sciences, Xi'an; 710119, China; (2) School of Computer Science, Xi'an Shiyou University, Xi'an; 710065, China; (3) Engineering University of CAPF, Xi'an; 710086, China; (4) Institute of Software of Chinese Academy of Sciences, Beijing; 100080, China; (5) School of Information Engineering, East China Jiaotong Univeristy, Nanchang; 330013, China
Source title: Guang Pu Xue Yu Guang Pu Fen Xi/Spectroscopy and Spectral Analysis
Abbreviated source title: Guang Pu Xue Yu Guang Pu Fen Xi
Volume: 36
Issue: 9

Issue date: September 1, 2016
Publication year: 2016
Pages: 2919-2924
Language: Chinese
ISSN: 10000593
CODEN: GYGFED
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Traditional hyperspectral image classification algorithms focus on spectral information application, however, with the increase of spatial resolution of hyperspectral remote sensing images, hyperspectral imaging presents clustering properties on spatial domain for the same category. It is critical for hyperspectral image classification algorithms to use spatial information in order to improve the classification accuracy. However, the marginal differences of different categories display more obviously. If it is introduced directly into the spatial-spectral sparse representation for image classification without the selection of neighborhood pixels, the classification error and the computation time will increase. This paper presents a spatial-spectral joint sparse representation classification algorithm based on neighborhood segmentation. The algorithm calculates the similarity with spectral angel in order to choose proper neighborhood pixel into spatial-spectral joint sparse representation model. With simultaneous subspace pursuit and simultaneous orthogonal matching pursuit to solve the model, the classification is determined by computing the minimum reconstruction error between testing samples and training pixels. Two typical hyperspectral images from AVIRIS and ROSIS are chosen for simulation experiment and results display that the classification accuracy of two images both improves as neighborhood segmentation threshold increasing. It concludes that neighborhood segmentation is necessary for joint sparse representation classification. © 2016, Peking University Press. All right reserved.
Number of references: 17
Main heading: Image classification
Controlled terms: Remote sensing - Errors - Hyperspectral imaging - Image enhancement - Image reconstruction - Image segmentation - Pixels - Classification (of information) - Spectroscopy - Image representation - Clustering algorithms - Independent component analysis
Uncontrolled terms: Classification accuracy - Classification algorithm - Hyperspectral Remote Sensing Image - Neighborhood clustering - Orthogonal matching pursuit - Reconstruction error - Segmentation threshold - Sparse representation
Classification code: 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 723.4 Artificial Intelligence - 746 Imaging Techniques - 903.1 Information Sources and Analysis
DOI: 10.3964/j.issn.1000-0593(2016)09-2919-06
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

107. A study on interaction design of elderly mobile terminals based on Kansei Engineering

Accession number: 20171203477708
Authors: Jing, Yu (1); Ting, Ji (1); Xu, Jianbo (1)
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi; 710065, China
Source title: Proceedings - 2016 International Conference on Robots and Intelligent System, ICRIS 2016
Abbreviated source title: Proc. - Int. Conf. Robots Intell. Syst., ICRIS
Part number: 1 of 1
Issue title: Proceedings - 2016 International Conference on Robots and Intelligent System, ICRIS 2016
Issue date: November 28, 2016
Publication year: 2016
Pages: 59-62
Article number: 7757077
Language: English
ISBN-13: 9781509041541
Document type: Conference article (CA)
Conference name: 2016 International Conference on Robots and Intelligent System, ICRIS 2016
Conference date: August 27, 2016 - August 28, 2016
Conference location: Zhangjiajie, China
Conference code: 125211
Publisher: Institute of Electrical and Electronics Engineers Inc., United States

Abstract: At present, mobile internet has gone deep into all levels of society and various mobile terminals have become a part of social life. In China which is an in-depth aging society and has numerous the elderly, terminal interaction products should be exclusively designed for such a population. Kansei Engineering is a product development technology that is oriented by the feeling of consumers. Researches based on the Kansei Engineering started from the elderly both mentally and physically and were directed by Molecular Sensory Physiology, Kansei Informatics and Creative Kansei Engineering to analyze and study physical interactions, operational interactions, affective interactions and aesthetic interactions of the elderly mobile terminals. © 2016 IEEE.
Number of references: 5
Main heading: Computer terminals
Controlled terms: Mobile telecommunication systems
Uncontrolled terms: Affective interaction - Development technology - Interaction design - Kansei Engineering - Mobile Internet - Mobile terminal - Physical interactions - Sensory physiology
Classification code: 722.2 Computer Peripheral Equipment
DOI: 10.1109/ICRIS.2016.117
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

108. Characteristic analysis for dual-induction logging response in highly deviated wells and horizontal wells

Accession number: 20165203169907
Authors: Chen, Yanjun (1); Cheng, Zhigang (2); Wu, Jie (1); Mao, Yanhui (1); Luo, Shaocheng (2); Xiao, Fei (2); Yang, Zhixin (2); Gao, Haofeng (2)
Author affiliation: (1) Xi'an Shiyou University, China; (2) CNPC Logging Co., China
Source title: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016 - Proceedings
Abbreviated source title: Prog. Electromagn. Res. Symp., PIERS - Proc.
Part number: 1of1
Issue title: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016 - Proceedings
Issue date: November 3, 2016
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Pages: 3359-3363
Article number: 7735316
Language: English
ISBN-13: 9781509060931
Document type: Conference article (CA)
Conference name: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016
Conference date: August 8, 2016 - August 11, 2016
Conference location: Shanghai, China
Conference code: 124897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Because the instrument response in highly deviated wells and horizontal wells is the three-dimensional numerical calculation, its environmental impact factors is very complicated. Firstly, this paper analyzes the influencing factors of induction logging responses in horizontal wells, covering the geological factors and instrumental observation factors. Secondly, a three-layer dual induction logging scenario in horizontal wells is set up with the aid of the multi-physics simulation software COMSOL, then the logging response characteristics is provided with regard to the different environmental factor. Finally, the physical machanism between logging response and environmental factors is analyzed, laying a foundation for the rapid forward and inversion for dual-induction logging in the horizontal wells. © 2016 IEEE.
Number of references: 9
Main heading: Horizontal wells
Controlled terms: Induction logging - Computer software - Environmental impact
Uncontrolled terms: Characteristic analysis - Environmental factors - Environmental impact factors - Geological factors - Highly deviated wells - Logging response - Multiphysics simulations - Three-dimensional numerical calculations
Classification code: 454.2 Environmental Impact and Protection - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 723 Computer Software, Data Handling and Applications
DOI: 10.1109/PIERS.2016.7735316

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Compendex references: YES
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Data Provider: Engineering Village

109. User experience hierarchical model building based on multi-perception system

Accession number: 20171203477555
Authors: Ji, Ting (1); Yu, Jing (1); Xu, Jianbo (1)
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi; 710065, China
Source title: Proceedings - 2016 International Conference on Robots and Intelligent System, ICRIS 2016
Abbreviated source title: Proc. - Int. Conf. Robots Intell. Syst., ICRIS
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Publication year: 2016
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Article number: 7757172
Language: English
ISBN-13: 9781509041541
Document type: Conference article (CA)
Conference name: 2016 International Conference on Robots and Intelligent System, ICRIS 2016
Conference date: August 27, 2016 - August 28, 2016
Conference location: Zhangjiajie, China
Conference code: 125211
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Research on user experience based on multiperception system and build a multi-perception Hierarchical Model of User Experience; Use the influence of multiperception system on the Hierarchical Model to carry out an experimental study on user experience under restraints of multi-perception factors.Factor restraint coefficient is obtained by extracting user needs, which can help build a user experience hierarchical model based on multi-perception system, so as to guide the design to improve user's experience satisfaction. Also, interactive interface design example of an air purifier is used to verify the model. © 2016 IEEE.
Number of references: 8
Main heading: Human computer interaction
Controlled terms: Hierarchical systems
Uncontrolled terms: Hierarchical model - Interactive interfaces - Perception systems - User need
Classification code: 961 Systems Science
DOI: 10.1109/ICRIS.2016.120
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

110. Reflections on SOA and Microservices

Accession number: 20171503566785
Authors: Xiao, Zhongxiang (1); Wijegunaratne, Inji (2); Qiang, Xinjian (3)
Author affiliation: (1) School of Electronic Engineering, Xi'An Shiyou University, Xi'an, China; (2) Enterprise Architect, Infosys Australia, Melbourne, Australia; (3) School of Computer Science, Xi'An Shiyou University, Xi'an, China
Source title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
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Part number: 1 of 1
Issue title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016

Issue date: March 16, 2017
Publication year: 2016
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Language: English
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Document type: Conference article (CA)
Conference name: 4th International Conference on Enterprise Systems, ES 2016
Conference date: November 2, 2016 - November 3, 2016
Conference location: Melbourne, VIC, Australia
Conference code: 126897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Today's Enterprises are facing many challenges in the service oriented, customer experience centric and customer demand driven global environment where ICT is becoming the leading enabler and partner of the modern enterprise. In the last decade, many enterprises have invested heavily in SOA-aligned IT transformations, but not harvested what SOA promised to provide. Now the API and Microservice paradigm has emerged as the 'next big thing' for delivering IT outcomes to support the modern enterprise, with many technology vendors and service jumping on the bandwagon. This paper undertakes a critical investigation of the key concepts around SOA, API and Microservices, identifying similarities and differences between them and dispelling the confusion and hype around them. Based on our discussion and analysis, this paper presents a set of recommendations and best practices on the effective use and management of enterprise software components, drawing upon the best of SOA, API and Microservice concepts and practice. © 2016 IEEE.
Number of references: 6
Main heading: Enterprise software
Controlled terms: Service oriented architecture (SOA) - Information services
Uncontrolled terms: Architecture designs - Customer demands - Customer experience - Enterprise Architecture - Global environment - microservice - Service Oriented - Technology vendors
Classification code: 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 903.4 Information Services
DOI: 10.1109/ES.2016.14
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

111. Compensation and calibration of the high temperature and pressure downhole pressure sensor

Accession number: 20162402493423
Authors: Dang, Ruirong (1); Zhang, Hongwei (1); Song, Nan (1); Dang, Bo (1); Wang, Dengyue (1)
Author affiliation: (1) Xi'an ShiYou University, Well Logging the Ministry of Education Key Laboratory Testing of Xi'an ShiYou University Oil and Gas photoelectric, Xi'an; 710065, China
Source title: Yi Qi Yi Biao Xue Bao/Chinese Journal of Scientific Instrument
Abbreviated source title: Yi Qi Yi Biao Xue Bao
Volume: 37
Issue: 4
Issue date: April 1, 2016
Publication year: 2016
Pages: 737-743
Language: Chinese
ISSN: 02543087
CODEN: YYXUDY
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Downhole pressure needs to be monitored by the electrical submersible pump, reservoir monitoring system and intelligent well system in long time, and the pressure testing device is an important part of it. It is important to reflect the real-time status of producing well. The temperature compensation and linearization calibration should be added on the pressure sensor because the downhole temperature changes rapidly with the depth increasing. The temperature drift and linearity errors exist in the piezoresistive force sensor. Because of the complicated downhole environment and there is no CPU processing in the acquisition circuit, it's difficult to realize the temperature

compensation with the software. Through the analysis and research, the circuit MAX1452 signal conditioning chip is used for compensation and calibration of pressure sensors, and the precision of the pressure sensor can reach 0.1%. The compensation principle and implementation methods are analyzed. After the experiment and analysis, it's clear that the output current of the compensated system exhibits good linearity during the temperature range from -40~125.

Number of references: 17
Main heading: Pressure sensors
Controlled terms: Submersible pumps - Submersibles - Calibration - Temperature distribution
Uncontrolled terms: Electrical submersible pumps - Experiment and analysis - High temperature and pressure - Intelligent well systems - Linearization calibration - MAX1452 - Piezoresistive force sensors - Temperature compensation
Classification code: 618.2 Pumps - 641.1 Thermodynamics - 674.1 Small Marine Craft - 944.3 Pressure Measuring Instruments
Numerical data indexing: Percentage 1.00e-01%
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

112. Identification to oil cracking in east of Sichuan Basin (*Open Access*)

Accession number: 20164903086621
Authors: Guo, Jian Ming (1); Li, Yan Xia (2)
Author affiliation: (1) School of Petroleum Engineering, Xi'an Shiyou University, Shaanxi, xi'an; 710065, China; (2) School of Earth Sciences and Engineering, Xi'an Shiyou University, Shaanxi xi'an; 710065, China
Corresponding author: Guo, Jian Ming(jmguo@xsyu.edu.cn)
Source title: IOP Conference Series: Earth and Environmental Science
Abbreviated source title: IOP Conf. Ser. Earth Environ. Sci.
Volume: 40
Part number: 1of1
Issue: 1
Issue title: 2016 International Conference on New Energy and Future Energy System, NEFES 2016
Issue date: September 26, 2016
Publication year: 2016
Article number: 012068
Language: English
ISSN: 17551307
E-ISSN: 17551315
Document type: Conference article (CA)
Conference name: 2016 International Conference on New Energy and Future Energy System, NEFES 2016
Conference date: August 19, 2016 - August 22, 2016
Conference location: Beijing, China
Conference code: 124675
Publisher: IOP Publishing Ltd
Abstract: In Sichuan basin the Lower Palaeozoic source rock has reached high to over-mature stage, but it is still considered that it has obvious genetic link with some gas reservoirs which were formed later. Therefore, the accumulation process between ancient high to over-mature source rock and the late formation of gas reservoirs has become one of the key factors to recognize the law of natural gas accumulation in Sichuan Basin. Based on some characteristics of Carboniferous gas reservoir in eastern basin, such as the gas compositions, stable carbon isotope, it is found that the gas reservoir is oil-cracking gas. The result reveals that the formation and evolution of present gas reservoir is that an ancient oil pool experienced the processes of forming, accumulating, destructing, and thermal maturating and cracking into gas reservoir. © Published under licence by IOP Publishing Ltd.
Number of references: 16
Main heading: Gases
Controlled terms: Petroleum prospecting - Petroleum reservoir engineering - Petroleum reservoirs
Uncontrolled terms: Carboniferous gas reservoirs - Eastern basins - Formation and evolutions - Gas compositions - Lower Palaeozoic - Natural-gas accumulation - Oil-cracking gas - Stable carbon isotopes
Classification code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations
DOI: 10.1088/1755-1315/40/1/012068
Compendex references: YES
Open Access type(s): All Open Access, Bronze

Database: Compendex
Data Provider: Engineering Village

113. Reliability analysis of double derrick based on stress analysis

Accession number: 20154301425685
Authors: Zhu, Lin (1); Geng, Yi (1)
Author affiliation: (1) Xi'an Shiyou University, Dian Zi 2 Road, Xi'an, China
Source title: Key Engineering Materials
Abbreviated source title: Key Eng Mat
Volume: 667
Issue date: 2016
Publication year: 2016
Pages: 548-554
Language: English
ISSN: 10139826
E-ISSN: 16629795
CODEN: KEMAEY
Document type: Journal article (JA)
Publisher: Trans Tech Publications Ltd
Abstract: The double derrick as an important part of the drilling rig hoisting system in deep sea oil and gas development, its working environment is much more complex than land rigs working environment. Therefore, in order to ensure the quality of drilling, it is very important to analyze the reliability of the deep double derrick structure and its dynamic load characteristic. Based on the ANSYS software to establish finite element model of double derrick, through the static analyzing to the derrick, get the stress distribution of the derrick structure in static action and the derrick stress deformation trend, provided a reference for evaluation of derrick. Selected the calculation method of double derrick overall reliability index, and according to the results of the finite element calculation of static strength calculated the double derrick overall reliability index, compared with the general standard, know that double derrick with high reliability. © (2016) Trans Tech Publications, Switzerland.
Number of references: 5
Main heading: Reliability analysis
Controlled terms: Stress analysis - Finite element method - Cranes - Dynamic loads - Static analysis
Uncontrolled terms: High reliability - Hoisting system - Load characteristics - Reference for evaluation - Reliability Index - Static strength - Stress deformations - Working environment
Classification code: 408.1 Structural Design, General - 693.1 Cranes - 723.5 Computer Applications - 921.6 Numerical Methods - 951 Materials Science
DOI: 10.4028/www.scientific.net/KEM.667.548
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

114. Physical property research of CO2 in Yan Chang Oilfield pipeline transportation

Accession number: 20174804462206
Authors: Chen, Bing (1); Xiao, Hongliang (1); Cao, Shuangge (1)
Author affiliation: (1) Department of Mechanical Engineering, Xi'an Shiyou University, Shaanxi, China
Corresponding author: Chen, Bing(bchen@xsyu.edu.cn)
Source title: IET Conference Publications
Abbreviated source title: IET Conf Publ
Volume: 2016
Part number: 1 of 1
Issue: CP706
Issue date: 2016
Publication year: 2016
Language: English
ISBN-13: 9781785614026
Document type: Conference article (CA)
Conference name: 2016 International Field Exploration and Development Conference, IFEDC 2016
Conference date: August 11, 2016 - August 12, 2016

Conference location: Beijing, China
Conference code: 131863
Publisher: Institution of Engineering and Technology, United States
Abstract: The capture, utilization and storage (CCUS) of CO2 has become a hot topic in the current environmental protection field. What's more, CO2 gas sources contain various impurities, which may have a great influence on the physical properties of CO2. So understanding the physical and chemical properties of CO2 with impurities as well as the differences of between it and pure CO2, is the basis of carrying out pipeline technology for transporting CO2. By comparing the various equations of state, we choose PR equation to calculate the phase state and physical properties of CO2 containing impurities. In addition, we have used HYSYS software conduct research on 30 MT/a CO2 with impurities of Yan Chang Oilfield. The study shows that its critical point is T=30.37°C, P=7.55MPa. Compared with the pure CO2, its critical temperature reduces, critical pressure rises, and there is a two-phase region in the phase diagram, which indicates that the existence of impurities makes it harder to convey CO2 in the pipeline. In the vicinity of critical point, tiny changes from pressure and temperature will make its density, viscosity, thermal conductivity and compression coefficient vary in a large range. Currently, China hasn't established long-distance pipeline to transport CO2, and we also lack the experience of conveying CO2 with impurities in pipeline. However, the physical properties of CO2 containing impurities is primary problem to solve in the pipeline transportation. This paper supplies some its physical properties, which is the fundamental work of developing pipeline transportation for CO2.
Number of references: 12
Main heading: Carbon dioxide
Controlled terms: Oil well flooding - Thermal conductivity - Environmental protection - Equations of state - Pipelines
Uncontrolled terms: CCUS - Compression coefficients - Critical temperatures - Long distance pipelines - Physical and chemical properties - Pipe-line transportations - Pipeline technology - Pressure and temperature
Classification code: 454.2 Environmental Impact and Protection - 511.1 Oil Field Production Operations - 619.1 Pipe, Piping and Pipelines - 641.1 Thermodynamics - 804.2 Inorganic Compounds
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

115. Analytic expression of the aperture averaging function for Cassegrain system

Accession number: 20165203170003
Authors: Yang, Changqi (1); Xu, Ning (1); Liu, Simin (1); Wu, Zhimin (1); Yang, Liuyi (1); Tu, Xiaoyu (1); Wang, Fan (1)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Source title: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016 - Proceedings
Abbreviated source title: Prog. Electromagn. Res. Symp., PIERS - Proc.
Part number: 1of1
Issue title: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016 - Proceedings
Issue date: November 3, 2016
Publication year: 2016
Pages: 2954-2958
Article number: 7735165
Language: English
ISBN-13: 9781509060931
Document type: Conference article (CA)
Conference name: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016
Conference date: August 8, 2016 - August 11, 2016
Conference location: Shanghai, China
Conference code: 124897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Aperture averaging effect can smooth the optical signal fluctuations. Generally, the aperture function is assumed to be a single circle when its aperture averaging function K0 is calculated. In recent years, K0 function of a complex receiving aperture is also discussed. Actually, Cassegrain system is usually used as a telescope for free-space optical communication. There is a little bit difference from the previous analysis when Cassegrain system is used to analyze aperture averaging effect. K0 function of Cassegrain system is analyzed in this paper. The calculation result can be used to establish simulation model for optical propagation system. © 2016 IEEE.
Number of references: 4
Main heading: Optical communication

Uncontrolled terms: Analytic expressions - Aperture averaging - Aperture function - Calculation results - Free Space Optical communication - Optical signals - Receiving aperture - Simulation model
Classification code: 717.1 Optical Communication Systems
DOI: 10.1109/PIERS.2016.7735165
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

116. Slow-light effects in microfiber coil resonator

Accession number: 20170203232326
Authors: Ma, Cheng-Ju (1); Fu, Hai-Wei (1); Liu, Ying-Gang (1)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 10158
Part number: 1of1
Issue title: Optical Communication and Optical Fiber Sensors and Optical Memories for Big Data Storage
Issue date: 2016
Publication year: 2016
Article number: 1015803
Language: English
ISSN: 0277786X
E-ISSN: 1996756X
CODEN: PSISDG
ISBN-13: 9781510607743
Document type: Conference article (CA)
Conference name: International Symposium on Optical Communication and Optical Fiber Sensors and the International Symposium on Optical Memories for Big Data Storage
Conference date: May 9, 2016 - May 11, 2016
Conference location: Beijing, China
Conference code: 125533
Sponsor: China High-Tech Industrialization Association (CHIA); Chinese Society for Optical Engineering (CSOE)
Publisher: SPIE
Abstract: At present, miniaturized, low loss and integrated slow-light elements are the urgent needs for the slow-light technology development. In this paper, we study the slow-ight effects in a compact microfiber coil resonator (MCR) structure and fabricate the compact MCR slow-light element. Furthermore, we test its slow-light properties and find that the optical pulse propagating in the MCR can be delayed about 30 ps. By caculating, we find that the group velocity of the light pulse propagating in the MCR slow-light element can be reduced to about 0.47c (c is the speed of light in vacuum) and the shape of the light pulse passing through the MCR keeps well. © 2016 SPIE.
Number of references: 16
Main heading: Slow light
Controlled terms: Resonators - Light velocity - Light transmission - Light
Uncontrolled terms: Coupled wave theory - Group velocities - Light effects - Light elements - Light properties - Light pulse propagating - Microfiber coil resonators - Technology development
Classification code: 741.1 Light/Optics
Numerical data indexing: Time 3.00e-11s
DOI: 10.1117/12.2243592
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

117. Comparative analysis of the aperture averaging function between Cassegrain system and singular aperture system

Accession number: 20165203170282
Authors: Yang, Changqi (1); Xu, Ning (1); Wu, Zhimin (1); Wang, Fan (1); Liu, Simin (1); Yang, Liuyi (1); Tu, Xiaoyu (1)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, China

Source title: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016 - Proceedings
Abbreviated source title: Prog. Electromagn. Res. Symp., PIERS - Proc.
Part number: 1of1
Issue title: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016 - Proceedings
Issue date: November 3, 2016
Publication year: 2016
Pages: 1943-1945
Article number: 7734837
Language: English
ISBN-13: 9781509060931
Document type: Conference article (CA)
Conference name: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016
Conference date: August 8, 2016 - August 11, 2016
Conference location: Shanghai, China
Conference code: 124897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In free-space optical communication, aperture averaging effect can be used to optimize receiver design. A variety of factors contribute to aperture averaging effect, such as the receiving aperture, the light source, and the turbulence link. Cassegrain system is usually used as the receiver. It is technically feasible to optimally design the light source according to Cassegrain system's aperture averaging function and the turbulent propagation path. The aperture averaging functions of Cassegrain system and single aperture system are analyzed in this paper. The results show that the average aperture function of Cassegrain system decreases significantly. Large obscuration ratio can significantly reduce the value of K0 function. © 2016 IEEE.
Number of references: 3
Main heading: Light sources
Controlled terms: Optical communication
Uncontrolled terms: Aperture averaging - Aperture function - Comparative analysis - Free Space Optical communication - Propagation paths - Receiver design - Receiving aperture - Single aperture
Classification code: 717.1 Optical Communication Systems
DOI: 10.1109/PIERS.2016.7734837
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

118. Technique of weight factor shifting for aperture averaging

Accession number: 20161502207870
Authors: Yang, Changqi (1)
Author affiliation: (1) School of Sciences, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Yang, Changqi(changqiyang@foxmail.com)
Source title: Applied Optics
Abbreviated source title: Appl. Opt.
Volume: 55
Issue: 4
Issue date: February 1, 2016
Publication year: 2016
Pages: 654-659
Language: English
ISSN: 1559128X
E-ISSN: 21553165
CODEN: APOPAI
Document type: Journal article (JA)
Publisher: OSA - The Optical Society
Abstract: A singular aperture receiver is usually used in a free-space optical communication system. To increase the received optical flux, a larger diameter receiver is preferred, but this approach causes a sharp increase in cost. It also limits the large-scale civil use of free-space optical communications. This paper proposes a technique called aperture averaging weight factor shifting and designs a new type of receiver that can greatly reduce the cost of a free-space optical communication system. This paper offers a comparative analysis of two types of receivers for optical scintillation and proves theoretically that using this new type of receiver does not degrade the performance. © 2016 Optical Society of America.

Number of references: 8
Main heading: Optical communication
Controlled terms: Optical constants
Uncontrolled terms: Aperture averaging - Comparative analysis - Free Space Optical communication - Free space optical communication systems - Optical flux - Optical scintillation - Sharp increase - Weight factor
Classification code: 717.1 Optical Communication Systems - 741.1 Light/Optics
DOI: 10.1364/AO.55.000654
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

119. Laser atmospheric propagation performance analysis for a 300-meter path

Accession number: 20165203170283
Authors: Yang, Changqi (1); Xu, Ning (1); Wu, Zhimin (1); Wang, Fan (1); Liu, Simin (1); Yang, Liuyi (1); Tu, Xiaoyu (1)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Source title: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016 - Proceedings
Abbreviated source title: Prog. Electromagn. Res. Symp., PIERS - Proc.
Part number: 1of1
Issue title: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016 - Proceedings
Issue date: November 3, 2016
Publication year: 2016
Pages: 1946-1948
Article number: 7734838
Language: English
ISBN-13: 9781509060931
Document type: Conference article (CA)
Conference name: 2016 Progress In Electromagnetics Research Symposium, PIERS 2016
Conference date: August 8, 2016 - August 11, 2016
Conference location: Shanghai, China
Conference code: 124897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Research in the field of laser atmospheric propagation has been continued for many years. Due to the atmospheric turbulence, the actual systems are facing a lot of technical problems. It leads to the difficulty of large-scale civilian use of laser communication. In this paper, the parameters of a laser transmission experiment are analyzed. The study of laser atmospheric propagation is usually based on the first-order Rytov approximation. In this paper, we analyze the optical propagation parameters based on both of the first-order and second-order Rytov approximation. © 2016 IEEE.
Number of references: 6
Main heading: Atmospheric turbulence
Uncontrolled terms: Actual system - Atmospheric propagation - First order - Laser transmission - Performance analysis - Propagation parameters - Rytov approximation - Second orders
Classification code: 443.1 Atmospheric Properties - 631.1 Fluid Flow, General
Numerical data indexing: Size 3.00e+02m
DOI: 10.1109/PIERS.2016.7734838
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

120. Experiment of treatment of polluted sand on well site in the oil field

Accession number: 20174804462209
Authors: Li, Jingming (1)
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, China
Corresponding author: Li, Jingming(lijm@xsyu.edu.cn)
Source title: IET Conference Publications
Abbreviated source title: IET Conf Publ
Volume: 2016

Part number: 1 of 1
Issue: CP706
Issue date: 2016
Publication year: 2016
Language: English
ISBN-13: 9781785614026
Document type: Conference article (CA)
Conference name: 2016 International Field Exploration and Development Conference, IFEDC 2016
Conference date: August 11, 2016 - August 12, 2016
Conference location: Beijing, China
Conference code: 131863
Publisher: Institution of Engineering and Technology, United States
Abstract: On the analysis of the characteristics of the sample from the oil field, experiments are carried out through hydrocyclone on the sample with different concentration of the solid phase, liquid contents and temperature, flow rate in the laboratory. The results show that the hydrocyclone can be of great value to the cleaning of sand and recycling of oil and sludge by reducing the liquid content in the sand to be fewer than 1% which is far below the national standard 3%. The adoption of the hydrocyclone can do great favors to the reutilization of the useful liquid and the protection of the environment, which can also make certain social profit.
Number of references: 5
Main heading: Sand
Controlled terms: Cyclone separators - Liquids
Uncontrolled terms: Cleanness - Hydro-cyclone - Liquid contents - National standard - Protection of the environments - Re-utilization - Solid-phase - Treatment
Classification code: 483.1 Soils and Soil Mechanics - 802.1 Chemical Plants and Equipment
Numerical data indexing: Percentage 1.00e+00%, Percentage 3.00e+00%
Funding Details: Number: 2016JM5046, Acronym: -, Sponsor: -; Number: 14JK1582, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: This work is Supported by Natural Science Basic Research Plan in Shaanxi Province of China (Program No. 2016JM5046)and Scientific Research Program Funded by Shaanxi Provincial Education Department (Program No. 14JK1582).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

