1. Preparation of Yellow-Green-Emissive Carbon Dots and Their Application in Constructing a Fluorescent Turn-On Nanoprobe for Imaging of Selenol in Living Cells

Accession number: 20173204021624
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Source title: Analytical Chemistry
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Language: English
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CODEN: ANCHAM
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: Selenocysteine (Sec) carries out the majority of the functions of the various Se-containing species in vivo. Thus, it is of great importance to develop sensitive and selective assays to detect Sec. Herein, a carbon-dot-based fluorescent turn-on probe for highly selective detection of selenol in living cells is presented. The highly photoluminescent carbon dots that emit yellow-green fluorescence (Y-G-CDs; λ max = 520 nm in water) were prepared by using m-aminophenol as carbon precursor through a facile solvothermal method. The surface of Y-G-CDs was then covalently functionalized with 2,4-dinitrobenzenesulfonyl chloride (DNS-Cl) to afford the 2,4-dinitrobenzene-functionalized CDs (CD-DNS) as a nanoprobe for selenol. CD-DNS is almost nonfluorescent. However, upon treating with Sec, the DNS moiety of CD-DNS can be readily cleaved by selenolate through a nucleophilic substitution process, resulting in the formation of highly fluorescent Y-G-CDs and hence leads to a dramatic increase in fluorescence intensity. The proposed nanoprobe exhibits high sensitivity and selectivity toward Sec over biothiols and other biological species. A preliminary study shows that CD-DNS can function as a useful tool for fluorescence imaging of exogenous and endogenous selenol in living cells. © 2016 American Chemical Society.
Number of references: 54
Main heading: Nanoprobes
Controlled terms: Chlorine compounds - Carbon - Fluorescence imaging
Uncontrolled terms: Biological species - Carbon precursors - Fluorescence intensities - Green fluorescence - High sensitivity - Nucleophilic substitutions - Selective detection - Solvothermal method
Classification code: 741.3 Optical Devices and Systems - 746 Imaging Techniques - 761 Nanotechnology - 804 Chemical Products Generally - 933 Solid State Physics
Numerical data indexing: Size 5.20e-07m
DOI: 10.1021/acs.analchem.6b03983
Funding Details: Number: 21275117,21375105,21475105, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This research was supported by the National Natural Science Foundation of China (Nos. 21475105, 21275117, and 21375105)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

2. Light-addressable potentiometric sensor with gold nanoparticles enhancing enzymatic silver deposition for 1,5-anhydroglucitol determination

Accession number: 20171403517537
Authors: Liang, Jintao (1, 4); Zhu, Nixuan (1, 4); Li, Shanshan (1, 4); Jia, Huiqin (3); Xue, Yewei (1); Cui, Lijie (1); Huang, Yong (1, 2); Li, Guiyin (1)

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Source title: Biochemical Engineering Journal
Abbreviated source title: Biochem. Eng. J.
Volume: 123
Issue date: 2017
Publication year: 2017
Pages: 29-37
Language: English
ISSN: 1369703X
E-ISSN: 1873295X
CODEN: BEJOFV
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: In this study, a light-addressable potentiometric sensor (LAPS) based on gold nanoparticles (AuNPs) enhancing enzymatic silver (Ag) deposition was developed for 1,5-anhydroglucitol (1,5-AG) determination. The pyranose oxidase enzyme (PROD), immobilized on the surface of AuNPs modified LAPS chip, could catalyze the hydrolysis of 1,5-AG and produce a reductive product H2O2 that enhanced the deposition of Ag. When a bias voltage was provided to the LAPS, a photocurrent which depended on the concentration of 1, 5-AG can be generated. Because the concentration of Ag ions in the electrolyte solution decreased with the deposition of metallic Ag on the surface of AuNPs modified LAPS chip, the potential shift (#V) has originated from local surface potential changes and reflected the changes of 1,5-AG concentration. The linear relationship between #V and 1,5-AG concentration were very well over the range from 60 μg/mL to 225 μg/mL with a correlation coefficient of 0.9977. The limit of detection was 40 μg/mL at signal/noise [S/N] = 3. In addition, LAPS detection system also showed higher specificity, acceptable stability and excellent recovery for 1, 5-AG detection. © 2017 Elsevier B.V.
Number of references: 34
Main heading: Gold nanoparticles
Controlled terms: Fiber optic sensors - Deposition - Electrolytes - Metal nanoparticles - Silver compounds - Potentiometers (electric measuring instruments)
Uncontrolled terms: 1 ,5-Anhydroglucitol - Correlation coefficient - Electrolyte solutions - Light addressable potentiometric sensors - Limit of detection - Linear relationships - Pyranose oxidase - Silver deposition
Classification code: 702 Electric Batteries and Fuel Cells - 741.1.2 Fiber Optics - 761 Nanotechnology - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 942.1 Electric and Electronic Instruments
DOI: 10.1016/j.bej.2017.03.014
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