121. Design and implementation of remote control system between android platform

Accession number: 20171403533500
Authors: Wang, Kui-Sheng (1); Hou, Yan (1); Xu, Ying-Zhuo (1)
Author affiliation: (1) College of Computer Science, Xi'an Shiyou University, Xi'an, China
Source title: Proceedings - 2016 International Conference on Information System and Artificial Intelligence, ISAI 2016
Abbreviated source title: Proceedings - 2016 International Conference on Information System and Artificial Intelligence, ISAI 2016
Part number: 1 of 1
Issue title: Proceedings - 2016 International Conference on Information System and Artificial Intelligence, ISAI 2016
Issue date: January 12, 2017
Publication year: 2016
Pages: 143-147
Article number: 7816692
Language: English
ISBN-13: 9781509015856
Document type: Conference article (CA)
Conference name: 2016 International Conference on Information System and Artificial Intelligence, ISAI 2016
Conference date: June 24, 2016 - June 26, 2016
Conference location: Hong Kong, China
Conference code: 125875
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Focused on the issue that the mobile terminal can not remote control each other, a remote control system between Android platforms was proposed. The system is a typical C/S mode, follow the specification of Android application, to achieve the remote control between two Android system developed by Java language. Firstly, it analyzes the key technologies of the system, like the architecture of Android system, RFB protocol and Java Socket

system, Secondly, it builds the structure model of the system, system framework, system module hierarchy and system processes, then, it analyzes in detail the function of the system layers, each module function and system processes, Finally, it realizes the remote control between Android platform through the testing on a mobile device. © 2016 IEEE.
Number of references: 15
Main heading: Remote control
Controlled terms: Android (operating system) - C (programming language) - Java programming language - Control systems - Network architecture
Uncontrolled terms: Android applications - Android platforms - Android systems - Design and implementations - Frame buffer - Java language - Structure modeling - System flow
Classification code: 723 Computer Software, Data Handling and Applications - 723.1.1 Computer Programming Languages - 731.1 Control Systems
DOI: 10.1109/ISAI.2016.0039
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

122. Robust adaptive filtering method for dynamic attitude measurement of steering drilling

Accession number: 20164202902524
Authors: Gao, Yi (1, 2); Wang, Yue-Long (1, 2); Cheng, Wei-Bin (1, 2)
Author affiliation: (1) Shaanxi Key Laboratory of Measurement and Control Technology for Oil and Gas Wells, Xi'an Shiyou University, Xi'an; 710065, China; (2) School of Electronic Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Zhongguo Guanxing Jishu Xuebao/Journal of Chinese Inertial Technology
Abbreviated source title: Zhongguo Guanxing Jishu Xuebao
Volume: 24
Issue: 4
Issue date: August 1, 2016
Publication year: 2016
Pages: 437-442
Language: Chinese
ISSN: 10056734
Document type: Journal article (JA)
Publisher: Editorial Department of Journal of Chinese Inertial Technology
Abstract: In drilling process, there are serious interferences in the attitude measurement for the steering drilling tool under conditions of near-bit vibration of steering drilling tool, which is due to the bottom drill's string vibration and would lead to inaccurate attitude measurement. In order to eliminate or weaken these adverse vibration influences on the space attitude measurement and calculate the accurate attitude parameters of drilling tool, a dynamic attitude measurement algorithm with robust adaptive filter is proposed which can effectively eliminate the influence of drilling tool vibration on dynamic attitude measurement and distribute information reasonably by equivalent weight function and adaptive factor. Experimental results and comparison analysis demonstrate that the proposed robust adaptive filtering can eliminate the vibration disturbance signal of the near-bit, the deviation angle can be controlled to about 5.5°, and the tool face angle error is less than 6°. It improves the dynamic measurement accuracy of attitude parameters and solves the problem of uncertainty in dynamic attitude measurement of steering drilling tool. © 2016, Editorial Department of Journal of Chinese Inertial Technology. All right reserved.
Number of references: 17
Main heading: Adaptive filters
Controlled terms: Drills - Bandpass filters - Parameter estimation - Uncertainty analysis - Adaptive filtering - Vibration analysis
Uncontrolled terms: Attitude measurement - Comparison analysis - Drill string vibrations - Dynamic measurement - Dynamic measurement accuracy - Robust estimation - Vibration disturbances - Vibration influence
Classification code: 603.2 Machine Tool Accessories - 703.2 Electric Filters - 922.1 Probability Theory
DOI: 10.13695/j.cnki.12-1222/o3.2016.04.004
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

123. Photoluminescence mechanism of annealed ZnO/Zn/Al2O3 sandwich structures deposited on glass substrates

Accession number: 20160301817949
Authors: Chen, Haixia (1); Ding, Jijun (1); Guo, Wenge (1)
Author affiliation: (1) School of Science, Xi'An Shiyou University, Xi'an, Shaanxi; 710065, China
Corresponding author: Chen, Haixia(chxia8154@163.com)
Source title: Ceramics International
Abbreviated source title: Ceram Int
Volume: 42
Issue: 4
Issue date: March 1, 2016
Publication year: 2016
Pages: 5082-5088
Language: English
ISSN: 02728842
CODEN: CINNDH
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: ZnO/Zn/Al2O3 sandwich structures are grown on glass substrates by magnetron sputtering. The effect of Al2O3 layers on optical properties of ZnO/Zn/Al2O3 sandwich structures is investigated. Results indicated that as the deposition time of Al2O3 increases, violet peak centered at 402 nm gradually shifted to 412 nm and the intensity firstly decreases and then increases. We discuss the intensity change and shift of violet peak relating to VZn defects and the band alignment of ZnO/Zn/Al2O3 sandwich structures, respectively. We proposed that ZnO/Zn/Al2O3 sandwich structures can be approximately regarded as a quasiquantum-well-like structure. So the electron tunneling from Zn to Al2O3 layer is suppressed and the photogenerated carriers can be confined in the Zn Fermi level. In order to further understand the effect of posttreatment on optical properties of samples, samples are annealed in vacuum at 350 °C for 1 h. PL emissions are weakened with the increase of Al2O3 deposition time. Interestingly, at a same deposition condition, PL emissions are still improved after posttreatment. Combined Al2O3 layer modulation with annealing treatment, steady PL properties can be effectively improved. © 2015 Elsevier Ltd and Techna Group S.r.l.
Number of references: 36
Main heading: Zinc oxide
Controlled terms: Photoluminescence - Optical properties - Annealing - Binary alloys - Alumina - Aluminum oxide - Glass substrates - Deposition - II-VI semiconductors - Electron tunneling - Zinc - Glass - Structural properties
Uncontrolled terms: Annealing treatments - Band alignments - Deposition conditions - Glass substrates - Intensity change - Interlayer - Photogenerated carriers - Photoluminescence mechanism
Classification code: 408 Structural Design - 537.1 Heat Treatment Processes - 546.3 Zinc and Alloys - 712.1 Semiconducting Materials - 741.1 Light/Optics - 802.3 Chemical Operations - 804.2 Inorganic Compounds - 812.3 Glass - 813.2 Coating Materials - 951 Materials Science
Numerical data indexing: Size 4.02e-07m, Size 4.12e-07m, Temperature 6.23e+02K, Time 3.60e+03s
DOI: 10.1016/j.ceramint.2015.12.022
Funding Details: Number: YS29031223, Acronym: -, Sponsor: -; Number: 11447116, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 12JK0426, Acronym: -, Sponsor: -;
Funding text: This work was supported by the National Natural Science Foundations of China (Grant nos. 11447116 and 11304246), Special Program for Scientific Research of Shaanxi Educational Committee (Grant no. 12JK0426) and the Doctoral Scientific Research Startup Foundation of Xi’an Shiyou University (Grant no. YS29031223).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

124. Industry 4.0 development and application of intelligent manufacturing

Accession number: 20171403533605
Authors: Cheng, Guo-Jian (1); Liu, Li-Ting (1); Qiang, Xin-Jian (1); Liu, Ye (1)
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Proceedings - 2016 International Conference on Information System and Artificial Intelligence, ISAI 2016
Abbreviated source title: Proceedings - 2016 International Conference on Information System and Artificial Intelligence, ISAI 2016
Part number: 1 of 1

Issue title: Proceedings - 2016 International Conference on Information System and Artificial Intelligence, ISAI 2016
Issue date: January 12, 2017
Publication year: 2016
Pages: 407-410
Article number: 7816745
Language: English
ISBN-13: 9781509015856
Document type: Conference article (CA)
Conference name: 2016 International Conference on Information System and Artificial Intelligence, ISAI 2016
Conference date: June 24, 2016 - June 26, 2016
Conference location: Hong Kong, China
Conference code: 125875
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Last several years, industrial and information technology field have undergone profound changes, entering 'Industry 4.0' era. Industry4.0, as a representative of the future of the Fourth Industrial Revolution, evolved from embedded system to the Cyber Physical System (CPS). Manufacturing will be via the Internet, to achieve Internal and external network integration, toward the intelligent direction. This paper introduces the development of Industry 4.0, and the Cyber Physical System is introduced with the example of the Wise Information Technology of 120 (WIT120), then the application of Industry 4.0 in intelligent manufacturing is put forward through the digital factory to the intelligent factory. Finally, the future development direction of Industry 4.0 is analyzed, which provides reference for its application in intelligent manufacturing. © 2016 IEEE.
Number of references: 8
Main heading: Industry 4.0
Controlled terms: Embedded systems - Cyber Physical System
Uncontrolled terms: Cyber-physical systems (CPS) - Development and applications - Development directions - Digital factories - External network - Industrial revolutions - Intelligent Manufacturing - ITS applications
Classification code: 913.4 Manufacturing
DOI: 10.1109/ISAI.2016.0092
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

125. Numerical simulation analysis of the flow field and convective heat transfer in new super open rack vaporizer

Accession number: 20181304945124
Authors: Deng, Zhian (1); Hui, Kai (1); Zhang, Yan (1); Cao, Yanqiang (1)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Hui, Kai(523167518@qq.com)
Source title: Applied Thermal Engineering
Abbreviated source title: Appl Therm Eng
Volume: 106
Issue date: 5 August 2016
Publication year: 2016
Pages: 721-730
Language: English
ISSN: 13594311
CODEN: ATENFT
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: With the rapid development of Chinese natural gas industry, vaporizer as the key equipment is used to regasify LNG to meet the requirement of fuel gas in industrial and domestic purposes. In this paper, a new super open rack vaporizer (SuperORV) model is proposed, added a cross-shaped twisted tape insert to the inner tube based on the conventional vaporizer heat transfer tube. Physical and mathematical models are established, the results from the model exhibit a good agreement with experiment data, which implies the calculation model is reliable. Base on this, the heat transfer process of two kinds of superORV heat transfer tube is simulated numerically. The temperature profiles along the heat transfer tube are obtained, the heat transfer performance and the local heat transfer are analyzed, the heat transfer coefficient profiles against temperature and heat transfer tube length are also discussed. The effects of superORV heat transfer tube with LNG pressure and screw pitch are obtained. The results show that the cross-shaped

twisted tape insert has a significant effect on enhancing heat transfer performance of new heat transfer tube. The heat transfer performance of new super open rack vaporizer is visible. © 2016 Elsevier Ltd
Number of references: 16
Main heading: Tubes (components)
Controlled terms: Gas industry - Heat transfer coefficients - Numerical models - Heat convection
Uncontrolled terms: Convective heat transfer - Enhanced heat transfer - Enhancing heat transfer - Heat transfer process - Numerical simulation analysis - Temperature profiles - Twisted tape insert - Vaporizer
Classification code: 522 Gas Fuels - 619.1 Pipe, Piping and Pipelines - 641.2 Heat Transfer - 921 Mathematics
DOI: 10.1016/j.applthermaleng.2016.03.071
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

126. Numerical calculation of heat transfer characteristics of SuperORV heat transfer tube at supercritical pressure

Accession number: 20163902835485
Authors: Pan, Jie (1); Lü, Tao (1); Li, Ran (1); Wu, Gang (1)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Kung Cheng Je Wu Li Hsueh Pao/Journal of Engineering Thermophysics
Abbreviated source title: Kung Cheng Je Wu Li Hsueh Pao
Volume: 37
Issue: 9
Issue date: September 1, 2016
Publication year: 2016
Pages: 1926-1934
Language: Chinese
ISSN: 0253231X
CODEN: KCJPDF
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Super open rack vaporizer (SuperORV) is a new-type vaporizer using sea water as heat source, which is widely used in liqueffied natural gas (LNG) receiving terminal. The vaporizer consists of panel-shaped heat transfer tubes with double tube structure, which has good heat transfer performance. At present, due to a lack of in-depth studies on SuperORV heat transfer tube, the heat transfer enhancement mechanisms are still indistinct. In particular, the heat transfer performance at supercritical pressure hasn't been investigated. Aimed at the heat transfer processes in both vaporizing section and heating section of SuperORV heat transfer tube, in this paper a distributed parameter model was built based on the energy conservation between LNG and seawater. On this basis, the heat transfer characteristics of SuperORV heat transfer tube at supercritical pressure were calculated and analyzed numerically, and the effiects of the operating parameters and the heat transfer enhancement measures (inner fins and twisted tape insert) on heat transfer performance were also discussed. The results exhibit that the SuperORV heat transfer tube has good heat transfer characteristics at supercritical pressure, which can apparently suppress icing on the tube surface and improve the LNG vaporizing efficiency. LNG ow rate and inlet distribution ratio, and seawater/LNG ow ratio have important inuences on the heat transfer performance of heat transfer tube, including minimum tube length, ice layer length and ice thickness, whereas the operating pressure has little effiect to heat transfer. Both inner fins and twisted tape insert have obvious enhancement in heat transfer and can effiectively improve the heat transfer performance of SuperORV heat transfer tube. While both above-mentioned heat transfer enhancement measures were applied in SuperORV heat transfer tube, the required minimum tube length is shortened by more than 40%. © 2016, Science Press. All right reserved.
Number of references: 22
Main heading: Fins (heat exchange)
Controlled terms: Seawater - Tubes (components) - Heat transfer coefficients - Liquefied natural gas
Uncontrolled terms: Distributed-parameter model - Heat transfer characteristics - Numerical calculation - Super-critical pressures - SuperORV
Classification code: 471.4 Seawater, Tides and Waves - 523 Liquid Fuels - 616.1 Heat Exchange Equipment and Components - 619.1 Pipe, Piping and Pipelines - 641.2 Heat Transfer
Numerical data indexing: Percentage 4.00e+01%
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

127. Detection method of SQL injection attack in cloud computing environment

Accession number: 20171403535069
Authors: Wang, Kuisheng (1); Hou, Yan (1)
Author affiliation: (1) College of Computer Science and Technology, Xi'An Shiyou University, China
Source title: Proceedings of 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Abbreviated source title: Proc. IEEE Adv. Inf. Manag., Commun., Electron. Autom. Control Conf., IMCEC
Part number: 1 of 1
Issue title: Proceedings of 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Issue date: February 28, 2017
Publication year: 2016
Pages: 487-493
Article number: 7867260
Language: English
ISBN-13: 9781467396127
Document type: Conference article (CA)
Conference name: 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Conference date: October 3, 2016 - October 5, 2016
Conference location: Xi'an, China
Conference code: 126706
Sponsor: Chongqing Global Union Academy of Science and Technology; Global Union Academy of Science and Technology; IEEE Beijing Section; Xi'an Peihua University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: For the issues that the Web service is easy to suffer from SQL injection attacks in cloud computing environment. This paper proposes a kind of SQL detection method which combined with dynamic taint analysis and input filtering. And it is embedded in the cloud environment to achieve the protection of the Web applications in cloud deployment. First, the method obtains the SQL keywords through the analysis of lexical regulation for SQL statement. Then, it analyses the syntax regulation of SQL statement to create the rule tree. Finally, it traverses ternary tree on the basis of the model which established by SQL syntax regulation to detect the attacks. Experimental results show that the method is effective and feasible. Also, the accuracy is improved by adding the detection module. © 2016 IEEE.
Number of references: 11
Main heading: Cloud computing
Controlled terms: Syntactics - Computer crime - Forestry - Web services
Uncontrolled terms: Attack detection - Cloud computing environments - Cloud deployments - Cloud environments - Dynamic Taint Analysis - SQL injection - Sql injection attacks - Syntax analysis
Classification code: 722.4 Digital Computers and Systems - 821 Agricultural Equipment and Methods; Vegetation and Pest Control
DOI: 10.1109/IMCEC.2016.7867260
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

128. Calculation of the gas flow rate through breather valve based on the method of peak mass conversation (PMC)

Accession number: 20162202440127
Authors: Kang, Yong (1)
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Corresponding author: Kang, Yong(ykang@xsyu.edu.cn)
Source title: Huagong Jinzhan/Chemical Industry and Engineering Progress
Abbreviated source title: Huagong Jinzhan/Chem. Ind. Eng. Prog.
Volume: 35
Issue: 4
Issue date: April 5, 2016

Publication year: 2016
Pages: 1017-1021
Language: Chinese
ISSN: 10006613
Document type: Journal article (JA)
Publisher: Materials China
Abstract: It is one of the requirements to ensure an oil storage tank equipped with breather valves for limiting its vented oil-gas capacity and keeping it in safety. As the variations of physical parameters caused with the time by surroundings of the oil storage tank, the uncertainty of the design of breather valves is increased. There are many physical parameters affecting the gas flow rate through valves. Temperature change is a main factor. Based on temperature variations, a new method, peak mass conversation (PMC), was presented to calculate the gas flow rate through breather valve. The method is referred to the mass change process of both gas phase and liquid phase as an independent mass conservation, taken the gas phase component of the conservation as a research object, and determined its peak gas flow rate under the saturated vapor pressure as the gas flow rate through breathing valve. By applying the principle of mass conservation, the formula for calculating gas flow rate through breather valve was obtained. Compared to the common methods, the PMC is helpful to get actual values as well as improves the accuracy of breather valve design and selection.
Number of references: 1
Main heading: Flow rate
Controlled terms: Flow of gases - Tanks (containers) - Gases - Safety valves
Uncontrolled terms: Gas-phase components - Mass conservation - Mass conversation - Oil storage tank - Physical parameters - Saturated vapor pressure - Temperature changes - Temperature variation
Classification code: 619.1.1 Pipe Accessories - 619.2 Tanks - 631 Fluid Flow - 631.1.2 Gas Dynamics - 914.1 Accidents and Accident Prevention - 943.2 Mechanical Variables Measurements
DOI: 10.16085/j.issn.1000-6613.2016.04.008
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

129. Prediction of the Scholarship Using Comprehensive Development

Accession number: 20171503566800
Authors: Wei, Wenjuan (1); Han, Jiaxin (1); Kong, Jie (1); Xia, Haiyang (1)
Author affiliation: (1) School of Computer Science, Xi'an ShiYou University, Shaanxi; 710065, China
Source title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
Abbreviated source title: Proc. - Int. Conf. Enterp. Syst.: Adv. Enterp. Syst., ES
Part number: 1 of 1
Issue title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
Issue date: March 16, 2017
Publication year: 2016
Pages: 183-188
Article number: 7880489
Language: English
ISBN-13: 9780769559841
Document type: Conference article (CA)
Conference name: 4th International Conference on Enterprise Systems, ES 2016
Conference date: November 2, 2016 - November 3, 2016
Conference location: Melbourne, VIC, Australia
Conference code: 126897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In major colleges and universities, in order to mobilize students enthusiasm for studying and participating in extracurricular activities, all colleges make an evaluation on students comprehensive quality and set different rewards regulations for the various level. The main way is to provide financial incentives, they distribute scholarship for students of meeting requirements. The Decision Tree algorithm is frequently used all the time, however, because of the tree node selected is based on attribute's mutual information, which will lead to some crucial attribute lost their decisive role. Therefore, in this paper, we focused on predicting whether students obtain scholarship on the comprehensive quality of students with Naive Bayes algorithm.
Number of references: 18

Main heading: Students
Controlled terms: Decision trees - Data mining - Forecasting
Uncontrolled terms: Colleges and universities - Comprehensive qualities - Decision-tree algorithm - Extracurricular activities - Financial incentives - Mutual informations - Naive-Bayes algorithm - ROC curves
Classification code: 723.2 Data Processing and Image Processing - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 961 Systems Science
DOI: 10.1109/ES.2016.30
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

130. Discovering the Academic Situation of Students by Relationship Mining

Accession number: 20171503566801
Authors: Xia, Haiyang (1); Han, Jiaxin (1); Kong, Jie (1); Wei, Wenjuan (1); Zhang, Lei (1)
Author affiliation: (1) School of Computer Science, Xi'an ShiYou University, Shaanxi; 710065, China
Source title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
Abbreviated source title: Proc. - Int. Conf. Enterp. Syst.: Adv. Enterp. Syst., ES
Part number: 1 of 1
Issue title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
Issue date: March 16, 2017
Publication year: 2016
Pages: 189-195
Article number: 7880490
Language: English
ISBN-13: 9780769559841
Document type: Conference article (CA)
Conference name: 4th International Conference on Enterprise Systems, ES 2016
Conference date: November 2, 2016 - November 3, 2016
Conference location: Melbourne, VIC, Australia
Conference code: 126897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: While the data mining in education field gained more and more popularity in recent years, there have many research endeavors to find association rules in students' academic situation. The current methods normally apply traditional association rules mining technique to identify those rules. However, traditional association rules mining technique can not identify difference between different types of students' academic situation. To solve this problems, we applied a novel contrast target rules mining method in this paper. Real world data set from Computer Science department of a university of China, the empirical results show the difference characteristics of different types of students in their academic situation. © 2016 IEEE.
Number of references: 24
Main heading: Association rules
Controlled terms: Data mining - Students
Uncontrolled terms: Association rules mining - Data set - Education field - Real-world - Rules mining
Classification code: 723.2 Data Processing and Image Processing - 903.1 Information Sources and Analysis
DOI: 10.1109/ES.2016.31
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

131. Study on relevance between crude oil output and meteorological factors based on NCM-Apriori

Accession number: 20164703032516
Authors: Hu, Hongtao (1); Gao, Juan (1)
Author affiliation: (1) College of Computer Science, Xi'An Shiyou University, Xi'an; Shaanxi Province, China
Source title: ICEIEC 2016 - Proceedings of 2016 IEEE 6th International Conference on Electronics Information and Emergency Communication

Abbreviated source title: ICEIEC - Proc. IEEE Int. Conf. Electron. Inf. Emerg. Commun.
Part number: 1of1
Issue title: ICEIEC 2016 - Proceedings of 2016 IEEE 6th International Conference on Electronics Information and Emergency Communication
Issue date: October 12, 2016
Publication year: 2016
Pages: 202-205
Article number: 7589720
Language: English
ISBN-13: 9781509019960
Document type: Conference article (CA)
Conference name: 6th IEEE International Conference on Electronics Information and Emergency Communication, ICEIEC 2016
Conference date: June 17, 2016 - June 19, 2016
Conference location: Beijing, China
Conference code: 124267
Sponsor: IEEE Hong Kong Computational Intelligence Society; Institute of Electrical and Electronics Engineers (IEEE)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Crude oil output is directly or indirectly associated with a number of factors such as reserves, geological structure, number of active wells, and production plan. Analysis of relationship between crude oil output and influencing factors plays a significant role in predicting crude oil output and planning reasonable productions. A method using NCM-Apriori algorithm to calculate the relevance between crude oil output and meteorological factors is proposed in this paper. With this method, data pre-processing based on K-Means algorithm is first conducted on daily production data of a certain oil production plant. Next, different meteorological factors are graded to achieve transaction datasets. An association analysis with NCM-Apriori algorithm is then performed on these datasets. Finally, the strong association rules related to crude oil output are selected based on settings for minimum support and minimum confidence. This method has been proven to be more simple and efficient than traditional Apriori algorithms in computation, thus providing a new reference for predicting crude oil output and developing reasonable crude oil production plans. © 2016 IEEE.
Number of references: 12
Main heading: Data mining
Controlled terms: Proven reserves - Association rules - Planning - Learning algorithms - Production control - Computational efficiency - Crude oil - Data handling
Uncontrolled terms: Apriori algorithms - Association analysis - Crude oil production - Data preprocessing - frequent item set - Geological structures - Meteorological factors - Number of factors
Classification code: 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 723.2 Data Processing and Image Processing - 723.4.2 Machine Learning - 903.1 Information Sources and Analysis - 912.2 Management - 913.2 Production Control
DOI: 10.1109/ICEIEC.2016.7589720
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

132. Test and analysis of electric arc machining characteristics of titanium alloy and high-temperature alloy

Accession number: 20154301425614
Authors: Peng, Hai (1); Zhai, Yang (1)
Author affiliation: (1) School of Mechanical Engineering, Xi'An Shiyou University, Xi'an, Shannxi; 710065, China
Source title: Key Engineering Materials
Abbreviated source title: Key Eng Mat
Volume: 667
Issue date: 2016
Publication year: 2016
Pages: 123-129
Language: English
ISSN: 10139826
E-ISSN: 16629795
CODEN: KEMAEY

Document type: Journal article (JA)
Publisher: Trans Tech Publications Ltd
Abstract: The short electric arc machining technique is a new type of strong current processing method, which has many advantages, especially for difficult-to-machine materials, such as no cutting force, small cutting chips, easy to chip removal, high processing efficiency and so on. In this paper, the electric arc processing cutting performance of two typical difficult-to-machine materials, titanium alloy and high-temperature alloy, was studied by electric machining cutting experiment to analyze the influence of arc processing on the properties of materials. Using the designed electric arc machining system, the effect of electrical processing parameters on processing properties was discussed. Furthermore, the surface layer hardness and materials metallurgical structure were detected to study the change of material internal organization and the effects on material properties change, which provide the corresponding theoretical analysis basis for arc machining of difficult-to-machine materials. Experimental results show that the titanium alloy and high-temperature alloy have small heat affected zone and hardening layer after electric arc processing, which could meet the requirement of subsequent machining to obtain a good surface quality. © (2016) Trans Tech Publications, Switzerland.
Number of references: 7
Main heading: Titanium alloys
Controlled terms: Electric arcs - Heat affected zone - Cutting - Electric network parameters - Surface properties - Cutting tools
Uncontrolled terms: Cutting performance - Difficult to machine materials - Electrical processing - Machining characteristics - Machining parameters - Machining techniques - Metallurgical structures - Processing properties
Classification code: 538.2 Welding - 542.3 Titanium and Alloys - 603.2 Machine Tool Accessories - 701.1 Electricity: Basic Concepts and Phenomena - 703.1 Electric Networks - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
DOI: 10.4028/www.scientific.net/KEM.667.123
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

133. Performance analysis of nonlinear filters using dynamic error spectrum metric

Accession number: 20171103450335
Authors: Mao, Yanhui (1); Chen, Yanjun (1); Cheng, Weibin (1); Wang, Yuelong (1)
Author affiliation: (1) College of Electronic Engineering, Xi'an Shiyou University, Xi'an, Shaanxi; 710065, China
Corresponding author: Mao, Yanhui(yhmaoxjtu@gmail.com)
Source title: CGNCC 2016 - 2016 IEEE Chinese Guidance, Navigation and Control Conference
Abbreviated source title: CGNCC - IEEE Chin. Guid., Navig. Control Conf.
Part number: 1 of 1
Issue title: CGNCC 2016 - 2016 IEEE Chinese Guidance, Navigation and Control Conference
Issue date: January 20, 2017
Publication year: 2016
Pages: 2425-2428
Article number: 7829173
Language: English
ISBN-13: 9781467383189
Document type: Conference article (CA)
Conference name: 7th IEEE Chinese Guidance, Navigation and Control Conference, CGNCC 2016
Conference date: August 12, 2016 - August 14, 2016
Conference location: Nanjing, Jiangsu, China
Conference code: 126063
Sponsor: IEEE Control Systems Society (CSS) Chapter; Science and Technology on Aircraft Control Laboratory; Technical Committee on Guidance, Navigation and Control (TCGNC) of Chinese Society of Aeronautics and Astronautics (CSAA)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: The commonly used root-mean-square error (RMSE) for estimation performance evaluation is easily dominated by large error terms. Then many new alternative absolute metrics has been provided. But each of these metrics only reflects one narrow aspect of estimation performance respectively. A comprehensive measure, error spectrum, was presented aggregating these incomprehensive measures. However, when applying this measure to dynamic systems, it will plot a 3D figure over the total time span, which is not intuitive and difficult to be analyzed. In this study, to overcome its drawbacks, the authors propose a new metric, dynamic error spectrum, to summarize the ES curve. Three forms under different application backgrounds are given, one of which is balanced taking into account

both good and bad behavior of an estimator and so can provide more impartial evaluation results. It can be applied to a variety of dynamic systems directly. Then considering the challenge in performance evaluation of nonlinear filters for nonlinear system, we choose four nonlinear filters to illustrate the superiority of our metric. The simulation results validate its utility and effectiveness. © 2016 IEEE.
Number of references: 13
Main heading: Mean square error
Controlled terms: Nonlinear systems - Errors - Bandpass filters - Nonlinear filtering
Uncontrolled terms: Dynamic error - Error spectrum - Error terms - Estimation performance - Evaluation results - Performance analysis - Root mean square errors - Time span
Classification code: 703.2 Electric Filters - 716.1 Information Theory and Signal Processing - 922.2 Mathematical Statistics - 961 Systems Science
DOI: 10.1109/CGNCC.2016.7829173
Funding Details: Number: 2015D-5006-0307, Acronym: -, Sponsor: -; Number: 41474108,61174191, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2013JC08, Acronym: -, Sponsor: Education Department of Shaanxi Province;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

134. Test and analysis of low temperature air cutting performance to difficult-to-machine materials

Accession number: 20154301425619
Authors: Peng, Hai (1); Wang, Ya Fei (1)
Author affiliation: (1) School of Mechanical Engineering, Xi'An Shiyou University, Xi'an, Shannxi; 710065, China
Source title: Key Engineering Materials
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Volume: 667
Issue date: 2016
Publication year: 2016
Pages: 155-161
Language: English
ISSN: 10139826
E-ISSN: 16629795
CODEN: KEMAEY
Document type: Journal article (JA)
Publisher: Trans Tech Publications Ltd
Abstract: This paper mainly analyzes the cutting mechanism of low temperature air cutting, and makes research and analysis about the brittle characteristics, the lubricate mechanism and the chip breaking mechanisms of metal materials under low temperature cold condition. Meanwhile, the cutting performance of typical difficult-to-machine materials, such as The precipitation stainless steel, super-alloy and titanium alloy, were discussed. Through cutting experiment under normal conditions and low temperature air conditions, the influence on cutting force, tool wear, chip shape and surface processing quality of typical difficult-to-machine materials were analyzed. The experimental results show that the low temperature air has better effects on cutting difficult-to-machine materials. It can reduce temperature distribution and cutting force, improve tool life and suface processing quality, decrease the use of cutting fluid and mitigate environmental pollution. Thus, low temperature air cutting is an efficient and environment friendly way to solve the problem of cutting difficult-to-machine materials. © (2016) Trans Tech Publications, Switzerland.
Number of references: 8
Main heading: Cutting fluids
Controlled terms: Cutting tools - Lubrication - Temperature - Metal cutting - Precipitation (chemical) - Titanium alloys
Uncontrolled terms: Cutting experiment - Cutting performance - Difficult to machine materials - Environment friendly - Environmental pollutions - Low temperatures - Processing quality - Research and analysis
Classification code: 542.3 Titanium and Alloys - 603.2 Machine Tool Accessories - 604.1 Metal Cutting - 607.2 Lubrication - 641.1 Thermodynamics - 802.3 Chemical Operations
DOI: 10.4028/www.scientific.net/KEM.667.155

Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

135. Supramolecular fluid of associative polymer and viscoelastic surfactant for hydraulic fracturing

Accession number: 20170203230109
Authors: Yang, Jiang (1); Cui, Weixiang (1); Guan, Baoshan (1); Lu, Yongjun (1); Qiu, Xiaohui (1); Yang, Zhanwei (1); Qin, Wenlong (1)
Author affiliation: (1) Xian Petroleum University, RIPED-Langfang, PetroChina, United States
Source title: SPE Production and Operations
Abbreviated source title: SPE Prod. Oper.
Volume: 31
Issue: 4
Issue date: November 2016
Publication year: 2016
Pages: 318-324
Language: English
ISSN: 19301855
Document type: Journal article (JA)
Publisher: Society of Petroleum Engineers (SPE)
Abstract: This paper details the study of a new fracturing fluid that is based on a supramolecular complex between associative polymer and viscoelastic surfactant (VES). The crosslinked complex gel was based on weak physical attractive forces, such as van der Waals, hydrogen bonding, and electrostatic interaction between associative polymer and wormlike micelles of VES. The concentration of surfactant in the new fluid is 10 times less than that of VES fracturing fluid. The combination of VES and associative polymer synergistically enhances the viscosity to several times more than that of the individual components alone. The fluid system was optimized by experimental design. The microstructure of wormlike micelles and complex formation was verified by electron microscopy. The fluid is shear stable at high temperature for 1 hour. The dynamic rheological properties of the supramoleulcar fluid show high viscoelasticity, in which the elastic moduli are higher than the loss moduli below an angular frequency of 0.1 rad/s. The proppant-transport test in a large-scale fracture simulator showed good proppant-suspension ability. The fluid has 50% lower formation damage than conventional guar. The fluid was prepared with fewer additives, formed gel instantly, and can be mixed on the fly in the field. The gel can be completely broken with almost no residue. Field application of the new fracturing fluid in a gas well showed the enhancement of gas production by more than 100%. The fluid has 20% lower friction pressure than guar fluid. Hence, the new supramolecular fluid is an effective fracturing fluid. © 2016 Society of Petroleum Engineers.
Number of references: 18
Main heading: Fracturing fluids
Controlled terms: Hydrogen bonds - Supramolecular chemistry - Micelles - Vortex flow - Proppants - Viscoelasticity - Surface active agents - Van der Waals forces
Uncontrolled terms: Angular frequencies - Associative polymers - Cross-linked complex - Dynamic rheological properties - Individual components - Proppant transports - Supramolecular complexes - Viscoelastic surfactants
Classification code: 511.1 Oil Field Production Operations - 631.1 Fluid Flow, General - 801.3 Colloid Chemistry - 801.4 Physical Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics
Numerical data indexing: Angular_Velocity 1.00e-01rad/s, Percentage 1.00e+02%, Percentage 2.00e+01%, Percentage 5.00e+01%, Time 3.60e+03s
DOI: 10.2118/175762-PA
Funding Details: Number: 2013AA064801, Acronym: -, Sponsor: -; Number: 51174163,51304159, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The authors acknowledge the support of the project by National Natural Science Foundation of China (Grant Nos. 51174163 and 51304159) and National Hi-Tech Development (863) Plan Project (2013AA064801).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

136. Hydraulic fracture propagation direction during volume fracturing in unconventional reservoirs

Accession number: 20160501875856
Authors: Zhou, Desheng (1); Zheng, Peng (1); He, Pei (1); Peng, Jiao (1)
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Source title: Journal of Petroleum Science and Engineering
Abbreviated source title: J. Pet. Sci. Eng.
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Publication year: 2016
Pages: 82-89
Language: English
ISSN: 09204105
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Creating an artificial fracture network by hydraulic fracturing plays the most important role in unconventional oil and gas development. The propagation direction of a fracture is the base to understand the mechanism of forming a fracture network. For size limitation, the fracture propagation direction has not been well studied in labs. In this paper, a comprehensive numerical model is developed to study the fracture propagation direction during volume fracturing of unconventional reservoirs. The model is based on elastic and fracturing mechanics of a rock, as well as the maximum circumferential stress criterion and boundary element method. Simulated results prove that, the propagation direction of a hydraulic fracture is affected by formation in-situ stresses, hydraulic pressure in the fracture and the initial azimuth of the fracture. An H factor is proposed to evaluate the combined effect of those factors, and proved mathematically and numerically that it is a major factor controlling a fracture propagation direction. Fractures will follow the same propagation path if the H factor keeps constant for different stresses and pressure combination. A fracture will follow the direction of the in-situ maximum principal stress as the applied internal hydraulic pressure in the fracture is less than the maximum stress, otherwise, the fracture will try to follow its initial azimuth and yield a propagation direction path between its initial azimuth and the direction of the in-situ maximum principal stress. The work is helpful in understanding the forming process of a complex fracture network during hydraulic fracturing in unconventional reservoirs. The H factor is useful in reducing both lab test and numerical simulation times, making lab tests of fracture extension at high stresses and pressure viable. © 2016 Elsevier B.V.
Number of references: 20
Main heading: Boundary element method
Controlled terms: Fracture - Hydraulic fracturing - Stresses - Sailing vessels - Numerical models
Uncontrolled terms: Circumferential stress - Circumferential stress theory - Fracture propagation - Hydraulic fracture propagation - Maximum principal stress - Propagation direction - Unconventional oil and gas - Unconventional reservoirs
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 674.1 Small Marine Craft - 921 Mathematics - 921.6 Numerical Methods - 951 Materials Science
DOI: 10.1016/j.petrol.2016.01.028
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

137. The research and development of automatic vertical drilling tool

Accession number: 20164202921897
Authors: Yan, Wenhui (1); Peng, Yong (1); Wu, Heng (1)
Author affiliation: (1) Department of Mechanical Engineering, Xi'An Shiyou University, Xi'an, Shannxi; 710065, China
Source title: 2016 IEEE International Conference on Mechatronics and Automation, IEEE ICMA 2016
Abbreviated source title: IEEE Int. Conf. Mechatronics Autom., IEEE ICMA
Part number: 1of1
Issue title: 2016 IEEE International Conference on Mechatronics and Automation, IEEE ICMA 2016
Issue date: September 1, 2016
Publication year: 2016
Pages: 1226-1231
Article number: 7558737
Language: English

ISBN-13: 9781509023943
Document type: Conference article (CA)
Conference name: 13th IEEE International Conference on Mechatronics and Automation, IEEE ICMA 2016
Conference date: August 7, 2016 - August 10, 2016
Conference location: Harbin, Heilongjiang, China
Conference code: 123645
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Automatic deviation control and straight drilling is one of key technologies to ensure the drilling quality during vertical wells drilling, which requires systemic design and analytical theory for the automatic vertical drilling tool. The suspension structure design of rotation control shaft with fully seal has been adopted in the automatic vertical drilling tool based on force pushing principle. The engineering prototype of automatic vertical drilling tool has been developed. The simulation experiment for key units such as hydraulic assigned valve, torque generator, the monitoring and controlling system of stabilized platform, and water drilling on the ground of automatic vertical drilling system has all been finished successfully. The field experiment has indicate that the control ability for inclination of automatic vertical drilling system has reached to 1.2°, and time between failures is more than 200 hours in the field test. The drilling tool of automatic vertical drilling system that assembles mechanical electro-hydraulic system can achieve deviation control actively in easily-inclined formation such as high dip angle, irregular ground stress, and greatly liberate drill pressure, improve drilling speed and reduce drilling costs. © 2016 IEEE.
Number of references: 9
Main heading: Quality control
Controlled terms: Hydraulic equipment
Uncontrolled terms: Automatic - Electro-hydraulic system - Monitoring and controlling System - Research and development - Suspension structure - Time between failures - Vertical drilling - Vertical drilling systems
Classification code: 632.2 Hydraulic Equipment and Machinery - 913.3 Quality Assurance and Control
Numerical data indexing: Time 7.20e+05s
DOI: 10.1109/ICMA.2016.7558737
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

138. Dissolution characteristic of feldspar in Chang-8 reservoir, DZ and ZY region, Xifeng Oil field of Ordos Basin (*Open Access*)

Accession number: 20174804462190
Authors: Liu, Hanlin (1); Wang, Fengqin (1); Wang, Jin (1)
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Source title: IET Conference Publications
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Volume: 2016
Part number: 1 of 1
Issue: CP706
Issue date: 2016
Publication year: 2016
Language: English
ISBN-13: 9781785614026
Document type: Conference article (CA)
Conference name: 2016 International Field Exploration and Development Conference, IFEDC 2016
Conference date: August 11, 2016 - August 12, 2016
Conference location: Beijing, China
Conference code: 131863
Publisher: Institution of Engineering and Technology
Abstract: Feldspar dissolution acts as a main mechanism for the forming of secondary pores in Formation Chang-8 of DZ, ZY reservoir, Xifeng Oil Field. In order to clarify the development characteristics and scale of secondary pores in the target zone, this paper has precisely described 150 rock samples from 33 wells and calculated the dissolution degree with the help of technologies involving thin section analysis, scanning electron microscope, X ray diffraction and electron probe microanalysis. The outcomes indicate that feldspar dissolution is universal over the whole target zone, where secondary pores count for as much as 60% of the whole pore space. Secondary pores can be divided, in the view of their shape and structure, into three categories: intergranular dissolved pores, intragranular dissolved pores

and composite dissolved pores. Intergranular dissolved pores are harbor-like or arc-shaped pores, formed via local dissolution around the feldspar grain. Intragranular dissolved pores are stripped or cellular pores formed from seepage and dissolution along bicrystal planes or cleavages in feldspar grain. Composite dissolved pores are the combination of the two mechanisms above. On the basis of the dissolution characteristics of the target formation, dissolution rate is defined to quantitatively measure the influence of feldspar dissolution on the pore system. Dissolution degree of the target zone is relatively strong, mainly involving medium dissolution (dissolution rate between 25%-50%), and strong dissolution (dissolution rate between 50%-70%), which in total cover 80% of the total dissolution degree. The contribution of Different types of feldspars to dissolution rate varies, where secondary pore space from potash feldspar dissolution is about 2.1 times as that from plagioclase. Potash feldspar does not merely play an important role in the forming of secondary pores in burial diagenetic process, its contribution goes higher as dissolution degree enhanced.
Number of references: 19
Main heading: Dissolution
Controlled terms: Petroleum reservoir engineering - X ray diffraction - Electron probe microanalysis - Oil well flooding - Feldspar - Potash - Scanning electron microscopy
Uncontrolled terms: Development characteristics - Diagenetic process - Dissolution rates - Erdos Basin - Feldspar dissolution - Quantitative calculation - Secondary pores - Xifeng oil fields
Classification code: 482.2 Minerals - 511.1 Oil Field Production Operations - 512.1.2 Petroleum Deposits : Development Operations - 801 Chemistry - 802.3 Chemical Operations - 804.2 Inorganic Compounds
Numerical data indexing: Percentage 2.50e+01% to 5.00e+01%, Percentage 5.00e+01% to 7.00e+01%, Percentage 6.00e+01%, Percentage 8.00e+01%
DOI: 10.2991/icmcm-16.2016.111
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

139. The computational model for surge pressure of Herschel-Bulkley fluid in eccentric annulus

Accession number: 20164102893452
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Publication year: 2016
Pages: 1187-1192
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: A precise computational model for surge pressure is the prerequisite to accurately predict the bottom-hole pressure in various drilling operations, including casing in narrow annular space, as well as drilling in slim holes, deep-water and extended-reach wells. Traditional computational methods for surge pressure, which use Calculation Fluids Dynamics (CFD) software to simulate the flow of Herschel-Bulkley fluid in eccentric annuli, require high computer performance and is time costing, resulting in limited field application. A physical model of fluid motion is established using narrow slot flow model to simulate eccentric annulus. Under the condition of steady laminar flow, a mathematical model of surge and swab pressure and analytical solution method based on the golden section method and self-adaptive Simpson integral method are obtained by combining the governing equations of fluid motion and rheology equation of Herschel-Bulkley fluid. The rationality of this model is verified by laboratory test data. The mathematical model for the surge-swab pressure of Herschel-Bulkley fluid in eccentric annulus shows high accuracy and fast computational velocity in terms of numerical method. Compared with the laboratory test data, the error is within the range of ±10%, indicating that the model is sufficiently accurate to meet the requirements of field operations. The influence factors of the surge-swab pressure are analyzed. Under the condition of totally eccentric annulus, the gradient of surge pressure decreases to around 50% of that for concentric annulus. The tripping velocity should be

strictly limited for operations in the narrow annular space.
Number of references: 23
Main heading: Laminar flow
Controlled terms: Numerical methods - Computational fluid dynamics - Application programs - Computational methods - Computation theory - Equations of motion
Uncontrolled terms: Eccentric annuli - Flow model - Golden section method - Herschel-Bulkley fluids - Integral method
Classification code: 631.1 Fluid Flow, General - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 921.2 Calculus - 921.6 Numerical Methods - 931.1 Mechanics
Numerical data indexing: Percentage 5.00e+01%
DOI: 10.7623/syxb201609014
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

140. Synthesis of hierarchical ZSM-5/MCM-41 core-shell zeolite and its application as catalyst in gasoline hydro-upgrading

Accession number: 20163302719887
Authors: Zhang, Juntao (1); Cui, Shenghang (1); Shen, Zhibing (1); Ding, Tao (1); Chai, Xuelei (1); Sun, Chenchen (1)
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Abbreviated source title: Shiyou Xuebao Shiyou Jiagong
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Publication year: 2016
Pages: 703-709
Language: Chinese
ISSN: 10018719
CODEN: SXSHEY
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Hierarchical ZSM-5/MCM-41 zeolites were synthesized by the introduction of template and new silica-alumina species in the alkali-treated ZSM-5 seriflux, and characterized by XRD, N2 adsorption and HRTEM. The NiMo hydro-upgrading catalysts of different Ni/Mo molar ratios and with as-synthesized zeolites as support were prepared by impregnation. Under such operating conditions as p=2.0 MPa, T=350, LHSV=2.0 h-1 and V(H2)/V(Oil)=300, the effects of Ni/Mo molar ratios on hydroisomerization and aromatization performances of the catalysts for the heavy FCC gasoline fraction after desulfurization FCC gasoline hydro-upgrading were investigated in a fixed bed microreactor. The results showed that the ZSM-5/MCM-41 sample with nSi/nAl=50 of the new silica-alumina sources possessed better micro-mesoporous structure, with clear core-shell structure, in which the morphologies of ZSM-5 was as the core and the morphologies of MCM-41 as the shell. The hydroisomerization and aromatization activities of the hydro-upgrading catalyst were closely related to is textural properties and the acid type. When the n(Ni)/n(Mo)=1/2, w(Ni)=3.0%, the prepared hydro-upgrading catalyst exhibited high hydroisomerization and aromatization abilities.
Number of references: 14
Main heading: Gasoline
Controlled terms: Binary alloys - Aluminum oxide - Catalyst activity - Zeolites - Isomerization - Silica - Mesoporous materials - Aromatization - Shells (structures) - Alumina
Uncontrolled terms: Aromatization activity - Core shell structure - Fixed bed micro-reactor - Hierarchical zeolites - Hydro-upgrade - Mesoporous structures - Operating condition - ZSM-5/MCM-41
Classification code: 408.2 Structural Members and Shapes - 523 Liquid Fuels - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.2 Inorganic Compounds
Numerical data indexing: Percentage 3.00e+00%
DOI: 10.3969/j.issn.1001-8719.2016.04.007

Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

141. Synthesis of new flow improvers from canola oil and application to waxy crude oil

Accession number: 20163702806586
Authors: Chen, Gang (1); Bai, Yun (1); Zhang, Jie (1); Yuan, Weihua (1); Song, Hua (1); Jeje, Ayodeji (1)
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Abbreviated source title: Petrol Sci Technol
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Pages: 1285-1290
Language: English
ISSN: 10916466
E-ISSN: 15322459
CODEN: PSTEFV
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: Several techniques are employed to mitigate the problems associated with the crystallization of paraffin during the production and/or transportation of waxy crude oil. One of these techniques is the addition of chemicals that depress the pour point of the oil and inhibit the formation of paraffin crystals. In this work, the chemicals, polyamine amide (PAA), are prepared by aminolysis and polycondensation from canola oil and polyamine as substrates. Nitrogen atoms are fixed in the main chain of the polymers to modify the polarity. The effectiveness of the PAAs on four crude oil was tested as pour point depressants as well as paraffin inhibiters. The highest pour point reduction depression was achieved as 12.6°C. Differential scanning calorimetry and paraffin crystal morphology studies were conducted on simulated crude oil to elucidate the mechanism of pour point reduction. © 2016 Taylor & Francis Group, LLC.
Number of references: 16
Main heading: Amides
Controlled terms: Differential scanning calorimetry - Paraffins - Crude oil - Petroleum transportation
Uncontrolled terms: Canola oil - Crystal morphologies - Flow improvers - Main chains - Nitrogen atom - Polyamines - Pour point depressants - Waxy Crude Oil
Classification code: 512.1 Petroleum Deposits - 804.1 Organic Compounds - 944.6 Temperature Measurements
Numerical data indexing: Temperature 2.86e+02K
DOI: 10.1080/10916466.2016.1198804
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

142. Urea Enhanced Aquathermolysis of Heavy Oil Catalyzed by Hydroxamic Acid-Co(II) Complex at Low Temperature (*Open Access*)

Accession number: 20163402727081
Authors: Wu, Ya (1); Li, Yongfei (1); Chen, Gang (1); Zhao, Wei (1); Zhang, Jie (1)
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Publication year: 2016
Article number: 06038
Language: English

ISSN: 22747214
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Document type: Conference article (CA)
Conference name: International Symposium on Materials Application and Engineering, SMAE 2016
Conference date: August 20, 2016 - August 21, 2016
Conference location: Chiang Mai, Thailand
Conference code: 123077
Publisher: EDP Sciences
Abstract: To develop effective water-soluble catalyst for aquathermolysis, a phenyl hydroxamic acid-Co(II) complex was synthesized using hydroxamic acid and CoCl2. The effects of water content and catalyst concentration on aquathermolysis were investigated. The effect of adding urea as fortifiers was investigated. The crude oil samples before and after aquathermolysis were fully characterized by SARA and elemental analysis. With the catalyst and urea, the viscosity of the product was also substantially reduced from 470000 mPa•s to 120000 mPa•s at 15°C. Finally improved the flow properties better and upgrade the quality of heavy oil. © The Authors, published by EDP Sciences, 2016.
Number of references: 15
Main heading: Viscosity
Controlled terms: Catalysts - Cobalt compounds - Metabolism - Temperature - Urea - Crude oil - Organic acids
Uncontrolled terms: Aquathermolysis - Catalyst concentration - Flow properties - Hydroxamic acids - Low temperatures - Oil samples - Water soluble catalyst
Classification code: 512.1 Petroleum Deposits - 631.1 Fluid Flow, General - 641.1 Thermodynamics - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Temperature 2.88e+02K
DOI: 10.1051/matecconf/20166706038
Compendex references: YES
Open Access type(s): All Open Access, Gold, Green
Database: Compendex
Data Provider: Engineering Village

143. Thermal performance calculation and analysis of heat transfer tube in super open rack vaporizer

Accession number: 20154401459389
Authors: Pan, Jie (1); Li, Ran (1); Lv, Tao (1); Wu, Gang (1); Deng, Zhian (1)
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Source title: Applied Thermal Engineering
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Issue date: January 25, 2016
Publication year: 2016
Pages: 27-35
Language: English
ISSN: 13594311
CODEN: ATENFT
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: As one of the most widely-used liquefied natural gas (LNG) vaporizer, super open rack vaporizer (SuperORV) consists of panel-shaped heat transfer tubes with duplex tube configuration. In this paper, an energy balance-based distributed parameter model for predicting the thermal performance of SuperORV heat transfer tube was developed, where introduces numerous empirical correlations. The results from the model exhibit a good agreement with the experimental data, which implies the calculation model is reliable. Based on this, the heat transfer process of SuperORV heat transfer tube was simulated numerically, the bulk fluid and metal temperature profiles along the heat transfer tube was obtained at the condition with ice formation and heat transfer enhancement measures, the thermal performance of SuperORV heat transfer tube was analyzed, and the effects of operating parameters and heat transfer enhancement measures on the thermal performance were discussed. The results show that the

operating parameters have important effects on the thermal performance of heat transfer tube, and the heat transfer enhancement measures can improve the heat transfer performance markedly. The required minimum tube length while both inner fin and twisted tape insert were applied is shortened by 60% compared with that without heat transfer enhancement measures.
Number of references: 16
Main heading: Liquefied natural gas
Controlled terms: Tubes (components) - Heat transfer coefficients
Uncontrolled terms: Distributed-parameter model - Empirical correlations - Heat Transfer enhancement - Heat transfer process - Liquefied Natural Gas (LNG) - Operating parameters - SuperORV - Thermal Performance
Classification code: 523 Liquid Fuels - 619.1 Pipe, Piping and Pipelines - 641.2 Heat Transfer
Numerical data indexing: Percentage 6.00e+01%
DOI: 10.1016/j.applthermaleng.2015.09.047
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Funding text: This study was supported by the National Natural Science Foundation of China (Grant No. 51304160) and Natural Science Basic Research Plan in Shaanxi Province of China (Program No. 2014JQ7274).
Compendex references: YES
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Data Provider: Engineering Village

144. Thermal performance analysis of SuperORV heat transfer tube at supercritical pressure

Accession number: 20160601900880
Authors: Pan, Jie (1); Li, Ran (1); Lv, Tao (1); Wu, Gang (1)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, Shaanxi Province; 710065, China
Corresponding author: Pan, Jie(jackpan@xsyu.edu.cn)
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Abbreviated source title: J. Nat. Gas Sci. Eng.
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Issue date: February 01, 2016
Publication year: 2016
Pages: 488-496
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Super open rack vaporizer (SuperORV) is a new-type of liquefied natural gas (LNG) vaporizer whose lower half of heat transfer tubes has double tube structure. A distributed parameter model based on energy balance is developed in the present paper with the aim to simulate the thermal performance of SuperORV heat transfer tube at supercritical pressure. Corresponding empirical correlations are used to evaluate the convection heat transfer of LNG and seawater, and the heat transfer enhancement effects of inner fin and twisted tape insert are considered in computation. Good agreement between calculated and experimental data implies the calculation model is reliable. On this basis, the temperature and ice thickness profiles along the heat transfer tube are obtained by numerical solution with or without ice layer presence, the thermal performance of heat transfer tube is analyzed, and the effects of operating parameters and heat transfer enhancement techniques on the thermal performance are discussed. The results indicate that both the operating parameters and the heat transfer enhancement techniques have great influence on the thermal performance, including required minimum tube length, ice thickness and length of formed ice layer. The heat transfer enhancement techniques can improve the heat transfer performance markedly, and the required tube length is reduced by 47.7% while both inner fin and twisted tape insert are applied.
Number of references: 17
Main heading: Liquefied natural gas
Controlled terms: Tubes (components) - Heat transfer coefficients - Fins (heat exchange) - Ice - Heat convection
Uncontrolled terms: Distributed-parameter model - Empirical correlations - Heat Transfer enhancement - Liquefied Natural Gas (LNG) - Super-critical pressures - SuperORV - Thermal Performance - Thermal performance analysis
Classification code: 523 Liquid Fuels - 616.1 Heat Exchange Equipment and Components - 619.1 Pipe, Piping and Pipelines - 641.2 Heat Transfer
Numerical data indexing: Percentage 4.77e+01%
DOI: 10.1016/j.jngse.2016.01.030

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Funding text: This study was supported by the National Natural Science Foundation of China (Grant No. 51304160) and the Natural Science Basic Research Plan in Shaanxi Province of China (Program No. 2014JQ7274).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

145. Molecular dynamics simulation of effect of hydrogen atoms on crack propagation behavior of α–Fe

Accession number: 20202208738682
Authors: Song, H.Y. (1); Zhang, L. (1); Xiao, M.X. (1)
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Abbreviated source title: Phys Lett Sect A Gen At Solid State Phys
Volume: 380
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Publication year: 2016
Pages: 4049-4056
Language: English
ISSN: 03759601
CODEN: PYLAAG
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The effect of the hydrogen concentration and hydrogen distribution on the mechanical properties of α–Fe with a pre-existing unilateral crack under tensile loading is investigated by molecular dynamics simulation. The results reveal that the models present good ductility when the front region of crack tip has high local hydrogen concentration. The peak stress of α–Fe decreases with increasing hydrogen concentration. The studies also indicate that for the samples with hydrogen atoms, the crack propagation behavior is independent of the model size and boundaries. In addition, the crack propagation behavior is significantly influenced by the distribution of hydrogen atoms. © 2016 Elsevier B.V.
Number of references: 37
Main heading: Molecular dynamics
Controlled terms: Hydrogen - Atoms - Crack propagation - Crack tips
Uncontrolled terms: Crack propagation behavior - Effect of hydrogen - Hydrogen atoms - Hydrogen concentration - Hydrogen distribution - Molecular dynamics simulations - Tensile loading - Unilateral cracks
Classification code: 801.4 Physical Chemistry - 804 Chemical Products Generally - 931.3 Atomic and Molecular Physics - 951 Materials Science
DOI: 10.1016/j.physleta.2016.10.019
Funding Details: Number: 2016KW-049, Acronym: -, Sponsor: -; Number: 2012KJXX-39, Acronym: -, Sponsor: -; Number: 2016JK1593, Acronym: -, Sponsor: -; Number: 20160221, Acronym: -, Sponsor: -; Number: 11572259, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work is supported by the National Natural Science Foundation of China (Grant No. 11572259), the Program for International Cooperation and Exchanges of Shaanxi Province (Grant No. 2016KW-049), the Young Talent Fund of University Association for Science and Technology in Shaanxi (Grant No. 20160221), the Scientific Research Program of Shaanxi Provincial Education Department (Grant No. 2016JK1593) and the Program for New Scientific and Technological Star of Shaanxi Province (Grant No. 2012KJXX-39).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

146. Strain field tuning the electronic and magnetic properties of semihydrogenated two-bilayer GaN nanosheets (*Open Access*)

Accession number: 20160601889352

Authors: Xiao, Mei-Xia (1); Liang, You-Ping (1); Chen, Yu-Qin (1); Liu-Meng (1)
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Publication year: 2016
Article number: 023101
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ISSN: 10003290
CODEN: WLHPAR
Document type: Journal article (JA)
Publisher: Institute of Physics, Chinese Academy of Sciences
Abstract: In this paper, first-principles calculations based on the density functional theory are performed to investigate the effects of strain field on the electronic and magnetic properties of two-bilayer gallium nitride (GaN) nanosheets. The two-bilayer GaN nanosheet without surface modification forms a planar graphitic structure, whereas that with full hydrogenation for the surface Ga and N atoms adopts the energetically more favorable wurtzite structure. Surface hydrogenation is proven to be an effective way to induce a transition from indirect to direct band gap. The bare and fully-hydrogenated GaN nanosheets are nonmagnetic semiconductors. When only one-side Ga or N atoms on the surface are hydrogenated, the semihydrogenated two-bilayer GaN nanosheets will preserve their initial wurtzite structures. The two-bilayer GaN nanosheet with one-side N atoms hydrogenated transforms into a nonmagnetic metal, while that with one-side Ga atoms hydrogenated (H-GaN) is a ferromagnetic semiconductor with band gaps of 3.99 and 0.06 eV in the spin-up and spin-down states, respectively. We find that the two-bilayer H-GaN nanosheets will maintain ferromagnetic states under a strain field and the band gaps Eg in spin-up and spin-down states are a function of strain ". As the tensile strain is +6%, the band gap in spin-up state reduces to 2.71 eV, and that in spin-down state increases to 0.41 eV for the two-bilayer H-GaN nanosheets. Under the compressive strain field, the two-bilayer H-GaN nanosheets will show a transition from semiconducting to half-metallic state under compression of -1%, where the spin-up state remains as a band gap insulator with band gap of 4.16 eV and the spin-down state is metallic. Then the two-bilayer H-GaN nanosheets will turn into fully-metallic properties with bands crossing the Fermi level in the spin-up and spin-down states under a compressive strain of -6%. Moreover, the value of binding energy Eb for the two-bilayer H-GaN nanosheet decreases (increases) monotonically with increasing compressive (tensile) strain. It is found that although hydrogenation on oneside Ga atoms of the two-bilayer H-GaN nanosheets is preferred to be under compressive strain, the two-bilayer H-GaN nanosheets are still the energetically favorable structures. The physical mechanisms of strain field tuning band gaps in the spin-up and spin-down states for the two-bilayer H-GaN nanosheets are mainly induced by the combined effects of through-bond and p-p direct interactions. Our results demonstrate that the predicted diverse and tunable electronic and magnetic properties may lead to the potential application of GaN nanosheets in novel electronic and spintronic nanodevices. © 2016 Chinese Physical Society.
Number of references: 33
Page count: 6
Main heading: Gallium nitride
Controlled terms: Calculations - Ferromagnetic materials - Atoms - Energy gap - Ferromagnetism - Hydrogenation - Nanosheets - Semiconducting gallium compounds - Wide band gap semiconductors - Binding energy - III-V semiconductors - Density functional theory - Magnetic properties - Zinc sulfide - Tensile strain - Metals - Surface treatment - Magnetic semiconductors
Uncontrolled terms: Compressive strain fields - Electronic and magnetic properties - Ferromagnetic semiconductor - First-principles calculation - Gallium nitrides (GaN) - Non-magnetic semiconductors - Spintronic nanodevices - Strain fields
Classification code: 701.2 Magnetism: Basic Concepts and Phenomena - 708.4 Magnetic Materials - 712.1 Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 761 Nanotechnology - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 804.2 Inorganic Compounds - 921 Mathematics - 922.1 Probability Theory - 931.1 Mechanics - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933 Solid State Physics
Numerical data indexing: Electron_Volt 2.71e+00eV, Electron_Volt 3.99e+00eV, Electron_Volt 4.10e-01eV, Electron_Volt 4.16e+00eV, Electron_Volt 6.00e-02eV, Percentage -1.00e+00%, Percentage -6.00e+00%
DOI: 10.7498/aps.65.023101
Compendex references: YES
Open Access type(s): All Open Access, Hybrid Gold
Database: Compendex