3. Twin-Induced Plasticity of an ECAP-Processed TWIP Steel (*Open Access*)

Accession number: 20165203184451
Authors: Wang, L. (1, 2); Benito, J.A. (2, 3); Calvo, J. (2, 4); Cabrera, J.M. (2, 4)
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Language: English
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CODEN: JMEPEG
Document type: Journal article (JA)
Publisher: Springer Science and Business Media, LLC
Abstract: The TWIP steels show high strain hardening rates with high ductility which results in high ultimate tensile strength. This makes their processing by equal channel angular pressing very difficult. Up to now, this has only been achieved at warm temperatures (above 200 °C). In this paper, a FeMnCAl TWIP steel has been processed at room temperature and the resulted microstructure and mechanical properties were investigated. For comparison, the material has also been processed at 300 °C. The TWIP steel processed at room temperature shows a large increase in yield strength (from 590 in the annealed condition to 1295 MPa) and the ultimate tensile strength (1440 MPa) as a consequence of a sharp decrease in grain size and the presence within the grains of a high density of mechanical twins and subgrains. This dense microstructure results also in a loss of strain hardening and a reduction in ductility. The material processed at 300 °C is more able to accommodate deformation and has lower reduction in grain size although there is a significant presence of mechanical twins and subgrains produced by dislocation activity. This material reaches an ultimate tensile strength of 1400 MPa with better ductility than the room temperature material. © 2016, The Author(s).
Number of references: 35
Main heading: Ductility
Controlled terms: Plasticity - Tensile strength - Room temperature - Strain hardening - Strain rate - Equal channel angular pressing - Grain size and shape - Microstructure - Steel
Uncontrolled terms: Dislocation activity - EBSD - ECAP - Microstructure and mechanical properties - twins - TWIP steel - Ultimate tensile strength - Warm temperatures
Classification code: 535.2 Metal Forming - 537.1 Heat Treatment Processes - 545.3 Steel - 641.1 Thermodynamics - 951 Materials Science
Numerical data indexing: Pressure 1.30e+09Pa, Pressure 1.40e+09Pa, Pressure 1.44e+09Pa, Temperature 4.73e+02K, Temperature 5.73e+02K
DOI: 10.1007/s11665-016-2400-1
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Funding text: The present paper is financially supported by China Scholarship Council (CSC) and technically supported by the Electron Microscopy Service (EBSD analysis) in the Center Technology of Manresa (CTM) and the Transmission Electron Microscope Service (TEM analysis) in Centres Científics i Tecnològics of University of Barcelona (CCIT, UB).
Compendex references: YES
Open Access type(s): All Open Access, Hybrid Gold, Green
Database: Compendex
Data Provider: Engineering Village

4. A new method for rock brittleness evaluation in tight oil formation from conventional logs and petrophysical data

Accession number: 20171003419405
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Language: English