Data Provider: Engineering Village

147. Research development of the catalysts used in pyrolysis process of sludge

Accession number: 20161102098643
Authors: Li, Jinling (1); Liu, Luzhen (1); Qu, Simin (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Cailiao Daobao/Materials Review
Abbreviated source title: Cailiao Daobao/Mater. Rev.
Volume: 30
Issue: 2
Issue date: February 10, 2016
Publication year: 2016
Pages: 65-69
Language: Chinese
ISSN: 1005023X
Document type: Journal article (JA)
Publisher: Cailiao Daobaoshe/ Materials Review
Abstract: The treatment and disposal of sludge has become one of the important works in the environment protection field, and the recycling energy is getting more and more attention. Among sludge treatment methods, the pyrolysis technology has been considered as the most prospective application technology due to its advantages of completeness, solidification of heavy metals in sludge, less pollution emissions and high recovery rate of resources. However, it is still on the stage of laboratory research in China. The sources and species of the sludge are sketched, and the effects of the pyrolysis catalysis, such as sodium compounds, potassium compounds, metal oxides and the pyroly-tic residue, on the pyrolysis process and the pyrolysis products, are summarized. The pyrolysis process can be improved by adding catalysts, thus enhancing the reducing quantity, harmless and reclamation of the sludge. In addition, the research and development orientation of sludge pyrolysis are prospected.
Number of references: 17
Main heading: Pyrolysis
Controlled terms: Heavy metals - Sodium Carbonate - Potassium compounds - Catalysts - Waste treatment - Metal recovery - Sludge disposal - Sodium sulfate
Uncontrolled terms: Environment protection - Pollution emissions - Prospective applications - Pyrolysis products - Research and development - Research development - Sludge - Treatment and disposal
Classification code: 452.2 Sewage Treatment - 452.4 Industrial Wastes Treatment and Disposal - 531 Metallurgy and Metallography - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.2 Inorganic Compounds
DOI: 10.11896/j.issn.1005-023X.2016.03.012
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

148. Research progress on synthesis and application of polyoxymethylene dimethyl ethers

Accession number: 20161002066747
Authors: Ding, Tao (1); Shen, Zhibing (1); Zhang, Juntao (1)
Author affiliation: (1) Research Center of Petroleum Processing & Petrochemicals, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China
Corresponding author: Zhang, Juntao(zhangjt@xsyu.edu.cn)
Source title: Huagong Jinzhan/Chemical Industry and Engineering Progress
Abbreviated source title: Huagong Jinzhan/Chem. Ind. Eng. Prog.
Volume: 35
Issue: 3
Issue date: March 5, 2016
Publication year: 2016
Pages: 758-765
Language: Chinese
ISSN: 10006613
Document type: Journal article (JA)

Publisher: Materials China
Abstract: Polyoxymethylene dimethyl ethers(PODE) made from non-petroleum-based substitude fuel is a new kind of green and environment-friendly diesel fuel additive, which has excellent performance and great application potential because of its high cetane number, high oxygen content and non-intermiscibility gap between diesel. It can improve the diesel fuel's cetane number and combustibility while reduce the emissions of pollutant. This work presents an overview of PODE. First, the physico-chemical characteristics and some performance indexes for diesel fuel of PODEn has been described in detail. Then the recent research progress of synthesis technology and mechanism of chain propagation for synthesis reaction was also summarized. Using ionic liquid thin film catalysis as the possible industrialization route for PODE was proposed. The research progress of PODEn as diesel addictive and its new applications of being new component in fuel and new type of green solvent oil was also presented. Finally the trend and key tasks of future research work was pointed out. The proper degree of polymerization and addictive amount of PODE should be determined, and the combustion and power performance of diesel fuel blended with PODE should be checked by lots of experiments. The production standard should be also established. © 2016, Chemical Industry Press. All right reserved.
Number of references: 24
Main heading: Ethers
Controlled terms: Fuel additives - Ionic liquids - Acetal resins - Combustion - Diesel fuels
Uncontrolled terms: Degree of polymerization - Dimethyl ethers - Environment friendly - Performance indices - Physicochemical characteristics - Production standards - Recent researches - Synthesis reaction
Classification code: 523 Liquid Fuels - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 815.1.1 Organic Polymers
DOI: 10.16085/j.issn.1000-6613.2016.03.017
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

149. Conventional well logging data filtering with wavelet transformation and Hilbert-Huang transformation

Accession number: 20163202703598
Authors: Zhao, Junlong (1); Liu, Jianjian (1)
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China
Corresponding author: Zhao, Junlong(zjl1970@163.com)
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Abbreviated source title: Shiyou Diqiu Wuli Kantan
Volume: 51
Issue: 4
Issue date: August 15, 2016
Publication year: 2016
Pages: 801-808
Language: Chinese
ISSN: 10007210
CODEN: SDWKEP
Document type: Journal article (JA)
Publisher: Science Press
Abstract: To make clear effect differences among wavelet transform (WT), wavelet package transform (WPT), and Hilbert-Huang transform (HHT) on logging data, we review fundamental idea and approach feature of WT filters, WPT filters, and HHT filters based on published documents. First gamma ray logging data with noise whose intensity is 10 times to Gauss white noise is filtered by WT filters, WPT filters, HHT reducing filters, and HHT-WT associating filters. Then HHT three dimensions spectrum characteristics, root-mean-square (rms) error, signal to noise ratio (S/N), and similar degree (SD) are analyzed on this filtered GR data. Finally the relation between filtering effect and noise intensity is studied. The following observations are found out based on our work: A. There is some difference of rms error, S/N, SD and HHT 3D spectrum features with the four filters; B. Filtering effects will be decreasing when noise intensity is high, filtering effect is similar when noise intensity is between 5 times and 17 times to Gauss white noise; C. WT filters should be the first choice when the noise intensity is relatively weak or strong; D. HHT-WT filters is better than HHT reducing filters. © 2016, Editorial Department OIL GEOPHYSICAL PROSPECTING. All right reserved.
Number of references: 9
Main heading: Hilbert-Huang transform

Controlled terms: Gamma rays - Well logging - Spectrum analysis - Wavelet transforms - White noise - Metadata - Signal to noise ratio
Uncontrolled terms: Filtering effects - Hilbert Huang Transformation - Hilbert Huang transforms - Signal to noise (S/N) ratios - Spectrum characteristic - Wavelet package transform - Wavelet transformations - Well logging data
Classification code: 716.1 Information Theory and Signal Processing - 921.3 Mathematical Transformations - 931.3 Atomic and Molecular Physics - 932.1 High Energy Physics
DOI: 10.13810/j.cnki.issn.1000-7210.2016.04.023
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

150. Multi-fluid Modeling Biomass Fast Pyrolysis in the Fluidized-Bed Reactor Including Particle Shrinkage Effects

Accession number: 20163502761234
Authors: Zhong, Hanbin (1); Zhang, Juntao (1); Zhu, Yuqin (1); Liang, Shengrong (1)
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Source title: Energy and Fuels
Abbreviated source title: Energy Fuels
Volume: 30
Issue: 8
Issue date: August 18, 2016
Publication year: 2016
Pages: 6440-6447
Language: English
ISSN: 08870624
E-ISSN: 15205029
CODEN: ENFUEM
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: The fast pyrolysis of biomass in a bubbling fluidized-bed reactor was simulated with the multi-fluid model combing the variable particle density and diameter model based on the mass conservation at the particle scale. Different particle shrinkage effects on the reactor performance were investigated through changing the apparent density of char species. The detailed distributions of particle density and diameter in the reactor and entrained out of the system were revealed. The results demonstrate that the reactor performance, including the particle density and diameter distribution, entrainment behavior, biochar composition and yield, and biomass conversion, is dramatically affected by the particle shrinkage effects. The average particle density increases, while the average particle diameter decreases, with the increase of the char density, which means more intense shrinkage. A weaker shrinkage effect leads to stronger entrainment behavior, larger biochar yield and mass fraction of biomass in biochar, and lower biomass conversion. © 2016 American Chemical Society.
Number of references: 21
Main heading: Biomass
Controlled terms: Supersaturation - Fluid catalytic cracking - Shrinkage - Bioconversion - Chemical reactors - Fluidized beds - Fluidized bed furnaces
Uncontrolled terms: Biomass conversion - Bubbling fluidized bed reactor - Diameter distributions - Fluidized bed reactors - Multi-fluid models - Particle densities - Particle diameters - Reactor performance
Classification code: 642.2 Industrial Furnaces and Components - 801.2 Biochemistry - 801.4 Physical Chemistry - 802.1 Chemical Plants and Equipment - 802.2 Chemical Reactions - 951 Materials Science
DOI: 10.1021/acs.energyfuels.6b00914
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

151. 1Research progress of catalysts for FCC diesel aromatics selective ring opening

Accession number: 20162202440240
Authors: Sun, Chenchen (1); Tian, Yuanyu (1); Zhang, Juntao (1); Chai, Xuelei (1); Cui, Shenghang (1)

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Issue date: May 5, 2016
Publication year: 2016
Pages: 1440-1445
Language: Chinese
ISSN: 10006613
Document type: Journal article (JA)
Publisher: Materials China
Abstract: The technology of selective ring opening can make the aromatics into a single naphthene or alkane compounds and greatly enhance the cleanliness and cetane number of diesel fuel, and the core of this technology is to develop the bifunctional catalysts with abilities of both hydrogenation and ring opening performance. Recent advances in aromatic hydrocarbon selective ring opening catalyst for FCC diesel oil have been introduced. The effects of catalyst carrier, active metal and preparation method on hydrogenation ring opening reaction performance are discussed. Analysis indicates that the acid and structure of the carrier, the type of active metal and different preparation methods can all greatly influence the catalytic performance. Finally, we put forward some suggestions on the research of the selective ring opening catalyst. The focus of future research is to develop new carrier with the suitable acidity and pore structure and the active metal components, and strengthen researches of the reaction mechanism. © 2016, Chemical Industry Press. All right reserved.
Number of references: 19
Main heading: Hydrogenation
Controlled terms: Catalyst selectivity - Diesel fuels - Metals - Aromatic hydrocarbons - Aromatization
Uncontrolled terms: Bi-functional catalysts - Catalytic performance - FCC diesel - Hydrogenation and ring openings - Preparation method - Reaction mechanism - Ring opening reaction - Selective ring opening
Classification code: 523 Liquid Fuels - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds
DOI: 10.16085/j.issn.1000-6613.2016.05.025
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

152. Multi-fluid model with variable particle density and diameter based on mass conservation at the particle scale

Accession number: 20160801993254
Authors: Zhong, Hanbin (1); Liang, Shengrong (1); Zhang, Juntao (1); Zhu, Yuqin (1)
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Corresponding author: Zhong, Hanbin(hanbinzhong@126.com)
Source title: Powder Technology
Abbreviated source title: Powder Technol.
Volume: 294
Issue date: June 01, 2016
Publication year: 2016
Pages: 43-54
Language: English
ISSN: 00325910
E-ISSN: 1873328X
CODEN: POTEBX
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The multi-fluid model (MFM) has been widely used in the simulation of gas-solid fluidized bed reactor, in which the density and diameter of particles normally change due to the heterogeneous reactions. However, the particle diameter always keeps constant although the particle density varies along with reaction in the previous MFM,

which may disobey the law of mass conservation at the particle scale. Therefore, in order to overcome the limitation of constant diameter in the previous MFM, the biomass pyrolysis reaction was taken as an example to develop the variable particle density and diameter model based on the mass conservation at the particle scale, which was successfully incorporated into MFM to simulate the biomass pyrolysis process in a fluidized bed reactor. The results indicate that the segregation/mixing and entrainment behavior are significantly affected by the variation model of particle density and diameter and the species density in the solid phase. © 2015 Elsevier B.V.
Number of references: 39
Main heading: Fluidized beds
Controlled terms: Fluidized bed furnaces - Biomass - Supersaturation - Fluid catalytic cracking - Chemical reactors
Uncontrolled terms: Diameter model - Diameter of particle - Fluidized bed reactors - Gas-solid fluidized bed - Heterogeneous reactions - Multi-fluid models - Particle diameters - Particle scale
Classification code: 642.2 Industrial Furnaces and Components - 801.4 Physical Chemistry - 802.1 Chemical Plants and Equipment - 802.2 Chemical Reactions
DOI: 10.1016/j.powtec.2016.02.024
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

153. Research on cutting and scaling theory for water injection pipe in oil exploitation

Accession number: 20170303267244
Authors: Zhu, L. (1); Liu, D. (1); Short, Greg (2)
Author affiliation: (1) Mechanical Engineering, Xian Shiyou University, Shanxi; 710065, China; (2) Mech. Eng. Dept., King Fahd Univ. of Pet. and Miner., KFUPM, Dhahran, Saudi Arabia
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Source title: Journal of Mechanical Engineering Research and Developments
Abbreviated source title: J Mech Eng Res Dev
Volume: 39
Issue: 4
Issue date: 2016
Publication year: 2016
Pages: 930-936
Language: English
ISSN: 10241752
CODEN: JERDFO
Document type: Journal article (JA)
Publisher: Bangladesh University of Engineering and Technology
Abstract: The technology of cutting and scaling water injection pipe is a kind of mechanical descaling method, which can increase the inner diameter of the water injection pipe effectively, improve the water injection pressure so as to increase the efficiency of water injection. Compared with chemical descaling and high-pressure water jet descaling, mechanical descaling is more environmental protection, easy operation and better descaling effect. According to the characteristics of scale cutting mechanism model, research and analyze the scale cutting technology of water injection pipe wall through scale cutting mechanism, the design of tool structure and determination of cutting parameters, etc. To further improve the efficiency and reliability of water injection pipe descaling have an effect of guiding the development of water injection pipe descaling technology. © 2016, Bangladesh University of Engineering and Technology. All rights reserved.
Number of references: 12
Main heading: Water injection
Controlled terms: High pressure effects - Efficiency - Oil well flooding - Metal cleaning
Uncontrolled terms: Cutting mechanisms - Cutting parameters - Cutting technology - Deep holes - Descaling effects - Efficiency and reliability - High-pressure water jets - Water injection pressures
Classification code: 511.1 Oil Field Production Operations - 612.1 Internal Combustion Engines, General - 913.1 Production Engineering
Compendex references: YES

Database: Compendex
Data Provider: Engineering Village

154. Thermal expansion behaviors of epitaxial film for wurtzite GaN studied by using temperature-dependent Raman scattering (*Open Access*)

Accession number: 20162902623720
Authors: Wang, Dang-Hui (1); Xu, Tian-Han (1); Song, Hai-Yang (1)
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Corresponding author: Wang, Dang-Hui(wdhyxp@163.com)
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Abbreviated source title: Wuli Xuebao
Volume: 65
Issue: 13
Issue date: July 5, 2016
Publication year: 2016
Article number: 130702
Language: Chinese
ISSN: 10003290
CODEN: WLHPAR
Document type: Journal article (JA)
Publisher: Institute of Physics, Chinese Academy of Sciences
Abstract: III-nitride materials have attracted considerable attention in the last decade due to their wide applications in solidstate light devices with their direct wide band-gaps and higher quantum efficiencies. InGaN/GaN multiple quantum well is important active region for light-emitting diode, which can be tuned according to indium composition in the InxGa1-xN alloy system. Owing to difficulty in fabricating bulk materials, GaN thin films are heteroepitaxially grown on latticemismatched and thermal-expansion-mismatched substrates, such as sapphire (Al2O3), Si and SiC, which subsequently results in a mass of threading dislocations and higher residual strains. On the one hand, dislocations and defects existing in GaN epifilms trap the carriers as scattering centers in the radiative recombination process between electrons and holes, and play an important role in drooping the internal quantum efficiency. On the other hand, higher built-in electric field induced by residual strains existing in GaN epifilm could make the emission wavelength red-shifted. It is common knowledge that temperature is one of the important factors in the growth process of epitaxial films, as a result, further research on thermal expansion behaviors is needed. Based on the above analysis, an in-depth study of thermal expansion behavior of wurtzite GaN epitaxial film is of vital importance both in theory and in application. In this study, we investigate the thermal expansion behaviors of wurtzite GaN epitaxial films by using temperaturedependent Raman scattering in a temperature range from 83 K to 503 K. According to the physical implication, Gruneisen parameter is almost a constant (Gruneisen parameters of all phonon modes are in a range between 1 to 2 for GaN) that characterizes the relationship between the phonon shift and the volume of a solid-state material. More importantly, Gruneisen parameter is relatively insensitive to temperature and suitable for building the connection between the phonon shift and thermal expansion coefficient. Therefore, the linear relationship between the phonon shift and temperature is built and utilized to calculate the thermal expansion coefficient according to the physical implication of the Gruneisen parameter. Conclusions can be obtained as follows. (1) The thermal expansion coefficient of GaN epifilm can be calculated in a certain temperature range by measuring the phonon modes of E2 (high), A1 (TO) and E1 (TO) through using temperature-dependent Raman scattering when the corresponding Gruneisen parameters are determined. (2) The calculated thermal expansion coefficients of GaN epifilm are consistent with the theoretical values. Conclusions and methods in this paper provide an effective quantitative analysis method to characterize the thermal expansion behaviors of other III-nitride epitaxial thin films, such as AlN, InN, AlGaN, InGaN, InAlN etc., which can be of benefit to reducing the dislocation density and improving the luminescence efficiency of light emitting diode. Therefore, research on thermal expansion behaviors of epifilms using temperature-dependent Raman scattering has a direction for further studying the latter-mismatch and thermal-expansion-mismatch between the epitaxial film and substrate. © 2016 Chinese Physical Society.
Number of references: 21
Page count: 7
Main heading: Gallium nitride
Controlled terms: Aluminum oxide - Epitaxial growth - Thermal expansion - Alumina - Raman scattering - Electric fields - Energy gap - Semiconductor alloys - Silicon carbide - III-V semiconductors - Sapphire - Semiconductor quantum wells - Zinc sulfide - Photoluminescence - Epilayers - Quantum efficiency - Phonons

Uncontrolled terms: Gruneisen parameters - Internal quantum efficiency - Radiative recombination process - Temperature dependent - Temperature dependent Raman scattering - Temperature-dependent raman - Thermal expansion coefficients - Thermal expansion mismatch
Classification code: 482.2.1 Gems - 641.1 Thermodynamics - 701.1 Electricity: Basic Concepts and Phenomena - 712.1 Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 741.1 Light/Optics - 802.3 Chemical Operations - 804.2 Inorganic Compounds - 931.4 Quantum Theory; Quantum Mechanics - 933.1.2 Crystal Growth - 951 Materials Science
Numerical data indexing: Temperature 8.30e+01K to 5.03e+02K
DOI: 10.7498/aps.65.130702
Compendex references: YES
Open Access type(s): All Open Access, Hybrid Gold
Database: Compendex
Data Provider: Engineering Village

155. Tricomponent coupling biodiesel production catalyzed by surface modified calcium oxide

Accession number: 20160401842989
Authors: Tang, Ying (1); Li, Lili (1); Wang, Shanshan (1); Cheng, Qitong (1); Zhang, Jie (1)
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Abbreviated source title: Environ Prog Sustainable Energy
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Publication year: 2016
Pages: 257-262
Language: English
ISSN: 19447442
E-ISSN: 19447450
CODEN: ENVPDI
Document type: Journal article (JA)
Publisher: John Wiley and Sons Inc
Abstract: Commercial CaO has been used as basic catalysts for tricomponent coupling biodiesel production using the reactant of methanol, rapeseed oil, and dimethyl carbonate (DMC) under mild reaction condition to produce no-glycerol biodiesel. To enhance the catalytic efficiency, surface modification was carried out over commercial CaO. The yield of fatty acid methyl ester (FAME) was enhanced to 98.8% over 0.01% ethyl bromoacetate modified CaO at the oil/DMC/methanol ratio of 1:1:8 under 65°C in 6 h. Good performance of modified CaO in water-contained reactant shows its high capacity of water resistance, which can be further confirmed by the humidity test of modified CaO in the vapor-saturated atmosphere. The FT-IR analysis confirms the chemical connection of modifier and CaO. The effect of surface modification on the physicochemical properties of CaO was evidenced by TGA, XRD, BET, CO2-TPD, and SEM. © 2015 American Institute of Chemical Engineers Environ Prog.
Number of references: 24
Main heading: Biodiesel
Controlled terms: Chemical analysis - Fatty acids - Surface treatment - Lime
Uncontrolled terms: Biodiesel production - bitransesterification - Catalytic efficiencies - Dimethyl carbonate - Fatty acid methyl ester - Mild reaction conditions - Surface-modified - Water-resistances
Classification code: 523 Liquid Fuels - 804.1 Organic Compounds - 804.2 Inorganic Compounds
Numerical data indexing: Percentage 1.00e-02%, Percentage 9.88e+01%, Temperature 3.38e+02K, Time 2.16e+04s
DOI: 10.1002/ep.12194
Funding Details: Number: 21306149, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

156. Adsorption characteristics of Chang 7 shale from the Triassic Yanchang Formation in Ordos Basin, and its controlling factor

Accession number: 20160801961876
Authors: Zhao, Jingzhou (1, 2); Wang, Rui (3); Er, Chuang (1, 2)
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Shaanxi Key Laboratory of Petroleum Accumulation Geology, Xi'an Shiyou University, Xi'an; 710065, China; (3) The 2nd Oil Production Factory of Dagang Oil Field Company, PetroChina, Huanghua; 061100, China
Source title: Earth Science Frontiers
Abbreviated source title: Earth Sci. Front.
Volume: 23
Issue: 1
Issue date: January 1, 2016
Publication year: 2016
Pages: 146-153
Language: Chinese
ISSN: 10052321
Document type: Journal article (JA)
Publisher: Science Frontiers editorial department
Abstract: The Chang 7 Member in the Zhidan-Ganquan region of the Ordos Basin is a set of dark mudstones and shales deposited in a deep lacustrine setting. With high TOC, type II1 organic matter and Ro mostly of 0.6%-1.2%, the Chang 7 mudstones and shales are confirmed to be the principal source of the widely distributed oils in the Ordos Basin. In order to discuss the adsorption characteristics of Chang 7 organic-rich shales, we analyzed the test results of isothermal adsorption, the content of organic carbon, XRD, thermal maturity and liquid nitrogen adsorption of 16 shale samples chosen from the study area. It turns out that the Langmuir volume of the Chang 7 shales varies between 0.56 m3/t and 4.43 m3/t. With the increase of pressure, the Langmuir volume rises correspondingly until the pressure reaches a certain level. The Langmuir volume has a positive correlation with the organic carbon content, clay mineral content, specific surface area and pore volume. In contrast to many marine shales, the Langmuir volume of the Chang 7 lacustrine shale has a negative correlation with quartz content, which is probably due to the fact that the source of the lake-deposited quartz is of terrestrial detrital origin. The relation of the Langmuir volume and thermal maturity (Ro) of the studied shales is negative when the Ro is less than 0.9% or so but becomes positive as the Ro is more than 0.9%. Based on the comprehensive evaluation, it is found that the TOC content and clay mineral content have the most significant effect on adsorption characteristics, while the specific surface area is a more direct factor.
Number of references: 4
Main heading: Clay minerals
Controlled terms: Metamorphic rocks - Gas adsorption - Quartz - Specific surface area - Shale - Organic carbon
Uncontrolled terms: Adsorption characteristic - Controlling factors - Ordos Basin - Triassic - Yanchang Formation
Classification code: 482.2 Minerals - 802.3 Chemical Operations - 804.1 Organic Compounds
Numerical data indexing: Percentage 6.00e-01% to 1.20e+00%, Percentage 9.00e-01%
DOI: 10.13745/j.esf.2016.01.013
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

157. Application of artificial intelligence on black shale lithofacies prediction in marcellus shale, appalachian basin

Accession number: 20160902041360
Authors: Wang, Guochang (1); Ju, Yiwen (1); Carr, Timothy R. (2); Li, Chaofeng (1); Cheng, Guojian (3)
Author affiliation: (1) University of Chinese Academy of Sciences, China; (2) West Virginia University, United States; (3) Xi'An Shiyou University, China
Corresponding author: Wang, Guochang
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Abbreviated source title: Soc. Pet. Eng. - SPE/AAPG/SEG Unconv. Resour. Technol. Conf.
Part number: 1of1
Issue title: Society of Petroleum Engineers - SPE/AAPG/SEG Unconventional Resources Technology Conference
Issue date: 2016

Publication year: 2016
Report number: URTeC: 1935021
Language: English
ISBN-13: 9781613993606
Document type: Conference article (CA)
Conference name: SPE/AAPG/SEG Unconventional Resources Technology Conference
Conference date: August 25, 2014 - August 27, 2014
Conference location: Denver, CO, United states
Conference code: 117756
Publisher: Society of Petroleum Engineers
Abstract: Organic-rich shale lithofacies, primarily defined by mineral composition and organic matter richness, reflects the features of the two critical factors for unconventional shale reservoirs. The research of shale lithofacies can aid in identifying shale gas productive zones and designing horizontal well and hydraulic fracturing. Seven shale lithofacies in Marcellus Shale have been defined by mineral composition and TOC content. Prediction of shale lithofacies by conventional logs is the key step to define the distribution of shale lithofacies laterally and vertically, but the relationship between lithofacies and logs is non-linear and complex. The effectiveness of conventional mathematical methods is limited. Artificial intelligence (AI) classifiers, such as artificial neural network (ANN), and support vector machine (SVM), can solve complex nonlinear problems. In addition, learning algorithms based on AI could also work together with AI classifiers to recognize shale lithofacies. Meanwhile, an innovative decomposition method, hierarchical decomposition, has been proposed and used to enhance the performance of ANN and SVM classifiers in predict Marcellus Shale lithofacies. In this paper, we devoted ourselves to comprehensively discuss the strength and weakness of these AI algorithms in pattern recognition and present an integrated workflow for organicrich shale lithofacies prediction. This methodology should be helpful for recognizing shale lithofacies in other shalegas plays, which AIDS in identifying high productive shale gas sweet spots. Copyright 2014, Unconventional Resources Technology Conference (URTeC).
Number of references: 34
Main heading: Forecasting
Controlled terms: Neural networks - Support vector machines - Hydraulic fracturing - Resource valuation - Horizontal wells - Pattern recognition - Shale gas - Complex networks - Decision trees
Uncontrolled terms: Decomposition methods - Hierarchical decompositions - Integrated workflow - Mathematical method - Mineral composition - Nonlinear problems - Organic matter richness - Organic-rich shales
Classification code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 961 Systems Science
DOI: 10.15530/urtec-2014-1935021
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

158. Reservoir simulation using smart proxy in SACROC unit - Case study

Accession number: 20164402973243
Authors: He, Qin (1); Mohaghegh, Shahab D. (2); Liu, Zhikun (3)
Author affiliation: (1) Saint Francis University, United States; (2) Intelligent Solutions, Inc., West Virginia University, United States; (3) Xi'an Shiyou University, China
Source title: SPE Eastern Regional Meeting
Abbreviated source title: SPE East. Reg. Meet.
Volume: 2016-January
Part number: 1of1
Issue title: Society of Petroleum Engineers - SPE Eastern Regional Meeting 2016, ERM 2016
Issue date: 2016
Publication year: 2016
Report number: SPE-184069-MS
Language: English
ISBN-13: 9781613995105
Document type: Conference article (CA)
Conference name: 2016 SPE Eastern Regional Meeting, ERM 2016
Conference date: September 13, 2016 - September 15, 2016
Conference location: Canton, OH, United states
Conference code: 124063
Publisher: Society of Petroleum Engineers (SPE)

Abstract: In oil and gas industry, quick decisions on reservoir management have a huge impact on business success. Reservoir simulation is used as a typical tool to predict field performance and analyze uncertainties for assistance on decision making. Nevertheless, history matching, as a critical step of reservoir simulation, typically requires running a numerical simulation model repeatedly with different parameter settings, which is a huge computational cost, especially for complicated geological models with numerous grid cells. For reservoir engineers, how to achieve efficient reservoir simulation by taking full advantage of field data without compromise on the simulation time is a big concern. In this work, Smart Proxy, as a relative new proxy model type, is proposed to investigate the feasibility of fastening history matching process as an alternative. Smart Proxy is an ensemble of Artificial Intelligence and Data Mining (AI&DM) technologies that are able to learn and replicate the behavior of reservoir simulation model with high accuracy. It can be developed off line and put online for automatic history matching at high speed such that a single run can be performed in a fraction of a second (Mohaghegh 2006). This paper presents the Smart Proxy generation and its implementation in a real oilfield simulation case named SACROC Unit. It essentially involves detailing numerical reservoir simulation and Smart Proxy generation for a naturally fractured carbonate numerical simulation model with highly complicated development stages. The developed Smart Proxy is implemented to perform automatic history matching in the designated study area of SACROC Unit. The efficient history matching has been proven to be successfully accomplished using Smart Proxy simulation. Tremendous time and efforts have been saved without any compromise on simulation accuracy compared with that of traditional numerical reservoir simulation method. Copyright 2016, Society of Petroleum Engineers.
Number of references: 34
Main heading: Decision making
Controlled terms: Reservoir management - Petroleum reservoir evaluation - Numerical methods - Data mining - Numerical models - Gas industry - Uncertainty analysis
Uncontrolled terms: Automatic History Matching - Fractured carbonates - Numerical reservoir simulations - Oil and Gas Industry - Reservoir engineers - Reservoir simulation - Reservoir simulation model - Simulation accuracy
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 522 Gas Fuels - 723.2 Data Processing and Image Processing - 912.2 Management - 921 Mathematics - 921.6 Numerical Methods - 922.1 Probability Theory
DOI: 10.2118/184069-MS
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

159. Design of a programmable and low-frequency filter for biomedical signal sensing applications

Accession number: 20171303497613
Authors: Zhao, Tian (1); Liu, Xuan (1); Zhang, Guohe (1); Su, Yali (2)
Author affiliation: (1) School of Microelectronics, Xi'An Jiaotong University, Xi'an, China; (2) School of Mechanical Engineering, Xi'An Shiyou University, Xi'an, China
Corresponding author: Zhang, Guohe(zhangguohe@xjtu.edu.cn)
Source title: Proceedings - 2016 9th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics, CISP-BMEI 2016
Abbreviated source title: Proc. - Int. Congr. Image Signal Process., BioMed. Eng. Inform., CISP-BMEI
Part number: 1 of 1
Issue title: Proceedings - 2016 9th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics, CISP-BMEI 2016
Issue date: February 13, 2017
Publication year: 2016
Pages: 1746-1750
Article number: 7852999
Language: English
ISBN-13: 9781509037100
Document type: Conference article (CA)
Conference name: 9th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics, CISP-BMEI 2016
Conference date: October 15, 2016 - October 17, 2016
Conference location: Datong, China
Conference code: 126492
Publisher: Institute of Electrical and Electronics Engineers Inc., United States

Abstract: A programmable low-frequency filter for biomedical signal sensing application is presented here based on the principle of fifth-order Bessel transconductance capacitor (Gm-C) ladder filter. Current division and current cancellation techniques are used to achieve ultra-low Gm for operation transconductance amplifier (OTA) design. Active inductor is designed through a gyrator structure composed of an OTA and a capacitor. In order to achieve tunable cutoff frequency for the filter, constant Gm and variable capacitor structures are utilized in the design. The cutoff frequency can thus be adjusted as 35Hz, 150Hz and 250Hz through two digital control bits CTRSA and CTRSB. Gm is also adjustable to compensate frequency drift caused by the process and temperature variation. The filter was designed with 0.18μm 1P6M CMOS technology and achieves a THD of 61.2dB and consumes 12.38μW under 1.8V supply voltage. © 2016 IEEE.
Number of references: 20
Main heading: Cutoff frequency
Controlled terms: Transconductance - Operational amplifiers - Signal processing - Bandpass filters - C (programming language) - Digital control systems
Uncontrolled terms: Biomedical signal - Current cancellation - GM-C filters - Low-frequency - programmable - Sensing applications - Temperature variation - Transconductance amplifier
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 703.2 Electric Filters - 713.1 Amplifiers - 716.1 Information Theory and Signal Processing - 723.1.1 Computer Programming Languages - 731.1 Control Systems
Numerical data indexing: Decibel 6.12e+01dB, Frequency 1.50e+02Hz, Frequency 2.50e+02Hz, Frequency 3.50e +01Hz, Power 1.24e-05W, Voltage 1.80e+00V
DOI: 10.1109/CISP-BMEI.2016.7852999
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

160. The new analysis method of permeability stress-sensitivity and stimulation

Accession number: 20164402962435
Authors: Liu, X. (1, 2); Shen, R. (1); Zhang, H. (1); Liu, X. (3)
Author affiliation: (1) China National Petroleum Corporation, Drilling Research Institute, China; (2) China University of Petroleum, China; (3) Xi'an Shiyou University, China
Source title: Society of Petroleum Engineers - IADC/SPE Asia Pacific Drilling Technology Conference
Abbreviated source title: Soc. Pet. Eng. - IADC/SPE Asia Pac. Drill. Technol. Conf.
Part number: 1of1
Issue title: Society of Petroleum Engineers - IADC/SPE Asia Pacific Drilling Technology Conference
Issue date: 2016
Publication year: 2016
Report number: SPE-180567-MS
Language: English
ISBN-13: 9781613994504
Document type: Conference article (CA)
Conference name: IADC/SPE Asia Pacific Drilling Technology Conference 2016
Conference date: August 22, 2016 - August 24, 2016
Conference location: Singapore, Singapore
Conference code: 123867
Publisher: Society of Petroleum Engineers
Abstract: Formation and fracture parameters can be obtained usefully by straiht-line analysis. Due to the reason that the reservoir permeability and fluid properties are pressure-dependent, conventional straight-line method may lead to significant error. Besides, pressure-dependence of permeability is always difficult to be quantified with traditional method. This paper aims to analysis the error and manage to propose a new procedure to quantify the pressure-dependence of permeability as well as to evaluate the stimulation efficiency. In the paper, we firstly analyze the errors caused by pressure-dependence of permeability and gas properties and study influencing factors. Furthermore, a new method for radius of influence calculation is introduced. Then, procedures used to quantify pressure-dependence of permeability as well as estimate formation/fracture parameters are presented in detail. Finally, One field example is used to testified these procedures. We can get some conclusions from the error analysis that, due to the existence of pressure-dependent permeability and gas properties, the plot obtained by traditional straight-line method would derviate from straight-line. This method is proved to be accurate to quantify pressure-dependent of permeability and evaluate the stimulation efficiency by applying the modified method in this paper to field data. The technique innovations of this paper include:(1)we evaluate the error caused by ignoring pressure-dependent permeability and gas properties;(2) a new method for pseudotime calculation under variable rate /flowing pressure condition is presented;(3)

a new procedure of quantifying pressure-dependence of permeability as well as evaluating the stimulation efficiency is also proposed and validated. Copyright 2016, IADC/SPE Asia Pacific Drilling Technology Conference.
Number of references: 19
Main heading: Errors
Controlled terms: Petroleum reservoir evaluation - Gas permeability - Efficiency
Uncontrolled terms: Permeability modulus - Pressure conditions - Pressure dependence - Pressure dependent - Radius of influences - Reservoir permeability - Straight line analysis - Stress sensitivity
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 913.1 Production Engineering - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.2118/180567-MS
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

161. Design of a low noise low power preamplifier used for portable biomedical signal acquisition

Accession number: 20171303497612
Authors: Su, Yali (1); Liu, Xuan (2)
Author affiliation: (1) School of Mechanical Engineering, Xi'An Shiyou University, Xi'an, China; (2) School of Microelectronics, Xi'An Jiaotong University, Xi'an, China
Source title: Proceedings - 2016 9th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics, CISP-BMEI 2016
Abbreviated source title: Proc. - Int. Congr. Image Signal Process., BioMed. Eng. Inform., CISP-BMEI
Part number: 1 of 1
Issue title: Proceedings - 2016 9th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics, CISP-BMEI 2016
Issue date: February 13, 2017
Publication year: 2016
Pages: 1742-1745
Article number: 7852998
Language: English
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Conference name: 9th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics, CISP-BMEI 2016
Conference date: October 15, 2016 - October 17, 2016
Conference location: Datong, China
Conference code: 126492
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: A low noise preamplifier used for biomedical signal acquisition is presented in the paper. A 'T-type feedback' operational amplifier topology structure is used here based on the traditional 'AC coupling-capacitor feedback'. The resulting amplifier, built in SMIC 0.18um standard CMOS process, processes signals from 0.2/25Hz to 10 kHz with an input-referred noise of 0.96uVrms and a power dissipation of 18.54uW while occupying 0.065mm2 of chip area. The simulation results show that, the presented preamplifier has proper gain and bandwidth, small input-referred noise and chip area consumption. It is suitable for the applications in low power, low noise and high integration circuits used for biomedical signal acquisition. © 2016 IEEE.
Number of references: 11
Main heading: Operational amplifiers
Controlled terms: Feedback amplifiers - Low power electronics - Mergers and acquisitions
Uncontrolled terms: AC coupling capacitors - Biomedical signal - Biomedical signal acquisition - Low noise - Low noise preamplifiers - Low Power - Low-noise low-power preamplifiers - Standard CMOS process
Classification code: 713.1 Amplifiers
Numerical data indexing: Area 6.50e-08m2, Frequency 1.00e+04Hz
DOI: 10.1109/CISP-BMEI.2016.7852998
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

162. Numerical simulation analysis on the flow field and convection heat transfer in a new heat transfer tube of SuperORV

Accession number: 20162202430615
Authors: Deng, Zhi'an (1); Jiang, Chenwei (1); Zhang, Xueting (1); Liang, Xiao (1); Yang, Fan (2)
Author affiliation: (1) Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) Shaanxi Xianyang Petroleum Company of Sinopec Sales Co., Ltd., Xi'an; Shaanxi; 710065, China
Source title: Natural Gas Industry
Abbreviated source title: Natur. Gas Ind.
Volume: 36
Issue: 4
Issue date: April 25, 2016
Publication year: 2016
Pages: 90-95
Language: Chinese
ISSN: 10000976
CODEN: TIGOE3
Document type: Journal article (JA)
Publisher: Natural Gas Industry Journal Agency
Abstract: A new heat transfer tube of SuperORV (super open rack vaporizer) is developed by adding a Phillips screw spoiler lever to the inner tube of the traditional heat transfer tube to strengthen the heat transfer efficiency. Mathematical and physical models corresponding to the new and the traditional heat transfer tubes were built to study the heat transfer efficiency of this new device. Two types of heat transfer tubes were compared in terms of their flow fields and convection heat transfer performances by means of numerical simulation. As a result, the relationship diagram of inlet velocity vs. Nusselt Number of flow path in heat transfer tubes was worked out, and the distribution laws of temperature and heat transfer coefficient at different positions of heat transfer tubes were drawn. After numerical simulation was carried out on the existing experiments, simulation results and experimental data were compared and analyzed. It is shown that based on the FLUENT numerical simulation method, the heat transfer characteristics can be described accurately. By virtue of screw spoiler levers, not only the turbulence intensity of the fluid is enhanced, but the boundary layer thickness is reduced effectively with a strong secondary flow, so the radial heat exchange of the fluid is strengthened and the overall heat transfer capacity of heat transfer tubes is improved. Inlet flow velocity is proportional to the increasing rate of Nusselt Number, and heat transfer coefficient increases with the rise of temperature. With the same Reynolds number, the average temperature of the fluid inside the new heat transfer tube is significantly higher than that in the traditional transfer tube. These results provide reference for the localization of SuperORV.
Number of references: 15
Main heading: Heat transfer coefficients
Controlled terms: Boundary layers - Flow velocity - Flow fields - Boundary layer flow - Inlet flow - Reynolds number - Numerical methods - Efficiency - Heat convection - Numerical models - Nusselt number - Tubes (components)
Uncontrolled terms: Boundary layer thickness - Enhanced heat transfer - Fluent numerical simulations - Heat transfer characteristics - Heat transfer efficiency - Numerical simulation analysis - SuperORV - Turbulence intensity
Classification code: 619.1 Pipe, Piping and Pipelines - 631 Fluid Flow - 631.1 Fluid Flow, General - 641.2 Heat Transfer - 913.1 Production Engineering - 921 Mathematics - 921.6 Numerical Methods - 943.2 Mechanical Variables Measurements
DOI: 10.3787/j.issn.1000-0976.2016.04.014
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

163. Development strategies of provincial natural gas markets in China: A case study of Shaanxi Province

Accession number: 20161702309686
Authors: Li, Bo (1); Zhang, Ke (1, 2); Wang, Dan (1); Li, Dong (1); Li, Xiaochong (1)
Author affiliation: (1) Shaanxi Natural Gas Co., Ltd., Xi'an; Shaanxi; 710016, China; (2) Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China

Source title: Natural Gas Industry
Abbreviated source title: Natur. Gas Ind.
Volume: 36
Issue: 3
Issue date: March 25, 2016
Publication year: 2016
Pages: 114-119
Language: Chinese
ISSN: 10000976
CODEN: TIGOE3
Document type: Journal article (JA)
Publisher: Natural Gas Industry Journal Agency
Abstract: With the transformation of energy consumption structure in China, natural gas is sharing an increasing proportion in primary energy consumption, but the increasing rate is low. So, there is still great potential to further expand the natural gas consumption markets. In this paper, based on natural gas utilization situations in China, the development status of natural gas industry in Shaanxi Province was discussed to highlight the potential and urgency of developing natural gas consumption markets in the province. According to the development situations of different areas, the markets are divided into four levels, i.e., county and township near-term small market, municipal near-term medium market, major county mid-term medium market, and municipal early-term large market. The gas consumption is divided into initial stage, growth stage and mature stage. Finally, development programs were proposed on natural gas markets in different areas at various development stages. Firstly, as for the markets at the initial stage, marketing enterprises should focus on urban gas to perform their political responsibilities. Secondly, as for the markets at the growth stage, enterprises should focus on the adjustment of natural gas market structure to perform their economic responsibilities. And thirdly, for mature markets, enterprises should pay attention to the large-sized advanced industrial users that are newly built, rebuilt or expanded in the periphery and should give the priority to the distributed energy in promotion and utilization. © 2016, Natural Gas Industry Journal Agency. All right reserved.
Number of references: 17
Main heading: Marketing
Controlled terms: Energy utilization - Commerce - Gas industry - Natural gas - Gases
Uncontrolled terms: China - Consumption situation - Industrial development - Market development - Shaanxi Province - Strategic analysis
Classification code: 522 Gas Fuels - 525.3 Energy Utilization - 911.4 Marketing
DOI: 10.3787/j.issn.1000-0976.2016.03.016
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

164. Corrigendum to "Development of a downhole incharge inflow control valve in intelligent wells" (Journal of Natural Gas Science and Engineering (2016) 29 (559–569) (S1875510016300208)(10.1016/j.jngse.2016.01.020))

Accession number: 20164502978443
Authors: Wang, Jinlong (1); Zhang, Ningsheng (1); Wang, Yuelong (2); Zhang, Bing (1); Wang, Yingru (3); Liu, Tian'en (4)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) College of Electrical Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (3) College of Chinese Language and Literature, Xi'an International Studies University, Xi'an; 710128, China; (4) Petroleum Engineering Research Institute, Dagang Oilfield of Petrochina, Tianjin; 300280, China
Corresponding author: Wang, Jinlong(shuifengzou520@126.com)
Source title: Journal of Natural Gas Science and Engineering
Abbreviated source title: J. Nat. Gas Sci. Eng.
Volume: 36
Issue date: November 1, 2016
Publication year: 2016
Pages: 1050
Language: English
ISSN: 18755100
Document type: Erratum (ER)
Publisher: Elsevier B.V.

Abstract: The authors regret that carelessly used a wrong picture in Fig. 5 published in Vol 29, 2016. We apologize for not finding out this mistake during proof reading. The correct figure should be as follows. The authors would like to apologise for any inconvenience caused.[display presented] © 2016 Elsevier B.V.
DOI: 10.1016/j.jngse.2016.10.049
ErratuFlg: 608253551
Database: Compendex
Data Provider: Engineering Village

165. The characteristics of gravity and magnetic fields and the distribution of tight sandstone gas in the eastern Ordos Basin, China (*Open Access*)

Accession number: 20161602245006
Authors: Yuan, Bingqiang (1, 2); Zhang, Huaan (3); Zhang, Chunguan (1); Xu, Haihong (4); Yan, Yunkui (3)
Author affiliation: (1) School of Geoscience and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Shaanxi Key Lab of Petroleum Accumulation Geology, Xi'an Shiyou University, Xi'an; 710065, China; (3) Yanchang Oilfield Co. Ltd, Yanchuan, Shaanxi; 717208, China; (4) Xi'an Center of Geological Survey, China Geological Survey, Xi'an, Shaanxi; 710054, China
Corresponding author: Yuan, Bingqiang(yuanbingqiang@sohu.com)
Source title: Geophysical Journal International
Abbreviated source title: Geophys. J. Int.
Volume: 205
Issue: 1
Issue date: April 1, 2016
Publication year: 2016
Pages: 665-679
Language: English
ISSN: 0956540X
E-ISSN: 1365246X
Document type: Journal article (JA)
Publisher: Oxford University Press
Abstract: In order to perform gas exploration and determine the distribution pattern of gas in the Yanchang Oil Field in the eastern part of the North Shaanxi Slope, Ordos Basin, China, gravity and magnetic survey data were systemically collated, processed and interpreted in combination with the drilling data and recent seismic data. The genesis of gravity and magnetic anomalies and the relationship between the characteristics of the gravity and magnetic fields and known gas distribution were explored in order to predict the favourable exploration targets for gas. Gravity anomalies resulted both from the lateral variation in density of the basement rock and lateral lithologic transformation in the sedimentary cover. The regional magnetic anomalies were mainly caused by the basement metamorphic rocks and the residual magnetic anomalies may reflect the amount and general location of the volcanic materials in the overlying strata. The residual gravity and magnetic anomalies generated by high-density sandstone and high content of volcanics in the gas reservoir of the upper Paleozoic distorted and deformed the anomaly curves when they were stacked onto the primary background anomaly. The gas wells were generally found to be located in the anomaly gradient zones, or the distorted part of contour lines, and the flanks of high and low anomalies, or the transitional zones between anomaly highs and lows. The characteristics of gravity and magnetic fields provide significant information that can be used for guidance when exploring the distribution of gas. Based on these characteristics, five favourable areas for gas exploration were identified; these are quasi-equally spaced like a strip extending from the southeast to the northwest. © The Authors 2016.
Number of references: 47
Main heading: Gases
Controlled terms: Geological surveys - Sandstone - Image processing - Magnetic fields - Metamorphic rocks - Natural gas fields - Petroleum prospecting - Buildings - Seismology
Uncontrolled terms: Asia - Distribution patterns - Gas and hydrate systems - Gravity and magnetic anomalies - Gravity anomalies and Earth structures - Magnetic anomalies: modelling and interpretations - Ordos basin , China - Tight sandstone gas
Classification code: 402 Buildings and Towers - 481.1 Geology - 482.2 Minerals - 484.1 Earthquake Measurements and Analysis - 512.1.2 Petroleum Deposits : Development Operations - 512.2.1 Natural Gas Fields - 701.2 Magnetism: Basic Concepts and Phenomena - 723.2 Data Processing and Image Processing
DOI: 10.1093/gji/ggw047
Funding text: The authors would like to acknowledge the relevant leaders and experts in the natural gas exploration and development division of Yanchang Oilfield Co. Ltd. and the School of Geoscience and Engineering resource

college of Xi'an Shiyou University for their the help and guidance. Many thanks for the insightful comments of the two anonymous reviewers and editors, which significantly improved the original version of this paper. We would like to thank the program 'The integrated research on geophysical data in the eastern part Ordos Basin-2007-53' of Yanchang Oilfield Co. Ltd for their funding support.
Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

166. Development of a downhole incharge inflow control valve in intelligent wells

Accession number: 20160701935729
Authors: Wang, Jinlong (1); Zhang, Ningsheng (1); Wang, Yuelong (2); Zhang, Bing (1); Wang, Yingru (3); Liud, Tian'en (4)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) College of Electrical Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (3) College of Chinese Language and Literature, Xi'an International Studies University, Xi'an; 710128, China; (4) Petroleum Engineering Research Institute, Dagang Oilfield of Petrochina, Tianjin; 300280, China
Corresponding author: Wang, Jinlong(shuifengzou520@126.com)
Source title: Journal of Natural Gas Science and Engineering
Abbreviated source title: J. Nat. Gas Sci. Eng.
Volume: 29
Issue date: February 01, 2016
Publication year: 2016
Pages: 559-569
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: A complex hydraulic control system for intelligent wells is costly and cannot use numerous producing layers. Thus, it cannot be easily employed in China oilfields that demand a downhole electric drive inflow control valve, which can be combined with the downhole electronic monitoring system, applied to a 5.5-inch wellbore, and remotely controlled with low cost. In this study, a tubular linear motor is used in developing an incharge inflow control valve (IICV) to drive the sliding sleeve. A rotor displacement detector and a tubular linear motor are integrated to measure the IICV opening. The resulting intelligent well systems only need three 0.25-inch power wires and a 0.25-inch signal transmission cable to control over 12 producing layers. Such intelligent well systems can also reduce the number of holes on the feed-through production packer. The IICV can be combined with the downhole electronic monitoring system to achieve the electronization of intelligent well systems and reduce costs. Field application results show that the IICV continuously ran fault-free in the downhole for 15 months. The cumulative increase in oil production capacity is > 8 × 106 kg, which directly increased profit by >$3 million. The proposed systems can effectively use reservoir energy and enhance oil recovery. © 2016 Elsevier B.V.
Number of references: 39
Main heading: Electric drives
Controlled terms: Monitoring - Safety valves - Linear motors - Oil wells
Uncontrolled terms: Flow trim - Inflow control valve - Intelligent well systems - Rotor displacement - Tubular linear motor
Classification code: 512.1.1 Oil Fields - 619.1.1 Pipe Accessories - 705.3 Electric Motors - 914.1 Accidents and Accident Prevention
Numerical data indexing: Age 1.25e+00yr, Size 1.40e-01m, Size 6.35e-03m
DOI: 10.1016/j.jngse.2016.01.020
Funding Details: Number: 51274165, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The authors would like to acknowledge the financial support from the projects of the National Natural Science Foundation of China [A Study of Multi-layer Commingling with Intelligent Well Completion for the Optimization of the Node Combination Model (No. 51274165) and A Study of Intelligent Well System Design and the Production Optimization of a Control Model (No. U1262105)] and the Education Department of the Shaanxi Provincial Government Special Scientific Research Projects in China [Water Invasion Monitoring and Optimization Control Model of a Horizontal Intelligent Well in a Low-Permeability Reservoir (No. 14JK1587)].
Compendex references: YES
ErratuFlg: 613000936
Database: Compendex

Data Provider: Engineering Village

167. Task analysis approach based on perceptual control theory

Accession number: 20162802581726
Authors: Li, Juan-Ni (1, 2); Hua, Qing-Yi (1); Ji, Xiang (1); Zhang, Min-Jun (1)
Author affiliation: (1) School of Information, Northwest University, Xi'an; 710075, China; (2) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Hua, Qing-Yi(huaqy@nwu.edu.cn)
Source title: Journal of Beijing Institute of Technology (English Edition)
Abbreviated source title: J Beijing Inst Technol Engl Ed
Volume: 25
Issue: 2
Issue date: June 1, 2016
Publication year: 2016
Pages: 278-286
Language: English
ISSN: 10040579
CODEN: JBITE5
Document type: Journal article (JA)
Publisher: Beijing Institute of Technology
Abstract: Based on perceptual control theory, a task analysis approach is proposed to describe more accurately user tasks in dynamic environments, which is of more powerful and flexible descriptive ability. Theoretically, a task meta model is established to describe the interactive process in an individual, dynamic, and flexible way. Methodologically, an implementation framework is illustrated to map the user-oriented description into implementation-oriented models, which will be as a technical tool to transform from a task model to a user interface prototype. © 2016 Beijing Institute of Technology.
Number of references: 14
Main heading: Control theory
Controlled terms: User interfaces - Job analysis
Uncontrolled terms: Context of use - Dynamic environments - Interactive process - Perceptual control - Task analysis - Task meta-models - Technical tools - User interface prototypes
Classification code: 722.2 Computer Peripheral Equipment - 731.1 Control Systems
DOI: 10.15918/j.jbit1004-0579.201625.0217
Funding Details: Number: 61272286, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 20126101110006, Acronym: SRFDP, Sponsor: Specialized Research Fund for the Doctoral Program of Higher Education of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

168. Acoustic resonance detection using statistical methods of voltage envelope characterization in metal halide lamps (*Open Access*)

Accession number: 20165003111739
Authors: Lei, Fang (1, 2); Dupuis, Pascal (1); Durrieu, Olivier (1); Zissis, Georges (1); Maussion, Pascal (1)
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Source title: IEEE Industry Application Society, 52nd Annual Meeting: IAS 2016
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Part number: 1of1
Issue title: IEEE Industry Application Society, 52nd Annual Meeting: IAS 2016
Issue date: November 2, 2016
Publication year: 2016
Article number: 7731890
Language: English
ISBN-13: 9781467386715

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Conference name: 52nd Annual Meeting on IEEE Industry Application Society, IAS 2016
Conference date: October 2, 2016 - October 6, 2016
Conference location: Portland, OR, United states
Conference code: 124722
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Acoustic resonance (AR) occurs in metal halide (MH) lamps and could cause light flicker, lamp arc bending and rotation, lamp extinction and arc tube explosion in the worst situations. This study takes place in the context of developing electronic ballasts with a low-cost and robust AR detection and avoidance mechanism. In this case, a lock-in amplifier is used to obtain the variations of lamp voltage envelope. A mathematical criterion is proposed to classify AR presence and severity. This criterion is based upon the short-term standard variation of voltage envelope and it was tested over a set of MH lamps with different powers and manufacturers. By varying the operation frequency of the high-frequency ballast, it was experimentally possible to control the average electrical power and the level of AR occurrence in the lamps. A data set consisting of healthy (without AR or AR-free) and faulty (with AR) cases was constructed by varying these parameters. The proposed criterion permitted to classify the observed waveforms in a two-dimensional (2D) plane. It was observed that AR-free and AR cases are separated. The results of this study show that the voltage envelope variations and the defined criterion are significantly correlated with AR presence whatever the lamp of the operation power. © 2016 IEEE.
Number of references: 19
Main heading: Resonance
Controlled terms: Metal halides - Locks (fasteners) - Metal halide lamps
Uncontrolled terms: 2D plane - Acoustic resonance - healthy reference - Lock-in amplifier - Standard deviation
Classification code: 707.2 Electric Lamps - 804 Chemical Products Generally - 931.1 Mechanics
DOI: 10.1109/IAS.2016.7731890
Compendex references: YES
Open Access type(s): All Open Access, Green
Database: Compendex
Data Provider: Engineering Village

169. Applications of savitzky-golay filter for seismic random noise reduction (*Open Access*)

Accession number: 20161202113904
Authors: Liu, Yanping (1); Dang, Bo (1); Li, Yue (2); Lin, Hongbo (2); Ma, Haitao (2)
Author affiliation: (1) College of Electronic Engineering, Xi'An Shiyou University, Xi'an, China; (2) College of Communication Engineering, Jilin University, Changchun, China
Source title: Acta Geophysica
Abbreviated source title: Acta Geophys.
Volume: 64
Issue: 1
Issue date: February 1, 2016
Publication year: 2016
Pages: 101-124
Language: English
ISSN: 18956572
E-ISSN: 18957455
Document type: Journal article (JA)
Publisher: De Gruyter Open Ltd
Abstract: This article utilizes Savitzky-Golay (SG) filter to eliminate seismic random noise. This is a novel method for seismic random noise reduction in which SG filter adopts piecewise weighted polynomial via least-squares estimation. Therefore, effective smoothing is achieved in extracting the original signal from noise environment while retaining the shape of the signal as close as possible to the original one. Although there are lots of classical methods such as Wiener filtering and wavelet denoising applied to eliminate seismic random noise, the SG filter outperforms them in approximating the true signal. SG filter will obtain a good tradeoff in waveform smoothing and valid signal preservation under suitable conditions. These are the appropriate window size and the polynomial degree. Through examples from synthetic seismic signals and field seismic data, we demonstrate the good performance of SG filter by comparing it with the Wiener filtering and wavelet denoising methods. © 2015 Liu et al.
Number of references: 36
Main heading: Bandpass filters
Controlled terms: Seismic waves - Signal denoising - Seismic response - Least squares approximations

Uncontrolled terms: Least squares estimation - Random noise reductions - Savitzky-Golay filter - Seismic datas - Seismic signals - SG filter - Wavelet denoising method - Weighted polynomials
Classification code: 484 Seismology - 484.2 Secondary Earthquake Effects - 703.2 Electric Filters - 716.1 Information Theory and Signal Processing - 921.6 Numerical Methods
DOI: 10.1515/acgeo-2015-0062
Funding Details: Number: 41130421,41174160,41274118, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: We would like to thank the members of modern signal processing laboratory of Jilin University in China. This work is supported by National Natural Science Foundation of China with the grant no. 41174160, 41130421 and 41274118, respectively.
Compendex references: YES
Open Access type(s): All Open Access, Hybrid Gold
Database: Compendex
Data Provider: Engineering Village

170. Nonlinear robust adaptively SDRE filtering method for SINS/SAR integrated Navigation System

Accession number: 20171103450327
Authors: Gao, Yi (1); Wang, Yuelong (1); Cheng, Weibin (1)
Author affiliation: (1) Shaanxi Key Laboratory of Measurement and Control Technology for Oil and Gas Wells, Xi'an Shiyou University, Shaanxi, China
Source title: CGNCC 2016 - 2016 IEEE Chinese Guidance, Navigation and Control Conference
Abbreviated source title: CGNCC - IEEE Chin. Guid., Navig. Control Conf.
Part number: 1 of 1
Issue title: CGNCC 2016 - 2016 IEEE Chinese Guidance, Navigation and Control Conference
Issue date: January 20, 2017
Publication year: 2016
Pages: 2383-2387
Article number: 7829165
Language: English
ISBN-13: 9781467383189
Document type: Conference article (CA)
Conference name: 7th IEEE Chinese Guidance, Navigation and Control Conference, CGNCC 2016
Conference date: August 12, 2016 - August 14, 2016
Conference location: Nanjing, Jiangsu, China
Conference code: 126063
Sponsor: IEEE Control Systems Society (CSS) Chapter; Science and Technology on Aircraft Control Laboratory; Technical Committee on Guidance, Navigation and Control (TCGNC) of Chinese Society of Aeronautics and Astronautics (CSAA)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: The robust adaptive filtering method based on the State Dependent Riccati Equation technique for SINS/SAR integrated navigation system. This method adopts the state dependent coefficient form to convert nonlinear system model into linear system for avoiding the errors caused by the traditional numerical linearization process. It also adopts the concepts of robust estimation and adaptive factor to construct reasonably the discriminate statistics and adaptive factor for resisting the disturbances of singular observations and kinematic model error. Experimental results and comparison analysis demonstrate that the proposed filtering method can not only effectively resist disturbances from nonlinear system state noise and observation noise, but it also can achieve higher accuracy than the extended kalman filtering and SDRE filtering methods. © 2016 IEEE.
Number of references: 11
Main heading: Linear systems
Controlled terms: Adaptive filtering - Kalman filters - Air navigation - Nonlinear systems - Riccati equations - Kinematics - Navigation systems - Adaptive filters - Numerical methods
Uncontrolled terms: Comparison analysis - Extended Kalman filtering - Linearization process - Nonlinear system modeling - Observation noise - SINS/SAR integrated - State dependent coefficients - State-dependent Riccati equation
Classification code: 431.5 Air Navigation and Traffic Control - 921.2 Calculus - 921.6 Numerical Methods - 931.1 Mechanics - 961 Systems Science
DOI: 10.1109/CGNCC.2016.7829165

Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

171. Quality assessment of surface water environment based on improved grey correlation method

Accession number: 20163902832075
Authors: Si, Xun-Lian (1); Zhang, Yan-Bo (1)
Author affiliation: (1) Research Center of Oil and Gas Resource Economic and Management, Xi'An Shiyou University, Xi'an, Shanxi Province; 710065, China
Source title: Conference Proceedings of the 4th International Symposium on Project Management, ISPM 2016
Abbreviated source title: Conf. Proc. Int. Symp. Proj. Manag., ISPM
Part number: 1of1
Issue title: Conference Proceedings of the 4th International Symposium on Project Management, ISPM 2016
Issue date: 2016
Publication year: 2016
Pages: 175-180
Language: English
ISBN-13: 9781921712487
Document type: Conference article (CA)
Conference name: 4th International Symposium on Project Management, ISPM 2016
Conference date: July 9, 2016 - July 10, 2016
Conference location: Wuhan, China
Conference code: 123412
Sponsor: Hubei Zhongke Institute of Geology and Environment Technology
Publisher: Aussino Academic Publishing House
Abstract: A surface water environmental quality assessment model was proposed based on improved grey correlation method. At first, the linear interpolation method was carried out on the processing of water quality monitoring data normalization, and then use the standard ratio method to determine the factor weights, and the weighted hamming distance method introduced to calculate the similarity between evaluation object and standard and determine grey class under its jurisdiction. At last, we compared the evaluation results of empirical analysis with the results obtained by single factor index method, fuzzy comprehensive evaluation method and BP neural network method. The results demonstrate that the improved grey correlation analysis method is simple and easy, high accuracy and high practicability.
Number of references: 17
Main heading: Surface waters
Controlled terms: Correlation methods - Interpolation - Neural networks - Quality control - Hamming distance - Water quality
Uncontrolled terms: Environmental quality - Grey correlation methods - Linear Interpolation - Ratio method - Weighted hamming distances
Classification code: 444.1 Surface Water - 445.2 Water Analysis - 913.3 Quality Assurance and Control - 921.6 Numerical Methods - 922.2 Mathematical Statistics
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

172. H# output tracking control over networked control systems with Markovian jumping parameters

Accession number: 20160301824027
Authors: Wu, Ying (1); Wu, Yanpeng (2)
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an; 710065, China; (2) Department of Automation, Northwestern Polytechnical University, Xi'an; 710072, China
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Source title: Optimal Control Applications and Methods
Abbreviated source title: Optim Control Appl Methods
Volume: 37

Issue: 6
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Publication year: 2016
Pages: 1162-1174
Language: English
ISSN: 01432087
E-ISSN: 10991514
CODEN: OCAMD5
Document type: Journal article (JA)
Publisher: John Wiley and Sons Ltd
Abstract: The problem of H# output tracking control over networked control systems (NCSs) with communication limits and environmental disturbances is studied in this paper. A wide range of time-varying stochastic problem arising in networked tracking control system is reduced to a standard convex optimization problem involving linear matrix inequalities (LMIs). The closed-loop hybrid NCS is modeled as a Markov jump linear system in which random time delays and packet dropouts are described as two stochastic Markov chains. Gridding approach is introduced to guarantee the finite value of the sequences of transmission delays from sensor to actuator. Sufficient conditions for the stochastic stabilization of the hybrid NCS tracking system are derived by the LMI-based approach through the computation of the optimal H# performance. The mode-dependent robust H# output tracking controller is obtained by the optimal iteration method. Numerical examples are given to demonstrate the effectiveness of the proposed robust output tracking controller for NCS. Copyright © 2016 John Wiley & Sons, Ltd. Copyright © 2016 John Wiley & Sons, Ltd.
Number of references: 29
Main heading: Linear matrix inequalities
Controlled terms: Stochastic systems - Markov processes - Navigation - Copyrights - Convex optimization - Linear systems - Robust control - Chains - Networked control systems - Controllers - Iterative methods
Uncontrolled terms: Convex optimization problems - Environmental disturbances - Markov jump linear systems - Markovian jumping parameters - Networked Control Systems (NCSs) - Optimal controls - Stochastic stabilization - Tracking control systems
Classification code: 602.1 Mechanical Drives - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 731.2 Control System Applications - 732.1 Control Equipment - 902.3 Legal Aspects - 921.1 Algebra - 921.6 Numerical Methods - 922.1 Probability Theory - 961 Systems Science
DOI: 10.1002/oca.2229
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

173. Adaptive Noise Cancellation for Electromagnetic-while-Drilling System

Accession number: 20165003107093
Authors: Keman, Liu (1)
Author affiliation: (1) Key Laboratory of Photoelectric Logging and Detecting of Oil and Gas, Ministry of Education, Xi'An Shiyou University, Xi'an, China
Corresponding author: Keman, Liu(coreman2005@126.com)
Source title: Proceedings - 2016 3rd International Conference on Information Science and Control Engineering, ICISCE 2016
Abbreviated source title: Proc. - Int. Conf. Inf. Sci. Control Eng., ICISCE
Part number: 1of1
Issue title: Proceedings - 2016 3rd International Conference on Information Science and Control Engineering, ICISCE 2016
Issue date: October 31, 2016
Publication year: 2016
Pages: 1253-1256
Article number: 7726365
Language: English
ISBN-13: 9781509025350
Document type: Conference article (CA)
Conference name: 3rd International Conference on Information Science and Control Engineering, ICISCE 2016
Conference date: July 8, 2016 - July 10, 2016
Conference location: Beijing, China
Conference code: 124721

Sponsor: Beijing University of Civil Engineering and Architecture; China Jiliang University; et al.; The University of Texas at San Antonio (UTSA); University of Hull; Xiamen University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: An electromagnetic telemetry system is a real time data transmission system for drill string telemetry, which is detected the electromagnetic signal between the wellhead and dipole on the surface. The well-site noise is an important factor that affects the electromagnetic MWD system transmission performance. An adaptive noise cancellation method was studied to enhance the EM-MWD receiver's ability to extract very weak signals from large amounts of well site noise. Firstly, the principle of MWD is introduced, and then the characteristic of well site noise is described briefly. Thirdly, step-size parameter μ is modified based on the noise characteristics of the well site. Finally, experimental results show that the modified LMS algorithm can suppress the well site noise 3-9dB compared with LMS algorithm. And the modified LMS algorithm has faster convergence speed, smaller steady and lower excess mean square error. © 2016 IEEE.
Number of references: 10
Main heading: Adaptive filters
Controlled terms: Drill strings - Mean square error - Adaptive filtering - Bandpass filters - Telemetering equipment
Uncontrolled terms: Adaptive noise cancellations - Electromagnetic measurement while drilling - Electromagnetic signals - Electromagnetic telemetry system - Excess mean square error - Least mean square (LMS) - Real time data transmission - Transmission performance
Classification code: 511.2 Oil Field Equipment - 703.2 Electric Filters - 922.2 Mathematical Statistics
Numerical data indexing: Decibel 3.00e+00dB to 9.00e+00dB
DOI: 10.1109/ICISCE.2016.268
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

174. Discovering Learning Patterns of Male and Female Students by Contrast Targeted Rule Mining

Accession number: 20171503566802
Authors: Tian, Xianghong (1); Kong, Jie (2); Zhu, Tianqing (3); Xia, Haiyang (1)
Author affiliation: (1) Jinling Institute of Technology, Nanjing, China; (2) School of Computer Science, Xi'An Shiyou University, Xi'an, China; (3) Deakin University, Melbourne, Australia
Source title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
Abbreviated source title: Proc. - Int. Conf. Enterp. Syst.: Adv. Enterp. Syst., ES
Part number: 1 of 1
Issue title: Proceedings - 4th International Conference on Enterprise Systems: Advances in Enterprise Systems, ES 2016
Issue date: March 16, 2017
Publication year: 2016
Pages: 196-202
Article number: 7880491
Language: English
ISBN-13: 9780769559841
Document type: Conference article (CA)
Conference name: 4th International Conference on Enterprise Systems, ES 2016
Conference date: November 2, 2016 - November 3, 2016
Conference location: Melbourne, VIC, Australia
Conference code: 126897
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In recent years, data mining techniques has attracted the attention from educational researchers and applied in educational research pervasively. As a famous data mining method, traditional association rules mining tend to ignore the infrequent data item and can only analyze a single dataset. To address these issues, a contrast targeted rule mining model is introduced in this paper. A complete analysis for the patterns and differences in the academic situation of male and female students is then conducted by the contrast targeted rule mining. Some useful association rules extracted by CTR are presented to demonstrate the difference of male and female students' learning patterns. © 2016 IEEE.
Number of references: 22

Main heading: Association rules
Controlled terms: Education computing - Data mining - Students
Uncontrolled terms: Association rules mining - contrast targeted rule - Data items - Data mining methods - Educational research - Female students - Learning patterns - Rule mining
Classification code: 723.2 Data Processing and Image Processing - 903.1 Information Sources and Analysis
DOI: 10.1109/ES.2016.32
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

175. Metal-organic framework coated paper substrates for paper spray mass spectrometry

Accession number: 20164803066134
Authors: Wang, Xiaoting (1); Zheng, Yajun (1); Wang, Teng (1); Xiong, Xingchuang (2); Fang, Xiang (2); Zhang, Zhiping (1)
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an; 710065, China; (2) National Institute of Metrology, Beijing; 100013, China
Corresponding author: Zhang, Zhiping(zhangzp0304@gmail.com)
Source title: Analytical Methods
Abbreviated source title: Anal. Methods
Volume: 8
Issue: 45
Issue date: December 7, 2016
Publication year: 2016
Pages: 8004-8014
Language: English
ISSN: 17599660
E-ISSN: 17599679
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: Metal-organic frameworks (MOFs) have emerged as novel materials owing to their inherent structural characteristics, i.e., a large surface area and a well-ordered porous structure, but there are no reports on their application to paper spray mass spectrometry. Herein we explore the capability of paper substrates coated with three types of MOFs [e.g., MIL-53(Al), ZIF-8 and UiO-66(Zr)] for paper spray, in which the as-prepared UiO-66(Zr) coated paper demonstrated the highest sensitivity in the analysis of therapeutic drugs in dried blood spots relative to MIL-53(Al) and ZIF-8 coated paper substrates. To get a better understanding on the interactions between drugs and MOF coated papers, much effort has been focused on the elution behaviors of target drug verapamil from the MOF coated papers and the adsorption ability of the studied analyte to MOF particles in solution systems. Due to the more favorable elution behaviors and weaker adsorption ability of the tested drugs at the surface of UiO-66(Zr) coated paper relative to the other two papers, the estimated lower limit of quantitation (LLOQ) values of the examined drugs with UiO-66(Zr) coated paper have improvements of 8.5-46.6-fold relative to those from uncoated filter paper, and the values were in the range of 0.04-0.65 ng mL-1. Based on the high sensitivity of UiO-66(Zr) coated paper in drug quantitative analysis, the developed paper has also been successfully applied for the analysis of five anti-psychotic drugs (e.g., clozapine, amisulpride, quetiapine, risperidone and aripiprazole) in 40 human blood samples. © 2016 The Royal Society of Chemistry.
Number of references: 70
Main heading: Mass spectrometry
Controlled terms: Crystalline materials - Blood - Drug products - Organometallics - Paper - Aluminum coatings
Uncontrolled terms: Adsorption ability - Antipsychotic drug - Human blood samples - Large surface area - Lower limit of quantitations - Metalorganic frameworks (MOFs) - Structural characteristics - Therapeutic drugs
Classification code: 461.2 Biological Materials and Tissue Engineering - 801 Chemistry - 804.1 Organic Compounds - 811.1 Pulp and Paper - 813.2 Coating Materials - 933.1 Crystalline Solids
Numerical data indexing: Mass_Density 4.00e-08kg/m3 to 6.50e-07kg/m3
DOI: 10.1039/c6ay02123a
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

176. Evolutionary algorithm for logic circuit synthesis with memristor-based implication gate

Accession number: 20164402968742
Authors: Wang, Xiaoxiao (1, 2); Jiao, Licheng (1); Li, Yangyang (1)
Author affiliation: (1) School of Electrical Engineering, Xidian University, Xi'an; 710071, China; (2) School of Computer Science, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Huazhong Keji Daxue Xuebao (Ziran Kexue Ban)/Journal of Huazhong University of Science and Technology (Natural Science Edition)
Abbreviated source title: Huazhong Ligong Daxue Xuebao
Volume: 44
Issue: 10
Issue date: October 23, 2016
Publication year: 2016
Pages: 70-76
Language: Chinese
ISSN: 16714512
Document type: Journal article (JA)
Publisher: Huazhong University of Science and Technology
Abstract: An evolutionary algorithm for logic synthesis with memristor-based implication gates (IMP_ELS) was proposed to minimize the number of pulses under a given number of working memristors. The problem was modeled as a minimization problem with constant constraint. When the constraint violation was decreased to certain degree, one of AND, OR and EXOR remainder functions was obtained through comparing the truth table of the best solution by far and the truth table of the given function.The new evolution process was started to synthesis the obtained remainder function. The multistage evolution could ensure obtaining the feasible solution. A new initialization method was developed to encode the circuit to reduce redundant and illegal gates in initial population.The results on 2~11 bit benchmarks show that the algorithm can decrease pulse numbers by 28% on 82% benchmarks if the number of working memristors is increased from 2 to 3.
Number of references: 9
Main heading: Evolutionary algorithms
Controlled terms: Timing circuits - Codes (symbols) - Computer circuits - Logic circuits - Logic Synthesis - Memristors
Uncontrolled terms: Circuit synthesis - Constraint violation - Evolution process - Feasible solution - Initialization methods - Memristor - Minimization problems - Truth tables
Classification code: 713.4 Pulse Circuits - 714.2 Semiconductor Devices and Integrated Circuits - 721.2 Logic Elements - 721.3 Computer Circuits - 723.2 Data Processing and Image Processing - 723.5 Computer Applications
Numerical data indexing: Percentage 2.80e+01%, Percentage 8.20e+01%
DOI: 10.13245/j.hust.161014
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

177. Research of PMSM fuzzy direct torque controller based on sliding mode observer

Accession number: 20164202921687
Authors: Ya, Gao (1); Yi, Gao (2)
Author affiliation: (1) School of Electronic Information Engineering, Xi'An Technological University, Xi'an, Shaanxi Province, China; (2) School of Electronic Engineering, Xi'An Shiyou University, Xi'an, Shaanxi Province, China
Source title: 2016 IEEE International Conference on Mechatronics and Automation, IEEE ICMA 2016
Abbreviated source title: IEEE Int. Conf. Mechatronics Autom., IEEE ICMA
Part number: 1of1
Issue title: 2016 IEEE International Conference on Mechatronics and Automation, IEEE ICMA 2016
Issue date: September 1, 2016
Publication year: 2016
Pages: 17-21
Article number: 7558527
Language: English
ISBN-13: 9781509023943
Document type: Conference article (CA)

Conference name: 13th IEEE International Conference on Mechatronics and Automation, IEEE ICMA 2016
Conference date: August 7, 2016 - August 10, 2016
Conference location: Harbin, Heilongjiang, China
Conference code: 123645
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In this paper, fuzzy control is introduced to reduce the big flux linkage and torque ripple of traditional PMSM DTC system. Simultaneously, using SVPWM to modulating voltages, using the full-order state observer to replace the integral part of the stator flux linkage observer, those method effectively reduce the dc drift, the integral error accumulation, other shortcomings and modulation precision. Moreover, a new position observing system was designed instead of the traditional position sensor in this control system. This design replaced the traditional switch functions with continuous saturation functions in the sliding mode observer, and the result showed the high frequency noise signal could be reduced effectively. By the experimenting for the traditional PMSM DTC system with stator flux linkage integral observer and the PMSM fuzzy DTC system with full-order state observer and sliding mode observer those are designed in this paper, the results show the control performance of the new fuzzy DTC system is better than the one of traditional DTC system evidently. The stator flux linkage and torque ripple of new system are decreased significantly. The new sliding mode observer could accurate observing position signal. © 2016 IEEE.
Number of references: 10
Main heading: Synchronous motors
Controlled terms: Flux linkage - Vector spaces - State estimation - Pulse width modulation - Torque control - Fuzzy control - Voltage control - Permanent magnets - Sliding mode control - Stators
Uncontrolled terms: High-frequency noise - Modulation precision - Ordering state - Permanent magnetic synchronous motors - Saturation function - Sliding mode observers - Space vector pulse width modulation - Stator flux linkage
Classification code: 701.2 Magnetism: Basic Concepts and Phenomena - 703.1 Electric Networks - 704.1 Electric Components - 705.1 Electric Machinery, General - 705.3.1 AC Motors - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 731.3 Specific Variables Control - 921 Mathematics
DOI: 10.1109/ICMA.2016.7558527
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

178. Hybrid Electric Vehicle Motor Power Operation Control Analysis (*Open Access*)

Accession number: 20161602265720
Authors: Wei, Min (1); Li, Bing (1); Wei, Juan (2)
Author affiliation: (1) School of Electronic Engineering, Xi'An Shiyou University, xi'an; 710065, China; (2) School of Telecommunications Engineering, Xidian University, xi'an; 710071, China
Corresponding author: Wei, Min(weimin_pb@163.com)
Source title: MATEC Web of Conferences
Abbreviated source title: MATEC Web Conf.
Volume: 44
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Issue title: 2016 International Conference on Electronic, Information and Computer Engineering, ICEICE 2016
Issue date: March 8, 2016
Publication year: 2016
Article number: 01056
Language: English
ISSN: 22747214
E-ISSN: 2261236X
Document type: Conference article (CA)
Conference name: 2016 International Conference on Electronic, Information and Computer Engineering, ICEICE 2016
Conference date: April 26, 2016 - April 27, 2016
Conference location: Hong Kong, Hong kong
Conference code: 119811
Sponsor: HongKong Control Engineering and Information Science Research Association; International Frontiers of science and technology Research Association; National Chin-Yi University of Technology
Publisher: EDP Sciences
Abstract: The design of hybrid electric vehicle drive motor is based on the premise of meeting the electric requirement. As the power generation and the regenerative braking are in operation state, it can not charge the battery when the normal generating voltage of motor is lower than that of the battery. In view of the problem, the hybrid electric vehicle

driving motor control system is designed. In this system, the boost operation of pulse-width modulation (PWM) method of half controlled rectifier is used to improve the power voltage, as the speed is the main measure of the feedback current and voltage. The fuzzy PID control strategy can optimize the frequency and duty cycle of PWM pulse width, and then with the generating efficiency is greatly improved. The power generation principle, control strategy and software implementation are analyzed in the paper, and its rationality is verified by experiments. © Owned by the authors, published by EDP Sciences, 2016.
Number of references: 5
Main heading: Hybrid vehicles
Controlled terms: Power control - Electric rectifiers - Regenerative braking - Voltage control - Pulse width modulation - Electric machine control - Secondary batteries - Three term control systems - Traction motors
Uncontrolled terms: Control strategies - Controlled rectifier - Driving motors - Feedback currents - Fuzzy - pid controls - Generating efficiencies - Operation state - Software implementation
Classification code: 432 Highway Transportation - 602 Mechanical Drives and Transmissions - 662.1 Automobiles - 702.1.2 Secondary Batteries - 731.1 Control Systems - 731.2 Control System Applications - 731.3 Specific Variables Control
DOI: 10.1051/matecconf/20164401056
Compendex references: YES
Open Access type(s): All Open Access, Gold, Green
Database: Compendex
Data Provider: Engineering Village

179. Data centre transformation: Integrated business model framework of cloud computing oriented data centre

Accession number: 20171403534697
Authors: Yale, Yu (1); Guojian, Cheng (1, 2); Xinjian, Qiang (2)
Author affiliation: (1) ZTE Teleommunication College, Xi'An Peihua University, Xi'an; 710125, China; (2) School of Computer Science, Xi'An Shiyou University, Xi'an; 710065, China
Source title: Proceedings of 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Abbreviated source title: Proc. IEEE Adv. Inf. Manag., Commun., Electron. Autom. Control Conf., IMCEC
Part number: 1 of 1
Issue title: Proceedings of 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Issue date: February 28, 2017
Publication year: 2016
Pages: 1848-1855
Article number: 7867538
Language: English
ISBN-13: 9781467396127
Document type: Conference article (CA)
Conference name: 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Conference date: October 3, 2016 - October 5, 2016
Conference location: Xi'an, China
Conference code: 126706
Sponsor: Chongqing Global Union Academy of Science and Technology; Global Union Academy of Science and Technology; IEEE Beijing Section; Xi'an Peihua University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: This paper first reviews the concept of business model and business model innovation, the business model frameworks and issues in current enterprise data centres, and then investigates the key factors which drive the data centre transformation and the challenges and risks that the operators of the current or traditional data centres are facing. This paper discusses the main characteristics of the next generation data centre - cloud computing oriented data centre and presents the key concerns of building the cloud computing oriented data centres. Based on the above analysis and discussion, this paper presents a new and practical integrated business model framework to strategically address the key issues regarding the planning, building and operation of cloud computing oriented data centre collectively from business, management and technology perspective based on the strong belief that an enterprise data centre should be built as service oriented platform, and be managed and operated as a pure business. The author has

presented, used and applied this framework in several real cases in China during last one year and half with positive feedbacks from the clients. © 2016 IEEE.
Number of references: 28
Main heading: Cloud computing
Controlled terms: Metadata - Digital storage
Uncontrolled terms: Business model frameworks - Business model innovation - Business modeling - Data centres - Enterprise Architecture - Enterprise data - Integrated business - Service Oriented
Classification code: 722.1 Data Storage, Equipment and Techniques - 722.4 Digital Computers and Systems
DOI: 10.1109/IMCEC.2016.7867538
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

180. Radar high resolution range profile target recognition based on sparse decomposition in compressed sensing

Accession number: 20162102422411
Authors: Duan, Peipei (1, 2); Li, Hui (1); Li, Bin (1)
Author affiliation: (1) Department of Electronics Engineering, Northwestern Polytechnical University, Xi'an; 710029, China; (2) School of Computer Science, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Xibei Gongye Daxue Xuebao/Journal of Northwestern Polytechnical University
Abbreviated source title: Xibei Gongye Daxue Xuebao
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Issue date: April 1, 2016
Publication year: 2016
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ISSN: 10002758
CODEN: XGDUE2
Document type: Journal article (JA)
Publisher: Northwestern Polytechnical University
Abstract: In recent years, with the development of compressed sensing theory, sparse representation is widely used in signal compression and feature extraction. This method presents tremendous application potential. Radar target recognition is one of the classic applications of signal processing and there are many recognition algorithms. Some recognition algorithms are based on high resolution range profile (HRRP), but less of them employ the sparseness of HRRP samples. Thus, a radar HRRP target recognition algorithm based on sparse decomposition in compressed sensing is presented here. First, several orthogonal bases are used to compose a redundant dictionary which can satisfy the accuracy and speediness of HRRP sparse representation. Then, the training samples' taxonomic dictionaries are acquired by an improve grouping MP decomposition algorithm. Finally, the reconstruction errors of testing samples were calculated to recognize the targets. The simulation results show that this algorithm has higher recognition rate and better denoising performance. It is easy and practical for radar target recognition.
Number of references: 11
Main heading: Radar target recognition
Controlled terms: Compressed sensing - Radar signal processing
Uncontrolled terms: High resolution range profiles - Orthogonal basis - RTR (radar target recognition) - Signal compression - Sparse decomposition
Classification code: 716.1 Information Theory and Signal Processing - 716.2 Radar Systems and Equipment
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

181. Petroleum accumulation from continuous to discontinuous: concept, classification and distribution

Accession number: 20161502242469

Authors: Zhao, Jingzhou (1); Cao, Qing (1); Bai, Yubin (1); Er, Chuang (1); Li, Jun (1); Wu, Weitao (1); Shen, Wuxian (1)
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ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Based on an extensive investigation and a comprehensive study of conventional and unconventional petroleum reservoirs, we proposed a revised definition of petroleum reservoir and a new classification of petroleum accumulation. The revised concept defines petroleum reservoir as continuous hydrocarbon accumulation in a single reservoir or a set of reservoirs with an independent or unified pressure system. In terms of the accumulation style or patterns of hydrocarbon distribution, petroleum accumulation is classified into 3 basic types, namely, continuous accumulation, quasi-continuous accumulation and discontinuous accumulation. More significantly, we demonstrated that petroleum accumulation is a process from continuous to discontinuous accumulation and the three basic types of accumulation are resulted from this process. (1) Continuous accumulation. Such an accumulation is principally formed within a source rock that also acts as a reservoir. Most shale hydrocarbon and coalbed methane accumulations belong to this category. It is characterized by that hydrocarbons are stored in the state of free, sorbed and dissolved types; reservoirs are tight to ultra-tight, with permeability of nanodarcy to millidarcy; an accumulation actually has only a single reservoir, and the hydrocarbon distribution is extensive and continuous within the scope of effective source rocks; neither defined boundary nor bottom or edge water can be observed; accumulation is largely in situ or near where the hydrocarbons are generated and no prominent migration occurred; and accumulation is basically not controlled by traps. (2) Quasi-continuous accumulation. This type of accumulation occurs predominantly in tight reservoirs and the majority of tight oil and gas accumulations can be attributed to this type. It is distinguished by that hydrocarbon distribution is extensive geographically and each accumulation comprises numerous contiguous small-to medium-sized reservoirs; the accumulation has no defined boundaries and neither prominent water lag nor regional updip water is present, or only incomplete edge water is present; hydrocarbon charge is pervasive and accumulation is the direct result of primary migration or short distance secondary migration, and the migration is principally driven by non-buoyant forces and is primarily in non-Darcy flow; and hydrocarbon accumulation is basically not controlled by anticlinal traps, but largely by non-anticlinal traps especially stratigraphic (lithologic) traps. (3) Discontinuous accumulation. Also known as conventional trapped accumulation (i.e. the conventional accumulation), this type of accumulation occurs mostly in conventional reservoirs or quality reservoirs. But some accumulations of tight oil and gas, coalbed methane and even shale oil and gas also belong to this variety. The accumulations of this pattern are discrete geographically, and each accumulation has explicit boundaries and complete water lag is commonly existed. Migration is generally in the Darcy flow and can occur over long distance and the driving force is mainly buoyancy. And the accumulation is strictly governed by various traps including structural, stratigraphic and combination traps. Actually, the above 3 types of accumulation could be formed from a single source kitchen. In that case, close relationship and unique laws governing hydrocarbon distribution must exist among them. As a result, they ought to be taken into consideration as a closely related entity in the study and exploration of petroleum systems to enhance the success rate.
Number of references: 50
Main heading: Stratigraphy
Controlled terms: Petroleum reservoirs - Flow of fluids - Petroleum reservoir engineering - Buoyancy - Coal deposits - Methane
Uncontrolled terms: Classification and distribution - Continuous accumulation - Discontinuous accumulation - Hydrocarbon accumulation - Hydrocarbon distribution - Petroleum accumulations - Quasi-continuous accumulations - Unconventional petroleums
Classification code: 481.1 Geology - 503 Mines and Mining, Coal - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.7623/syxb201602001

Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

182. Discussing the internal structural characteristics of coal seams using electrical microresistivity image logging data

Accession number: 20162202434801
Authors: Liu, Zhidi (1); Zhao, Jingzhou (1)
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Corresponding author: Liu, Zhidi(liuzhidi@xsyu.edu.cn)
Source title: International Journal of Oil, Gas and Coal Technology
Abbreviated source title: Int. J. Oil Gas Coal Technol.
Volume: 12
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Issue date: 2016
Publication year: 2016
Pages: 179-196
Language: English
ISSN: 17533309
E-ISSN: 17533317
Document type: Journal article (JA)
Publisher: Inderscience Publishers
Abstract: This paper summarises the response characteristics of electrical microresistivity image logging on different coal seam structures through systemic pectination from Qinshui Basin in Central China. We use these characteristics to describe the internal structure characteristics of coal seams. The results show that image logging is a good way to provide reliable information for many aspects, such as the division of coal seams, deformed soft coal, the internal structure of coal seams, and so on. Coal seams with a layered structure are commonly shown to be relatively homogeneous orange-yellow (2,700-3,900 #·m) and to have clear lamination characteristics of dark and tan strips (800-1,500 #·m) inside. The layered-block structure is mainly shown in bright yellow (3,300-3,600 #·m) and has few dark stripes (800-1,200 #·m). The block structure is shown as bright yellow-white (3,300-4,800 #·m). The partings show up as clear and complete dark stripes (800-1,200 #·m) in images. The layers in which deformed soft coal develops normally have irregular fractures and present dark stripes of dark grey strata (1,000-1,500 #·m) in image logs. Copyright © 2016 Inderscience Enterprises Ltd.
Number of references: 20
Main heading: Coal
Controlled terms: Coal deposits - Well logging
Uncontrolled terms: Block structures - Coal seams - Discussion - Internal structure - Layered Structures - Microresistivity - Response characteristic - Structural characteristics
Classification code: 503 Mines and Mining, Coal - 524 Solid Fuels
Numerical data indexing: Electrical_Resistivity 1.00e+03Ohms*m to 1.50e+03Ohms*m, Electrical_Resistivity 2.70e+03Ohms*m to 3.90e+03Ohms*m, Electrical_Resistivity 3.30e+03Ohms*m to 3.60e+03Ohms*m, Electrical_Resistivity 3.30e+03Ohms*m to 4.80e+03Ohms*m, Electrical_Resistivity 8.00e+02Ohms*m to 1.20e+03Ohms*m, Electrical_Resistivity 8.00e+02Ohms*m to 1.50e+03Ohms*m
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

183. Random error model andexperiment of fiber Bragg grating acceleration sensing system

Accession number: 20170103223664
Authors: Liu, Qinpeng (1); Fu, Haiwei (1); Jia, Zhen'an (1); Yu, Dakuan (1); Hong, Gao (1)
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Corresponding author: Liu, Qinpeng
Source title: Proceedings of SPIE - The International Society for Optical Engineering
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Volume: 10155
Part number: 1of1
Issue title: Optical Measurement Technology and Instrumentation
Issue date: 2016
Publication year: 2016
Article number: 101550F
Language: English
ISSN: 0277786X
E-ISSN: 1996756X
CODEN: PSISDG
ISBN-13: 9781510607682
Document type: Conference article (CA)
Conference name: International Symposium on Optical Measurement Technology and Instrumentation
Conference date: May 9, 2016 - May 11, 2016
Conference location: Beijing, China
Conference code: 125512
Sponsor: China High-Tech Industrialization Association (CHIA); Chinese Society for Optical Engineering (CSOE)
Publisher: SPIE
Abstract: The random error model for evaluating FBG dynamic sensing system is proposed and established by using Allan variance, and the error recognition is experimentally demonstrated. The composition of the FBG sensing system, the characteristic of random error and error source for FBG acceleration sensing system are analyzed. The random error theoretical model based on the FBG acceleration sensing system is proposed and analyzed. In order to experimentally perform stability characterization of the system, the static output signal is achieved, and Allan variance curve is obtained by data processing, and the main coefficients of the error source can be further obtained. The model based on the Allan variance adequately demonstrates that it is feasible to evaluate the FBG system, which provides the basis for further designing, improvements and developing. © 2016 SPIE.
Number of references: 14
Main heading: Fiber Bragg gratings
Controlled terms: Fiber optic sensors - Data handling - Errors
Uncontrolled terms: Acceleration sensing - Allan variance - Dynamic sensing - Error recognition - Model-based OPC - Random error models - Stability characterizations - Theoretical modeling
Classification code: 723.2 Data Processing and Image Processing - 741.1.2 Fiber Optics
DOI: 10.1117/12.2244008
Funding Details: Number: 2009AA06Z203, Acronym: -, Sponsor: -; Number: 2013JK1101, Acronym: -, Sponsor: -; Number: 2016JM6055, Acronym: -, Sponsor: -; Number: 61240028,F050304, Acronym: NSF, Sponsor: National Science Foundation;
Funding text: This work was supported in part by the National Science Foundation under Grant F050304 and 61240028, in part by the National "863" Program under Grant 2009AA06Z203, in part by the Shaannxi province Education department natural Science under Grant 2013JK1101, in part by the Shaannxi province natural Science under Grant 2016JM6055
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

184. Simultaneous refractive index and temperature measurements by using dual interference in an all-fiber Mach-Zehnder interferometer

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Authors: Yan, Xu (1); Fu, Haiwei (1); Li, Huidong (1); Qiao, Xueguang (1)
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Abbreviated source title: Chin. Opt. Lett.
Volume: 14
Issue: 3

Issue date: March 10, 2016
Publication year: 2016
Article number: 030603
Language: English
ISSN: 16717694
Document type: Journal article (JA)
Publisher: Science Press
Abstract: A Fourier analysis applied to the Mach-Zehnder interferometer (MZI) transmission spectrum for simultaneous refractive index (RI) and temperature measurements is proposed and experimentally demonstrated in this Letter. In the fast Fourier transform (FFT) spectrum of the MZI transmission spectrum, several frequency components are generally observed, which means that the transmission spectrum of the MZI is formed by the superposition of some dual-mode interference (DMI) spectra, and each frequency component represents different core-cladding interferences. We can select some dominant frequency components in the FFT spectrum of the MZI transmission spectrum to take the inverse FFT (IFFT). Then, the corresponding DMI patterns can be obtained. Due to the shift of the wavelength of these DMI spectra with changes in the environmental parameters, we can use the coefficient matrix of these DMI spectra for multi-parameter sensing. In this Letter, two DMI patterns are separated from the resultant transmission spectrum of the MZI. As the RI and temperature change, the shifts of the two DMI patterns with respect to the RI and temperature will be observed. The sensitivities of the RI and temperature are -137.1806 nm/RIU (RI unit) and 0.0860 nm/, and -22.9955 nm/RIU and 0.0610 nm/ for the two DMIs. Accordingly, it can be used to simultaneously measure RI and temperature changes. The approach can eliminate the influence of multiple interferences and improve the accuracy of the sensor. © 2016 Chinese Optics Letters.
Number of references: 23
Page count: 5
Main heading: Mach-Zehnder interferometers
Controlled terms: Fast Fourier transforms - Temperature measurement - Fourier analysis - Inverse problems - Fourier series - Refractive index
Uncontrolled terms: Coefficient matrix - Dominant frequency - Environmental parameter - Frequency components - Machzehnder interferometers (MZI) - Multiple interferences - Temperature changes - Transmission spectrums
Classification code: 741.1 Light/Optics - 741.3 Optical Devices and Systems - 921 Mathematics - 921.3 Mathematical Transformations - 941.3 Optical Instruments - 944.6 Temperature Measurements
DOI: 10.3788/COL201614.030603
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

185. In-fiber Mach-Zehnder interferometer based on cascading fiber air bubble for high sensitivity liquid refractive index measurement

Accession number: 20163102668068
Authors: Li, Hui-Dong (1); Fu, Hai-Wei (1); Shao, Min (1); Yan, Xu (1); Jia, Zhen-An (1)
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Abbreviated source title: Guangzi Xuebao
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Publication year: 2016
Article number: 0706006
Language: Chinese
ISSN: 10044213
CODEN: GUXUED
Document type: Journal article (JA)
Publisher: Chinese Optical Society
Abstract: A kind of optical fiber refractive index sensor based on a fiber core etched air-bubble in-fiber Mach-Zehnder interferometer was proposed and demonstrated. A core etched standard single mode fiber was spliced to a thinner core single mode fiber to form an air bubble at the connecting point. By this method, a section of thinner core fiber was cascaded between two air bubbles to form a structure of (Air-Bubble)-Thin core fiber-(Air-Bubble) in-fiber Mach-Zehnder interferometer as a refractive index sensor. The air-bubble in the sensor serves as an optical

coupler for modes conversion and the thin core fiber serves as sensing beams. The transmission spectrum of sensor was studied by experiment. The results show that, the dip power of the interference fringes changes with respect to surrounding refractive index with a good linearity, at the same time, the dip wavelength keeps low dependence on RI. The sensitivity of the sensor is -216.21dB/RIU in the range of 1.345~1.389. The sensor is a good potential candidate for bio-chemical measurements.
Number of references: 20
Page count: 5
Main heading: Refractive index
Controlled terms: Single mode fibers - Refractometers - Mach-Zehnder interferometers
Uncontrolled terms: Air bubbles - Liquid refractive index - Optical fiber refractive indices - Refractive index sensor - Standard single mode fibers - Surrounding refractive indices (SRI) - Thin-core fibers - Transmission spectrums
Classification code: 741.1 Light/Optics - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941.3 Optical Instruments
DOI: 10.3788/gzxb20164507.0706006
Funding Details: Number: 14JK1580,14JS073, Acronym: -, Sponsor: -; Number: 2014QN005, Acronym: -, Sponsor: -; Number: 61275088,61505160, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: Foundation item: The National Natural Science Foundation of China (Nos. 61275088, 61505160), the Research Foundation of Education Bureau of Shaanxi Province, China (No. 14JS073, 14JK1580), the Youth Science and Technology Innovation Found of Xi'an Shiyou University (No. 2014QN005)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

186. Accumulation conditions and models of tight oil reservoirs in Chang-7 of Huaqing area, the Ordos Basin

Accession number: 20170203241364
Authors: Wu, Weitao (1, 2); Deng, Jing (3); Zhao, Jingzhou (1, 2); Sun, Bo (3); Guo, Hanqin (4); Deng, Xiuqin (3); Er, Chuang (1, 2); Bai, Yubin (1, 2)
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) Key Laboratory of Hydrocarbon Accumulation of Shaanxi Province, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (3) Research Institute of Petroleum Exploration, PetroChina Changqing Oilfield Company, Xi'an; Shaanxi; 710029, China; (4) No. 1 Oil Plant, PetroChina Changqing Oilfield Company, Yan'an; Shaanxi; 716000, China
Source title: Oil and Gas Geology
Abbreviated source title: Oil Gas Geol.
Volume: 37
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Issue date: December 28, 2016
Publication year: 2016
Pages: 874-881
Language: Chinese
ISSN: 02539985
Document type: Journal article (JA)
Publisher: Editorial Department of Oil and Gas Geology
Abstract: Based on drilling, mud logging, wireline logging, production test results, thin section observation and laboratory data, this paper focuses on a study on accumulation conditions, source rock qualities, migration-accumulation conditions of the Chang-7 tight oil reservoirs in Huaqing area, Erdos Basin. A tight oil pooling model is also established. The result shows that the reservoirs are mainly feldspar lithic sandstones with an average porosity of 7.4%, and an average permeability of 0.134×10-3 μm2. The reservoirs are also found to contain largely secondary dissolved nanopores (accounting for 70.6% of the total surface porosity) with radius mostly less than 1 μm. The best source rock of Chang-7 occurs in the third interval of Chang-7. It has an average TOC of 8.99%, obviously greater than that of its second (2.17%) and the first (1.12%) intervals. Its thickness ranges between 28 m and 36 m, while the total thickness of the first and the second intervals is between 35 m and 55 m. It has Ro values between 1.02% and 1.2%, clearly a type I kerogen and within the peak stage of hydrocarbon generation (the hydrocarbon generation capacity is up to 600×104 t/km2). The migration pathway in Chang-7 is a three dimensional network carrier system consisting of horizontal fractures, oblique crossing fractures and sandbodies. The oblique crossing fractures on the source-reservoir interface are considered to be the primary pathways for the initially expulsed hydrocarbons. The migration is driven by an overpressure in the range from 15 MPa to 22 MPa caused by hydrocarbon generation. The tight oil reservoirs in Chang-7 include lithologic thinning-out type, lenticular type and diagenetic trap type and they are large in number and

are laterally connected and vertically superposed, thus being quasi-continuous reservoirs. The source rock in the third interval of Chang-7 and the reservoirs in its first and second intervals constitute a lower-generation and upper-storage assemblage, and the source rocks and reservoirs within the first and second intervals of the Chang-7 form inner-source alternating assemblages. The two types of assemblages constitute a quasi-continuous type of reservoir-forming model with two-source hydrocarbon supply.
Number of references: 24
Main heading: Hydrocarbons
Controlled terms: Oil well drilling - Petroleum reservoirs - Oil well logging - Feldspar - Metamorphic rocks - Digital storage - Fracture - Oil bearing formations - Petroleum reservoir engineering - Oil shale - Porosity
Uncontrolled terms: Continuous reservoirs - Hydrocarbon accumulation - Hydrocarbon generation - Oil bearing layers - Ordos Basin - Reservoir forming models - Three-dimensional networks - Tight oil
Classification code: 482.2 Minerals - 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 722.1 Data Storage, Equipment and Techniques - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Numerical data indexing: Percentage 1.02e+00% to 1.20e+00%, Percentage 1.12e+00%, Percentage 2.17e+00%, Percentage 7.06e+01%, Percentage 7.40e+00%, Percentage 8.99e+00%, Pressure 1.50e+07Pa to 2.20e+07Pa, Size 1.00e-06m, Size 2.80e+01m to 3.60e+01m, Size 3.50e+01m to 5.50e+01m
DOI: 10.11743/ogg20160609
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

187. Emotion Recognition Model Based on SOM Algorithm

Accession number: 20171203460325
Authors: Liao, Yi (1); Jiang, Youyi (2)
Author affiliation: (1) Department of Music, Xi'an Shiyou University, Xi'an; 710065, China; (2) College of Geomatics, Xi'an University of Science and Technology, Xi'an; 710054, China
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Abbreviated source title: Proc. - Int. Conf. Smart City Syst. Eng., ICSCSE
Part number: 1 of 1
Issue title: Proceedings - 2016 International Conference on Smart City and Systems Engineering, ICSCSE 2016
Issue date: January 18, 2017
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Article number: 7825112
Language: English
ISBN-13: 9781509055302
Document type: Conference article (CA)
Conference name: 2016 International Conference on Smart City and Systems Engineering, ICSCSE 2016
Conference date: November 25, 2016 - November 26, 2016
Conference location: Zhangjiajie, Hunan, China
Conference code: 126073
Sponsor: Central South University; Changsha University of Science and Technology; Communications Research Institute of Changsha University of Science and Technology; Hunan City University; Research Institute of New Energy and Energy-Saving and Emission Reduction; Research Institute of Road and Bridge of Guangdong Academy of Building Research
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: The use of computer technology to the music of the understanding and analysis of the music has become a hot spot in the field of music technology research. This paper is on the computer field of music and emotional understanding using SOM algorithm to classify the characteristics of music itself, and to train the computer automatic recognition. Thus a model of music emotion recognition based on SOM algorithm is established. Providing a new method and reference is for the automatic recognition of the emotion of music.
Number of references: 6
Main heading: Emotion Recognition
Controlled terms: Speech recognition
Uncontrolled terms: Automatic recognition - Computer technology - Emotion recognition - Hot spot - Music emotions - Music technologies - SOM algorithms
Classification code: 723.2 Data Processing and Image Processing - 751.5 Speech
DOI: 10.1109/ICSCSE.2016.0099

Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

188. Double Cantilever Beams Accelerometer Using Short Fiber Bragg Grating for Eliminating Chirp

Accession number: 20163402724523
Authors: Liu, Qinpeng (1); Jia, Zhen'An (1); Fu, Haiwei (1); Yu, Dakuan (1); Gao, Hong (1); Qiao, Xueguang (1)
Author affiliation: (1) Ministry of Education Key Laboratory on Photoelectric Oil-Gas Logging and Detecting, School of Science, Xi'An Shiyou University, Xi'an; 710065, China
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Abbreviated source title: IEEE Sensors J.
Volume: 16
Issue: 17
Issue date: September 1, 2016
Publication year: 2016
Pages: 6611-6616
Article number: 7506242
Language: English
ISSN: 1530437X
E-ISSN: 15581748
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: An accelerometer based on the shorter fiber Bragg grating (FBG) is demonstrated and experimentally researched. The reflective optic spectra of FBG under inhomogeneous strain are researched by using the coupled-mode theory; the theoretical analysis demonstrates that the features of the reflective optic spectra are closely related with the chirping coefficient and the length of FBG under inhomogeneous strain. On these basics, an FBG accelerometer based on the double cantilever beams with small strain gradient is pointedly proposed. Experimental results show that the accelerometer has good response characteristic, and it provides broad flat frequency range from 4 to 30 Hz, corresponding sensitivity range from 7.76 to 10.8 pm/ms-2, while the flatness is less than 3 dB, the cross-axis sensitivity is less than 3.89% of the main-axis sensitivity, and the temperature sensitivity can be effectively eliminated by the self-symmetrical structure. © 2001-2012 IEEE.
Number of references: 21
Main heading: Accelerometers
Controlled terms: Fiber Bragg gratings - Nanocantilevers - Cantilever beams
Uncontrolled terms: Coupled mode theory - Cross-axis sensitivity - Double cantilever beam - Reflective optics - Response characteristic - Sensitivity range - Symmetrical structure - Temperature sensitivity
Classification code: 408.2 Structural Members and Shapes - 761 Nanotechnology - 933 Solid State Physics - 943.1 Mechanical Instruments
Numerical data indexing: Frequency 4.00e+00Hz to 3.00e+01Hz, Percentage 3.89e+00%, Decibel 3.00e+00dB
DOI: 10.1109/JSEN.2016.2588485
Funding Details: Number: 134010253, Acronym: -, Sponsor: -; Number: 61240028,F050304, Acronym: NSF, Sponsor: National Science Foundation; Number: 2016JM6055, Acronym: -, Sponsor: Natural Science Foundation of Shanxi Province;
Funding text: Manuscript received April 18, 2016; revised June 12, 2016; accepted July 4, 2016. Date of publication July 7, 2016; date of current version August 3, 2016. This work was supported in part by the National Science Foundation under Grant F050304 and Grant 61240028, in part by the Doctoral Science Foundation of the Xi'an Shiyou University under Grant 134010253, and in part by the Shannxi province National Science Foundation under Grant 2016JM6055. The associate editor coordinating the review of this paper and approving it for publication was Dr. Minghong Yang.
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Data Provider: Engineering Village

189. Inverse spectral problem for non-selfadjoint Dirac operator with boundary and jump conditions dependent on the spectral parameter (*Open Access*)

Accession number: 20162702550739
Authors: Wei, Zhaoying (1, 2); Wei, Guangsheng (2)
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Corresponding author: Wei, Zhaoying(imwzhy@163.com)
Source title: Journal of Computational and Applied Mathematics
Abbreviated source title: J. Comput. Appl. Math.
Volume: 308
Issue date: December 15, 2016
Publication year: 2016
Pages: 199-214
Language: English
ISSN: 03770427
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The inverse spectral problem for non-selfadjoint Dirac operator with boundary and jump conditions dependent on the spectral parameter is considered. By introducing the generalized norming constants, the uniqueness theorems are proved, and the constructive procedures for solving the inverse problem are given. © 2016 Elsevier B.V.
Number of references: 19
Main heading: Inverse problems
Controlled terms: Problem solving - Eigenvalues and eigenfunctions
Uncontrolled terms: Dirac operators - Eigen-value - Generalized norming constants - Inverse spectral problems - Spectral mappings
DOI: 10.1016/j.cam.2016.05.018
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Funding text: The authors would like to thank the referees for their helpful comments and suggestions which improved and strengthened the presentation of this manuscript. The research was supported in part by the National Natural Science Foundation of China (No. 11571212), Youth Innovation Team Fund of Xi’an Shiyou University (No. 2015QNKYCXTD03) and Youth Innovation Fund of Xi’an Shiyou University (No. Z15135).
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Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

190. An amplitude-preserved Gaussian beam migration based on wave field approximation in effective vicinity under irregular topographical conditions

Accession number: 20162502515542
Authors: Huang, Jian-Ping (1); Yang, Ji-Dong (1); Li, Zhen-Chun (1); Li, Hui-Feng (2)
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Corresponding author: Yang, Ji-Dong(yangjidong_china@163.com)
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Publication year: 2016
Pages: 2245-2256
Language: Chinese
ISSN: 00015733
Document type: Journal article (JA)
Publisher: Science Press
Abstract: With the transformation of seismic exploration to regions with irregular topography areas in China, it is of vital importance for seismic processing, interpretation and subsequent seismic attribute analysis, reservoir prediction to develop a seismic migration method which is highly accurate and strongly robust. Based on the theory of wave field approximation in effective vicinity, we developed a more accurate method of pre-stack amplitude-preserved Gaussian beam migration, which is adaptable for irregular topographical conditions. On the basis of conventional Gaussian beam

migration from horizontal surface and according to the approximate wave field expressed by Gaussian beam in the effective vicinity of central ray, we derived an amplitude-preserved Gaussian beam migration formula under irregular topographical conditions, and proposed a more accurate computation method for propagation angle of paraxial ray. Compared with existing methods for Gaussian beam migration, the proposed method in this paper not only considers the linear effects of irregular topography on travel time, but also first introduces the items of quadratic travel time correction and amplitude correction caused by the irregular topography and the variation in near-surface velocity, leading to more valid and accurate migration results than the previous methods. Two typical numerical examples verify the validity of the proposed method.
Number of references: 19
Main heading: Gaussian beams
Controlled terms: Gaussian distribution - Numerical methods - Seismology - Computation theory - Topography
Uncontrolled terms: Accurate computations - Effective vicinity - Gaussian beam migrations - Irregular topography - Pre-stack amplitude-preserved migration - Reservoir prediction - Seismic attribute analysis - Wavefields
Classification code: 484.1 Earthquake Measurements and Analysis - 711 Electromagnetic Waves - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 921.6 Numerical Methods - 922.1 Probability Theory - 922.2 Mathematical Statistics - 951 Materials Science
DOI: 10.6038/cjg20160627
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

191. Atomistic study of crack growth behavior in crystalline Mg/amorphous Mg-Al nanocomposites

Accession number: 20154001324867
Authors: Song, H.Y. (1); Li, Y.L. (2)
Author affiliation: (1) College of Material Science and Engineering, Xi'An Shiyou University, Xi'an; 710065, China; (2) School of Aeronautics, Northwestern Polytechnical University, Xi'an; 710072, China
Corresponding author: Song, H.Y.(gsfshy@sohu.com)
Source title: Computational Materials Science
Abbreviated source title: Comput Mater Sci
Volume: 111
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Publication year: 2016
Pages: 125-130
Language: English
ISSN: 09270256
CODEN: CMMSEM
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The effects of crystalline boundary (CB) spacing and crystal orientation on the crack propagation behavior in crystalline/amorphous (C/A) Mg/Mg-Al nanocomposites under tensile loading are investigated using molecular dynamics simulation method. Three samples with different crystal orientations of initial crack are considered. The results show that although both samples with cracks exhibit plasticity, the deformation mechanisms are drastically different. For samples A and C with larger CB spacing, the deformation twinning and the nucleation and growth of new grain dominate the crack plastic deformation. For samples A and B with smaller CB spacing, the dislocation and interfacial slip are important plastic deformation mode at crack top. However, the crack plastic deformation of sample C with small CB spacing is mainly induced by the nucleation and growth of new grain in neighbor crystalline phase sections. The above mentioned crack deformation behaviors of C/A Mg/Mg-Al nanocomposites are also disclosed and analyzed in present work. The results here provide a strategy for the design of high-performance hexagonal-close-packed metal and alloy materials.
Number of references: 45
Main heading: Molecular dynamics
Controlled terms: Crystalline materials - Grain growth - Binary alloys - Plastic deformation - Crack propagation - Dislocations (crystals) - Nanocomposites - Nucleation - Magnesium alloys - Crystal orientation - Aluminum alloys - Grain boundaries
Uncontrolled terms: Crack growth behavior - Crack propagation behavior - Deformation behavior - Deformation mechanism - Hexagonal close packed - Molecular dynamics simulation methods - Molecular dynamics simulations - Nucleation and growth

Classification code: 541.2 Aluminum Alloys - 542.2 Magnesium and Alloys - 549.2 Alkaline Earth Metals - 761 Nanotechnology - 801.4 Physical Chemistry - 933 Solid State Physics - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 933.1.2 Crystal Growth - 951 Materials Science
DOI: 10.1016/j.commatsci.2015.09.023
Funding Details: Number: 2012KJXX-39, Acronym: -, Sponsor: -; Number: 11372256,11572259, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: NCET-12-1046, Acronym: MOE, Sponsor: Ministry of Education of the People's Republic of China; Number: B07050, Acronym: -, Sponsor: Higher Education Discipline Innovation Project;
Funding text: This work is supported by the National Natural Science Foundation of China (Grants Nos. 11372256 and 11572259), the 111 project (No. B07050), the Program for New Century Excellent Talents in University of Ministry of Education of China (Grant No. NCET-12-1046) and the Program for New Scientific and Technological Star of Shaanxi Province (Grant No. 2012KJXX-39).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

192. Stability and electronic structures of double-walled armchair germanium carbide nanotubes

Accession number: 20154001326245
Authors: Song, Jiuxu (1, 2); Henry, David J. (2)
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Corresponding author: Henry, David J.(D.Henry@murdoch.edu.au)
Source title: Computational Materials Science
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Language: English
ISSN: 09270256
CODEN: CMMSEM
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: First-principle calculations based on density functional theory have been used to investigate the stability and electronic structures of double-walled (n1, n1)-(n2, n2) ($4 \leq n1 \leq 8$, $n1 + 3 \leq n2 \leq n1 + 6$) germanium carbide nanotubes (GeCNTs). For any given (n1, n1) inner tube, the corresponding (n1, n1)-(n1 + 5, n1 + 5) GeCNT has the highest formation energy and binding energy per atom, which indicate that the (n1, n1)-(n1 + 5, n1 + 5) nanotube is stable. The (5, 5)-(10, 10) GeCNT has been found to be a particularly stable geometry. The interlayer interaction between the two layers of the double-walled GeCNT leads to an obvious coupling, which results in a narrowing of the band gap.
Number of references: 40
Main heading: Density functional theory
Controlled terms: Carbides - Yarn - Binding energy - Electronic structure - Energy gap - Germanium compounds
Uncontrolled terms: Double-walled - First principle calculations - Formation energies - Germanium carbide nanotubes - Inner tubes - Interlayer interactions
Classification code: 801.4 Physical Chemistry - 804.2 Inorganic Compounds - 812.1 Ceramics - 819.4 Fiber Products - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics
DOI: 10.1016/j.commatsci.2015.08.035
Funding Details: Number: 2013K07-14, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 14JK1581, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: This work is supported by the fund of Shaanxi provincial educational department (No. 14JK1581) and the natural science basic research plan in Shaanxi province of China (2013K07-14). We also gratefully acknowledge the Australian National Computational Infrastructure (NCI) facility for computing time.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

193. Accumulation patterns of natural gas in the Upper Paleozoic in Longdong area, Ordos Basin

Accession number: 20162102408436
Authors: Li, Jun (1, 2); Wang, Yunuo (3); Zhao, Jingzhou (1, 2); Li, Lei (4); Zheng, Jie (4); Hu, Weiqiang (1)
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) Shaanxi Key Lab of Petroleum Accumulation Geology, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (3) School of Earth Sciences and Resources, China University of Geosciences (Beijing), Beijing; 100083, China; (4) Exploration & Development Research Institute of PetroChina Changqing Oilfield Company, Xi'an; Shaanxi; 710018, China
Source title: Oil and Gas Geology
Abbreviated source title: Oil Gas Geol.
Volume: 37
Issue: 2
Issue date: April 28, 2016
Publication year: 2016
Pages: 180-188
Language: Chinese
ISSN: 02539985
Document type: Journal article (JA)
Publisher: Editorial Department of Oil and Gas Geology
Abstract: Based on the analysis of source rocks, reservoirs and cap rocks in the Upper Paleozoic, Longdong eara, Ordos Basin, studies were performed on the controlling factors of natural gas accumulation. It's shown that the formation and distribution of gas reservoirs in the Upper Paleozoic are mainly controlled by the source rocks, reservoirs and cap rocks and the coupling relationship among them. Source rocks and cap rocks of the Shanxi Formation jointly control the formation and distribution of the gas reservior in the region.The gas play fairway of the first member of Shanxi Formation (P2s1) are distributed in area with high gas generation intensity and thick P2s1 cap rock over 35 meters.In contrast, gas play fairway of the eighth member of Shihezi Formation (P2h8) occurs in area where the thickness of P2s1 cap rock is less than 35 meters. Local enrichment of gas is dermermined by the reservior conditions.When the source rocks and cap rocks of the first member of the Shanxi Formation are similiar, "sweet spot" controls gas distribution, that is to say the better the quality of the reservoir is, the more enrichment the natural gas is. When both the source rocks and cap rocks of the first member of Shanxi Formation are favorable, gas reservoir can also be formed in the relatively poor formations.It is worth noting that best gas enrichment area is not the one where the gas source, seal and reservoir conditions are all favorable, rather the one where the gas source, seal and reservoir conditions match and compensate best. © 2016, Editorial Office of Oil and Gas Geology. All right reserved.
Number of references: 36
Main heading: Natural gas
Controlled terms: Geochronology - Metamorphic rocks - Quality control - Gases - Petroleum reservoirs
Uncontrolled terms: Enrichment patterns - Gas accumulation - Longdong area - Ordos Basin - Tight sand gas
Classification code: 481.1 Geology - 481.3 Geophysics - 512.1.1 Oil Fields - 522 Gas Fuels - 913.3 Quality Assurance and Control
Numerical data indexing: Size 3.50e+01m
DOI: 10.11743/ogg20160205
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

194. Enhanced mechanism investigation on violet-blue emission of ZnO films by incorporating Al and Zn to form ZnO-Al-Zn films

Accession number: 20164603024643
Authors: Chen, Haixia (1, 2); Ding, Jijun (1); Wang, Xiaomeng (2); Wang, Xiaojun (2); Chen, Guoxiang (1); Ma, Li (2)
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) Department of Physics, Georgia Southern University, Statesboro; GA; 30460, United States
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Source title: Optical Materials
Abbreviated source title: Opt Mater

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Issue date: December 1, 2016
Publication year: 2016
Pages: 505-511
Language: English
ISSN: 09253467
CODEN: OMATET
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: ZnO, ZnO-Zn, ZnO-Al0.10-Zn and ZnO-Al0.15-Zn are deposited on glass substrates by radio frequency and direct current magnetron co-sputtering. Photoluminescence (PL) measurements show that the optical performances of samples are strongly dependent on both Al and Zn incoprations. The origin of the defect-related PL emission has been investigated for a long time. Several different hypotheses have been proposed, however, they are still under investigation. Especially for the blue emissions, its origins have been debated intensely for more than thirty years because of its sparsity and instability. In this paper, both violet and blue emissions are observed in all the samples. PL emission decreases sharply as Zn is doped in ZnO to form ZnO-Zn film. However, as both Al and Zn are simultaneously doped in ZnO to form ZnO-Al0.10-Zn film, PL emission conversely increases and attains the maxima. In addition, PL emission decreases again with the increase of Al target power to form ZnO-Al0.15-Zn film. We concluded that violet-blue emission is ascribed to defect types in reverse change trend with interstitial Zn, such as Zn vacancies. This is different from previous universal hypothesis that violet-blue emission is from interstitial Zn defects. © 2016 Elsevier B.V.
Number of references: 33
Main heading: Zinc oxide
Controlled terms: Magnetrons - II-VI semiconductors - Glass substrates - Aluminum - Photoluminescence - Zinc
Uncontrolled terms: Blue emission - Direct-current magnetrons - Glass substrates - Mechanism investigation - Optical performance - Photoluminescence measurements - Radio frequencies - Violet-blue emissions
Classification code: 541.1 Aluminum - 546.3 Zinc and Alloys - 712.1 Semiconducting Materials - 714.1 Electron Tubes - 741.1 Light/Optics - 804.2 Inorganic Compounds - 813.2 Coating Materials
DOI: 10.1016/j.optmat.2016.10.035
Funding Details: Number: 11304246,11447116, Acronym: -, Sponsor: -; Number: 2016JQ5037, Acronym: -, Sponsor: -; Number: 16JK1601, Acronym: -, Sponsor: -;
Funding text: This work was supported by the National Natural Science Foundations of China (Grant Nos. 11447116 and 11304246), Natural Science Basic Research Plan in Shaanxi Province of China (No. 2016JQ5037), Special Program for Scientific Research of Shaanxi Educational Committee (Grant No. 16JK1601) and the Doctoral Scientific Research Startup Foundation of Xi'an Shiyou University (Grant No. YS29031223).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

195. Inverse dynamics simulation and quantitative evaluation of comfort level for brake operations on workover rig

Accession number: 20171203477645
Authors: Xu, Jianbo (1, 2); Yu, Suihuai (1); Wen, Fan (1)
Author affiliation: (1) Shaanxi Engineering Laboratory for Industrial Design, Northwestern Polytechnical University, Xi'an; 710072, China; (2) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Proceedings - 2016 International Conference on Robots and Intelligent System, ICRIS 2016
Abbreviated source title: Proc. - Int. Conf. Robots Intell. Syst., ICRIS
Part number: 1 of 1
Issue title: Proceedings - 2016 International Conference on Robots and Intelligent System, ICRIS 2016
Issue date: November 28, 2016
Publication year: 2016
Pages: 224-227
Article number: 7757115
Language: English
ISBN-13: 9781509041541
Document type: Conference article (CA)
Conference name: 2016 International Conference on Robots and Intelligent System, ICRIS 2016

Conference date: August 27, 2016 - August 28, 2016
Conference location: Zhangjiajie, China
Conference code: 125211
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In order to perform quantitative evaluation for operating posture comfort level of workover rig operators in a more scientific manner, a digital human body model for Chinese adult males with the 50th percentile was established in AMS, the Biomechanical analysis software, based on GB10000-88 anthropometric data of Chinese adults; moreover, specific to brake operation on the workover rig, inverse dynamics simulation was carried out. By regarding the maximum muscle activity of muscle groups related to such an operation as an evaluation indicator, while the relative position of hand brake system as a variable, a quantitative evaluation model is set up for the comfort level of operating postures. In addition, the software SPSS was also adopted to process inverse dynamics simulation results to obtain the corresponding multiple linear regression model; hence, more accurate and more reliable mathematical basis could be provided for the ergonomic evaluations on workover rig as well as the layout optimization of operating cabin. © 2016 IEEE.
Number of references: 11
Main heading: Muscle
Controlled terms: Linear regression - Anthropometry - Dynamics - Computer software - Ergonomics - Brakes
Uncontrolled terms: Comfort level - Inverse dynamics - Muscle activities - Operating posture - Workover rig
Classification code: 461.2 Biological Materials and Tissue Engineering - 461.3 Biomechanics, Bionics and Biomimetics - 602 Mechanical Drives and Transmissions - 723 Computer Software, Data Handling and Applications - 922.2 Mathematical Statistics
DOI: 10.1109/ICRIS.2016.119
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

196. Lithofacies features of organic-rich shale of the Triassic Yanchang Formation in Huachi Aera, Ordos Basin

Accession number: 20161302154501
Authors: Er, Chuang (1, 2); Luo, Anxiang (3, 4); Zhao, Jingzhou (1, 2); Zhang, Zhongyi (3, 4); Bai, Yubin (1, 2); Cheng, Dangxing (3, 4); Wu, Weitao (1, 2); Wei, Zhikun (1); Zhang, Jie (1)
Author affiliation: (1) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Shaanxi Key Lab of Petroleum Accumulation Geology, Xi'an Shiyou University, Xi'an; 710065, China; (3) Research Institute of Petroleum Exploration and Development, Changqing Oil Field Company, PetroChina, Xi'an; 710018, China; (4) National Engineering Laboratory for Exploration and Development of Low-Permeability Oil & Gas Fields, Xi'an; 710018, China
Source title: Earth Science Frontiers
Abbreviated source title: Earth Sci. Front.
Volume: 23
Issue: 2
Issue date: March 1, 2016
Publication year: 2016
Pages: 108-117
Language: Chinese
ISSN: 10052321
Document type: Journal article (JA)
Publisher: Science Frontiers editorial department
Abstract: Organic-rich shale and mudstone developed well in Chang-7 Member of the Triassic Yanchang Formation, which has become an important prospecting target for shale gas and shale oil. Based on fine description of core, micro-structure observation of thin section and grain analysis, three kinds of lithofacies of shale were determined, including black shale, laminar mudstone, and silty mudstone. Brittle minerals content of silty mudstone is higher than that of black shale and laminar mudstone. Pyrite content of the latter is higher than that of the former, and clay minerals content of the three lithofacies are nearly the same. Black shale is the most favorable lithofacies which has high organic abundance and greatest kerogen type (mainly type I). Laminar mudstone is the second favorable lithofacies. During the deposition of Chang-7 Member, the layered anaerobic environment was beneficial to the preservation of organic matter. Lower grade aquatic lives were the main biological precursor of organic matter. Black shale and laminar mudstone developed in deep lacustrine environment which was quiet and not influenced by terrigenous coarse grains. However, silty mudstone developed in the environment that was influenced frequently by terrigenous coarse

grains. As a result, organic matter types of silty mudstone are diverse and complicate. With the combination of fine description of core and logs, the vertical development characteristics of each kind of lithofacies were uncovered. Influenced by base-level changing and sediment supply, the third section of Chang-7 Member (C73) is composed of black shale and laminar mudstone, however, the second section and first section of Chang-7 Member are mainly composed of laminar mudstone and silty mudstone. Black mudstone and shale in C73 have better lithofacies that bear lamellation fracture and lamina facies, better organic matter type and high abundance. C73 is the best prospect target for shale oil and shale gas.
Number of references: 6
Main heading: Shale oil
Controlled terms: Organic compounds - Pyrites - Shale gas - Biological materials - Kerogen - Metamorphic rocks - Biogeochemistry
Uncontrolled terms: Lithofacies - Ordos Basin - Organic facies - Organic-rich shales - Yanchang Formation
Classification code: 461.2 Biological Materials and Tissue Engineering - 481.2 Geochemistry - 512.2 Natural Gas Deposits - 522 Gas Fuels - 523 Liquid Fuels - 801.2 Biochemistry - 804.1 Organic Compounds
DOI: 10.13745/j.esf.2016.02.011
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

197. Reconfiguration of the oil-field distribution network considering time-varying oil pumping loads

Accession number: 20171403534361
Authors: Wu, Xiaomeng (1, 2); Huan, Wang (1); Jiachen, Zhang (1); Xin, Shi (1)
Author affiliation: (1) School of Electric Engineering, Xi'An Shiyou University, China; (2) Key Laboratory of Electric Drive Drilling Rig Control Technique of Shaanxi Province, Xi'an, China
Source title: Proceedings of 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Abbreviated source title: Proc. IEEE Adv. Inf. Manag., Commun., Electron. Autom. Control Conf., IMCEC
Part number: 1 of 1
Issue title: Proceedings of 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Issue date: February 28, 2017
Publication year: 2016
Pages: 2062-2066
Article number: 7867576
Language: English
ISBN-13: 9781467396127
Document type: Conference article (CA)
Conference name: 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Conference date: October 3, 2016 - October 5, 2016
Conference location: Xi'an, China
Conference code: 126706
Sponsor: Chongqing Global Union Academy of Science and Technology; Global Union Academy of Science and Technology; IEEE Beijing Section; Xi'an Peihua University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: The load characteristic of oil pumping unit has been analyzed in this paper. According to the variation feature of power to time in oilfield distribution network that active power may vary as sine curve and reactive power may be a constant, different pumping units that connected in the same transformer equal to an equivalent single pumping unit. The approximate power loss equation of oilfield distribution network is calculated. Take this equation as an evaluating formula to reconfigure oilfield distribution network. Take advantage of the existed structure dividing method to separate the network and form adjacency list. Consider that the rapid adaption of topology cannot reach high accurate results, a Tabu Search algorithm has been proposed. This method takes single step as its neighbor search strategy thus enhanced the accuracy of results. The example shows that the proposed power loss equation and the Tabu Search algorithm are effective to the reconfiguration of oilfield distribution network.
Number of references: 9
Main heading: Tabu search

Controlled terms: Learning algorithms - Electric power distribution - Time varying networks - Pumps - Oil well flooding
Uncontrolled terms: Adjacency lists - Load characteristics - Neighbor searches - Network re-configuration - Oil pumping unit - Power-losses - Pumping unit - Tabu search algorithms
Classification code: 511.1 Oil Field Production Operations - 618.2 Pumps - 703.1 Electric Networks - 706.1.2 Electric Power Distribution - 723.4.2 Machine Learning - 921.5 Optimization Techniques
DOI: 10.1109/IMCEC.2016.7867576
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

198. A Method of Predicting Crude Oil Output Based on RS-C4.5 Algorithm

Accession number: 20165003106854
Authors: Bao, Xue (1); Guan, Xin (2)
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an, Shaanxi Province, China; (2) Research Institute of Petroleum Exploration and Development-LangFang, Langfang, Hebei, China
Source title: Proceedings - 2016 3rd International Conference on Information Science and Control Engineering, ICISCE 2016
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Part number: 1of1
Issue title: Proceedings - 2016 3rd International Conference on Information Science and Control Engineering, ICISCE 2016
Issue date: October 31, 2016
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Article number: 7726121
Language: English
ISBN-13: 9781509025350
Document type: Conference article (CA)
Conference name: 3rd International Conference on Information Science and Control Engineering, ICISCE 2016
Conference date: July 8, 2016 - July 10, 2016
Conference location: Beijing, China
Conference code: 124721
Sponsor: Beijing University of Civil Engineering and Architecture; China Jiliang University; et al.; The University of Texas at San Antonio (UTSA); University of Hull; Xiamen University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: An accurate prediction of crude oil output is crucial to oilfield enterprise in reasonable production arrangement and the production management improvement. This paper proposes a RS-C4.5 data mining method based on the rough set theory and decision tree C4.5 algorithm to predict the crude oil output. Firstly, relevant data of crude oil production is pre-processed by K-Means algorithm to obtain a discrete decision-making data set. Next the attribute reduction by RS-C4.5 algorithm is applied to construct a decision tree to obtain the corresponding rules of classification. Experiment data proved that compared with the traditional decision tree C4.5 algorithm, this algorithm has the advantage of a simpler tree structure and higher operation efficiency, thus becoming a promising method in crude oil output prediction. © 2016 IEEE.
Number of references: 11
Main heading: Crude oil
Controlled terms: Rough set theory - Oil fields - Data mining - Decision trees - Forecasting
Uncontrolled terms: Accurate prediction - Attribute reduction - C4.5 algorithm - Crude oil production - Data mining methods - Decision tree c4.5 algorithms - Operation efficiencies - Production management
Classification code: 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 723.2 Data Processing and Image Processing - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 961 Systems Science
DOI: 10.1109/ICISCE.2016.24
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

199. Development and Application of Zirconia Coated Paper Substrate for High Sensitivity Analysis of Therapeutic Drugs in Dried Blood Spots

Accession number: 20163002642308
Authors: Zheng, Yajun (1); Wang, Qian (1); Wang, Xiaoting (1); Chen, Ying (2); Wang, Xuan (1); Zhang, Xiaoling (1); Bai, Zongquan (1); Han, Xiaoxiao (1); Zhang, Zhiping (1)
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an; 710065, China; (2) Clinical Analysis Laboratory, Xi'An Mental Health Center, Xi'an; 710061, China
Corresponding author: Zhang, Zhiping(zhangzp0304@gmail.com)
Source title: Analytical Chemistry
Abbreviated source title: Anal. Chem.
Volume: 88
Issue: 14
Issue date: July 19, 2016
Publication year: 2016
Pages: 7005-7013
Language: English
ISSN: 00032700
E-ISSN: 15206882
CODEN: ANCHAM
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: Paper spray mass spectrometry has been demonstrated to be promising for direct analysis of therapeutic drugs in dried blood spots (DBS); however, the strong hydrogen bond and van de Waals interactions between paper substrate and analytes containing polar functional groups (e.g., therapeutic drugs) affect greatly the elution behavior and analysis sensitivity of compounds of interest during paper spray. Herein, we developed a one-sided ZrO2 coated paper substrate through a facile vacuum filtration approach using commercial ZrO2 particles as coating material and soluble starch as adhesive agent. Owing to the unique surface properties, as-prepared ZrO2 paper substrate has been shown to have excellent performance for analysis of therapeutic drugs in DBS during paper spray mass spectrometry. In contrast to original cellulose paper substrates, improvements of 43-189-fold in lower limit of quantitation (LLOQ) were obtained for the tested drugs using ZrO2 coated paper for paper spray. In comparing with the previously reported grade SG81 paper and one-sided silica coated paper, the LLOQs of the tested drugs with as-prepared ZrO2 paper decreased 1.5-16.5-fold relative to those from the above two, revealing that ZrO2 coated paper is a good candidate for paper spray in high sensitivity analysis of therapeutic drugs in DBS. © 2016 American Chemical Society.
Number of references: 68
Main heading: Silica
Controlled terms: Zirconia - Blood - Substrates - Sensitivity analysis - Starch - Hydrogen bonds - Mass spectrometry
Uncontrolled terms: Development and applications - Dried blood spot (DBS) - Dried blood spots - High-sensitivity analysis - Lower limit of quantitations - Polar functional groups - Therapeutic drugs - Vacuum filtration
Classification code: 461.2 Biological Materials and Tissue Engineering - 801 Chemistry - 801.4 Physical Chemistry - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 815.1.1 Organic Polymers - 921 Mathematics
DOI: 10.1021/acs.analchem.5b04732
Funding Details: Number: 2014K13-16,2016GY-231, Acronym: -, Sponsor: -; Number: 21205093,21575112, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: We are grateful for funding from the National Natural Science Foundation of China (Grants 21205093 and 21575112) and Shannxi S&T Research Development Project of China (Grant Nos. 2014K13-16 and 2016GY-231).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

200. An Enhanced Predictive Control Structure for Networked Control System with Random Time Delays and Packet Dropouts

Accession number: 20165003106811
Authors: Wu, Ying (1); Wu, Yanpeng (2); Zhao, Yue (1)
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an City, China; (2) School of Information and Control Engineering, Xi'An University of Architecture and Technology, Xi'an City, China
Source title: Proceedings - 2016 3rd International Conference on Information Science and Control Engineering, ICISCE 2016

Abbreviated source title: Proc. - Int. Conf. Inf. Sci. Control Eng., ICISCE
Part number: 1of1
Issue title: Proceedings - 2016 3rd International Conference on Information Science and Control Engineering, ICISCE 2016
Issue date: October 31, 2016
Publication year: 2016
Pages: 834-838
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Language: English
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Document type: Conference article (CA)
Conference name: 3rd International Conference on Information Science and Control Engineering, ICISCE 2016
Conference date: July 8, 2016 - July 10, 2016
Conference location: Beijing, China
Conference code: 124721
Sponsor: Beijing University of Civil Engineering and Architecture; China Jiliang University; et al.; The University of Texas at San Antonio (UTSA); University of Hull; Xiamen University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Due to the random and uncertain characteristic of networked induced factors, the performance of networked control systems is seriously affected, which is not merely degraded but also cause system instability. In this paper, a newly enhanced control scheme with an improved smith predictor is proposed to solve the issues caused by the complex and uncertain network conditions. A database is integrated into the network controller to store all possible outputs predicted on line from the smith predictor based on all possible transmission delays and packet dropouts to overcome the main drawback of traditional smith predictor. A selector is added to the actuator to select a suitable control signal from the predicted control sequence based on the actual network conditions. Finally the simulation results demonstrate the effectiveness of the proposed methods. © 2016 IEEE.
Number of references: 18
Main heading: Robust control
Controlled terms: Delay control systems - Packet loss - Timing circuits - Networked control systems - System stability - Time delay
Uncontrolled terms: Control schemes - Control sequences - Network condition - Predictive control - Random time delay - Smith predictors - Transmission delays - Uncertain networks
Classification code: 713 Electronic Circuits - 713.4 Pulse Circuits - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 731.2 Control System Applications - 961 Systems Science
DOI: 10.1109/ICISCE.2016.182
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

201. Characterizing network traffic behaviour using granule-based association rule mining

Accession number: 20162802580301
Authors: Bian, Yongna (1); Liu, Bin (2); Li, Yuefeng (3); Gao, Jianmin (1)
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Corresponding author: Bian, Yongna(byn1975@mail.xjtu.edu.cn)
Source title: International Journal of Network Management
Abbreviated source title: Int J Network Manage
Volume: 26
Issue: 4
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Pages: 308-329
Language: English
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Document type: Journal article (JA)
Publisher: John Wiley and Sons Ltd

Abstract: Association rule mining is one important technique to characterize the behaviour of network traffic. However, mining association rules from network traffic data still have three obstacles such as efficiency, huge number of results and insufficiency to represent the behaviour of network traffic. Aiming to tackle these issues, this paper presents a granule-based association rule mining approach, called association hierarchy mining. The proposed approach adopts top-down rule mining strategy to directly generate interesting rules according to subjectively specified rule template hierarchies, which improves the efficiency of rule generation and subjectively filters user uninterested rules. The approach also proposes to prune a new type of redundant rules defined by this research to reduce the number of rules. Finally, the approach introduces the concept of diversity, aiming to select the interesting rules for better interpreting the behaviour of network traffic. The experiments performed on the MAWI network traffic traces show the efficiency and effectiveness of the proposed approach. Copyright © 2016 John Wiley & Sons, Ltd. Copyright © 2016 John Wiley & Sons, Ltd.
Number of references: 47
Main heading: Data mining
Controlled terms: Granulation - Association rules - Efficiency - Copyrights - Filtration
Uncontrolled terms: Interesting rules - Mining associations - Network traffic - Network traffic analysis - Redundant rules - Rule generation - Rule mining - Topdown
Classification code: 723.2 Data Processing and Image Processing - 802.3 Chemical Operations - 902.3 Legal Aspects - 903.1 Information Sources and Analysis - 913.1 Production Engineering
DOI: 10.1002/nem.1935
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

202. Rapidly adaption of topology for network reconfiguration

Accession number: 20171403534362
Authors: Wu, Xiaomeng (1, 2); Wu, Kai (1); Jiachen, Zhang (1); Zhigang, Wang (1)
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Source title: Proceedings of 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Abbreviated source title: Proc. IEEE Adv. Inf. Manag., Commun., Electron. Autom. Control Conf., IMCEC
Part number: 1 of 1
Issue title: Proceedings of 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Issue date: February 28, 2017
Publication year: 2016
Pages: 2067-2071
Article number: 7867577
Language: English
ISBN-13: 9781467396127
Document type: Conference article (CA)
Conference name: 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference, IMCEC 2016
Conference date: October 3, 2016 - October 5, 2016
Conference location: Xi'an, China
Conference code: 126706
Sponsor: Chongqing Global Union Academy of Science and Technology; Global Union Academy of Science and Technology; IEEE Beijing Section; Xi'an Peihua University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In this paper, a dividing method for the structure of distribution network has been proposed to adapt rapidly to the variation of the topology and the uncertainty of tide direction caused by network reconfiguration. Based on the definition of out-degree in graph theory, the network has been divided into several branch chains, and the branch chain adjacency list has been set up. The initial results of the power calculation and the back/forward sequence is confirmed by the characteristics of the depth first search. The loop network has been set up by the feature of the branch chain structure as it eliminates the effects of the laterals. When the loop is dissolved, it helps to redistrict the new branch chain and ascertain its back /forward sweep sequence. The results of the calculation example show that the method being proposed is fast and effective. © 2016 IEEE.
Number of references: 11
Main heading: Chains

Controlled terms: Graph theory - Electric utilities
Uncontrolled terms: Adjacency lists - Back/forward sweep - Chain structure - Depth first search - Network re-configuration - Out-degree - Power calculation - Reconfiguration
Classification code: 602.1 Mechanical Drives - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI: 10.1109/IMCEC.2016.7867577
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

203. Refractive index sensing of in-fiber Mach-Zehnder interferometer based on two fiber tapers

Accession number: 20161402193833
Authors: Zhao, Xue (1); Shao, Min (1); Qiao, Xue-Guang (2); Fu, Hai-Wei (1); Jia, Zhen-An (1)
Author affiliation: (1) Laboratory of Optical Fiber Sensing, School of Science, Xi'an Shiyou University, Xi'an; 710065, China; (2) School of Physics, Northwest University, Xi'an; 710069, China
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Source title: Guangzi Xuebao/Acta Photonica Sinica
Abbreviated source title: Guangzi Xuebao
Volume: 45
Issue: 2
Issue date: February 1, 2016
Publication year: 2016
Article number: 0206006
Language: Chinese
ISSN: 10044213
CODEN: GUXUED
Document type: Journal article (JA)
Publisher: Chinese Optical Society
Abstract: A kind of in-fiber Mach-Zehnder interferometer based on fiber taper was proposed. The sensor is formed by cascaded two fusion tapers in single-mode fiber through a fusion splicer. The fiber taper has a diameter of 43.7 μm and length of 480 μm. The fiber taper acts as couplers, it could not only excite the high-order modes, but also couple these modes into single-mode fiber to form the intermodal interference. When surrounding refractive index and temperature of the surrounding liquid changes, the intermodal phase difference changes. Through monitoring the transmission spectrum of the interferometer, the refractive index and temperature were determined. The experimental results show that the sensor sensitivity is -128.33 nm/RIU in the RI range of 1.335~1.403RIU, and the temperature sensitivity is 0.111 nm/ in the water temperature range of 30~75. The sensor has advantages of easy fabrication, high sensitivity, and inexpensive, which has a potential in biological sensing. © 2016, Science Press. All right reserved.
Number of references: 22
Page count: 5
Main heading: Single mode fibers
Controlled terms: Water temperature - Mach-Zehnder interferometers - Refractive index
Uncontrolled terms: Fiber sensing - Fiber taper - Intermodal interferences - Refractive index sensing - Refractive index sensitivity
Classification code: 641.1 Thermodynamics - 741.1 Light/Optics - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941.3 Optical Instruments
Numerical data indexing: Size 4.37e-05m, Size 4.80e-04m
DOI: 10.3788/gzxb20164502.0206006
Funding Details: Number: 61275088,61327012, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 14JK1580, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department;
Funding text: The National Science Foundation of China under Grant (Nos.61275088, 61327012), the Science Research Plan Projects of Shaanxi Education Department (No.14JK1580), the Innovation Fund Project of Xi''an Shiyou University (No.YS28032509).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

204. Rough set models in multigranulation spaces

Accession number: 20154201407560
Authors: Yao, Yiyu (1); She, Yanhong (2)
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Source title: Information Sciences
Abbreviated source title: Inf Sci
Volume: 327
Issue date: January 10, 2016
Publication year: 2016
Pages: 40-56
Language: English
ISSN: 00200255
CODEN: ISIJBC
Document type: Journal article (JA)
Publisher: Elsevier Inc.
Abstract: There exist several approaches to rough set approximations in a multigranulation space, namely, a family of equivalence relations. In this paper, we propose a unified framework to classify and compare existing studies. An underlying principle is to explain rough sets in a multigranulation space through rough sets derived by using individual equivalence relations. Two basic models are suggested. One model is based on a combination of a family of equivalence relations into an equivalence relation and the construction of approximations with respect to the combined relation. By combining equivalence relations through set intersection and union, respectively, we construct two sub-models. The other model is based on the construction of a family of approximations from a set of equivalence relations and a combination of the family of approximations. By using set intersection and union to combine a family of approximations, respectively, we again build two sub-models. As a result, we have a total of four models. We examine these models and give conditions under which some of them become the same. © 2015 Elsevier Inc.
Number of references: 43
Main heading: Rough set theory
Controlled terms: Approximation algorithms
Uncontrolled terms: Equivalence relations - Multi-granulation rough sets - Multi-granulations - Rough set approximation - Rough set models - Set intersection - Underlying principles - Unified framework
Classification code: 921 Mathematics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI: 10.1016/j.ins.2015.08.011
Funding Details: Number: -, Acronym: NSERC, Sponsor: Natural Sciences and Engineering Research Council of Canada; Number: 61322211,61472471, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2014JQ1032, Acronym: -, Sponsor: Natural Science Basic Research Program of Shaanxi Province;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

205. An enhanced smith predictor based robust control over networked control system with random time delays

Accession number: 20170503309011
Authors: Wu, Ying (1); Wu, Yanpeng (2)
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Source title: Proceedings of 2016 2nd International Conference on Control Science and Systems Engineering, ICCSSE 2016
Abbreviated source title: Proc. Int. Conf. Control Sci. Syst. Eng., ICCSSE
Part number: 1of1
Issue title: Proceedings of 2016 2nd International Conference on Control Science and Systems Engineering, ICCSSE 2016
Issue date: December 14, 2016
Publication year: 2016
Pages: 50-54

Article number: 7784351
Language: English
ISBN-13: 9781467398725
Document type: Conference article (CA)
Conference name: 2nd International Conference on Control Science and Systems Engineering, ICCSSE 2016
Conference date: July 27, 2016 - July 29, 2016
Conference location: Singapore, Singapore
Conference code: 125425
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In this paper, a newly robust control scheme that contains an enhanced smith predictor is proposed to adaptively estimate and identify control law on line to reply to the timevarying network induced delays. A control sequence that contains a series of control signals is generated from a queue of possible future time delays at the controller node and the final option on which control signal is selected is given to the actuator according to the actual transmission delay. Two buffers are used respectively at the controller node and actuator node, which can transform the continuous timevarying delays into several discrete values and make sure time delays exactly predicted. Finally the simulation results demonstrate the effectiveness of the proposed methods to guarantee the robust performance of networked control system with random time-varying delay. © 2016 IEEE.
Number of references: 9
Main heading: Time delay
Controlled terms: Robust control - Networked control systems - Time varying control systems - Delay control systems - Actuators - Timing circuits - Controllers
Uncontrolled terms: Control sequences - Random time delay - Robust control scheme - Robust performance - Smith predictors - Time varying- delays - Time-varying delay - Transmission delays
Classification code: 713 Electronic Circuits - 713.4 Pulse Circuits - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 731.2 Control System Applications - 732.1 Control Equipment
DOI: 10.1109/CCSSE.2016.7784351
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

206. Modeling and control of multi-parallel connected inverters in microgrids

Accession number: 20180104609386
Authors: Wu, Ying (1); Wu, Yanpeng (2)
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an City, China; (2) School of Information and Control Engineering, Xi'an University of Architecture and Technology, Xi'an City, China
Source title: Proceedings of 2016 5th International Conference on Computer Science and Network Technology, ICCSNT 2016
Abbreviated source title: Proc. Int. Conf. Comput. Sci. Netw. Technol., ICCSNT
Part number: 1 of 1
Issue title: Proceedings of 2016 5th International Conference on Computer Science and Network Technology, ICCSNT 2016
Issue date: October 16, 2017
Publication year: 2016
Pages: 838-841
Article number: 8070277
Language: English
ISBN-13: 9781509021284
Document type: Conference article (CA)
Conference name: 5th International Conference on Computer Science and Network Technology, ICCSNT 2016
Conference date: December 10, 2016 - December 11, 2016
Conference location: Changchun, China
Conference code: 131363
Sponsor: Changchun Normal University; Jilin University; Northeast Normal University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In this paper, modeling and control of multi-parallel connected inverters are studied for microgrid. For the operation of paralleled inverters, the current sharing accuracy is important for the reliability of the system. In order to reduce the circulating current and achieve the power sharing accuracy, a novel decentralized communication-based droop controller is proposed for each energy source unit. Unlike the conventional droop control method, a PID controller is added to compensate the error value caused by the mismatched model parameters of inverters and

different line impedance, which can fast achieve the current sharing accuracy and effectively enhance the power quality in spite of component mismatches. Simulation results from Matlab/Simulink verify that the proposed control strategy effectively solves the problem of circulating current between paralleled inverters. © 2016 IEEE.
Number of references: 18
Main heading: Decentralized control
Controlled terms: Simulink - Controllers - Electric inverters - Quality control - Three term control systems
Uncontrolled terms: Circulating current - Control strategies - Decentralized communications - Droop control - Droop control method - Micro grid - Modeling and control - Paralleled inverters
Classification code: 723.2 Data Processing and Image Processing - 731.1 Control Systems - 732.1 Control Equipment - 913.3 Quality Assurance and Control
DOI: 10.1109/ICCSNT.2016.8070277
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village