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Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Brittleness is a critical indicator for hydraulic fracturing candidate screening in unconventional reservoirs. Current rock brittleness estimation models are often inferred from mechanical parameters and mineralogical data, which primarily use empirical equations. However, the absence of shear sonic velocity data and insufficient mineral data sometimes restricts its wide application. In this article, our objective is to illustrate the application of a data-driven approach for rock brittleness estimation that employs computational intelligence technologies (multilayer perception and radial basis function models) that use conventional well logs as inputs. To reflect the local rock type variation with depth, we first updated the typical mineralogy based brittleness calculation formulas. A database of the well logs, mechanical parameters, X-ray diffraction (XRD) and QEMSCAN mineralogy results collected from a single well in the Santanghu tight oil formation in the Xinjiang basin, China was then constructed. Rock brittleness tests were performed using a multilayer perception model and radial basis function model with different inputs. The comparison of the rock brittleness results produced by the log-based soft computing technologies, mechanical-based method and mineralogy-based method demonstrated that the data-driven approach is flexible and has sufficient accuracy. According to the performance indicators, the predictive performance of the radial basis function model was found to be better than that of the multilayer perception model. This study shows that soft computing technologies can be used to infer missing data when the mineralogical data are inadequate and are less dependent on acoustic full-wave logging, and they are therefore more applicable and practical than traditional empirical formulas. © 2017 Elsevier B.V.
Number of references: 23
Main heading: Shear flow
Controlled terms: Brittleness - Radial basis function networks - Soft computing - Rocks - Functions - Hydraulic fracturing - Minerals - X ray diffraction
Uncontrolled terms: Conventional well logs - Multi-layer perception - Predictive performance - Radial basis function models - Radial basis functions - Rock brittleness - Tight oil - Unconventional reservoirs
Classification code: 482.2 Minerals - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 723 Computer Software, Data Handling and Applications - 921 Mathematics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 951 Materials Science
DOI: 10.1016/j.petrol.2016.12.036
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

5. Kinetics of catalytic decomposition of hydrous hydrazine over CeO2-supported bimetallic Ni–Pt nanocatalysts

Accession number: 20170203224951
Authors: Dai, Hao (1); Dai, Hong-Bin (1); Zhong, Yu-Jie (2); Kang, Qing (1); Sun, Li-Xian (3); Wang, Ping (1)
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Source title: International Journal of Hydrogen Energy
Abbreviated source title: Int J Hydrogen Energy
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Issue: 9
Issue date: March 2, 2017
Publication year: 2017
Pages: 5684-5693
Language: English
ISSN: 03603199
CODEN: IJHEDX
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Catalytic decomposition of hydrous hydrazine (N2H4·H2O) has been considered as one of the source of hydrogen for fuel cell applications, but the reaction kinetics has received very limited attention. The kinetics of the

catalytic decomposition of alkaline N2H4·H2O solutions is investigated over bimetallic Ni–Pt nanocatalysts supported ceria (CeO2), which is prepared by a one-pot co-precipitation method. The resultant Ni–Pt/CeO2 catalyst exhibits high activity and 100% H2 selectivity for the N2H4·H2O decomposition. The catalytic decomposition of N2H4·H2O with respect to N2H4·H2O concentration follows a near-zero-order kinetics at the initial reaction stage with high N2H4·H2O concentrations and the fraction-order kinetics at low N2H4·H2O concentrations. The kinetic rate equation can be expressed as: r = – d[N2H4·H2O]/dt = k[N2H4·H2O]0.52/0.043[NaOH]0.57/0[catalyst]1.03, k = 4.64 × 108 exp(-6591.29/T). Our results provide valuable insights into the catalytic decomposition kinetics of N2H4·H2O. © 2016 Hydrogen Energy Publications LLC
Number of references: 42
Main heading: Reaction kinetics
Controlled terms: Association reactions - Cerium oxide - Kinetics - Nanocatalysts - Hydrogen storage - Hydrazine - Sodium hydroxide - Catalyst activity - Catalyst selectivity - Precipitation (chemical) - Fuel cells
Uncontrolled terms: Catalytic decomposition - Coprecipitation method - H2O decomposition - Hydrogen for fuel cells - Hydrous hydrazines - Kinetic rate equation - Limited attentions - Zero order kinetics
Classification code: 522 Gas Fuels - 631.1 Fluid Flow, General - 702.2 Fuel Cells - 761 Nanotechnology - 802.2 Chemical Reactions - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 931 Classical Physics; Quantum Theory; Relativity
DOI: 10.1016/j.ijhydene.2016.10.160
Funding Details: Number: 2016A030312011, Acronym: -, Sponsor: Natural Science Foundation of Guangdong Province; Number: 51621001, Acronym: -, Sponsor: Foundation for Innovative Research Groups of the National Natural Science Foundation of China; Number: 51471168, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The financial supports for this research from the National Natural Science Foundation of China (Grant Nos. 51471168 and 51671087), the Foundation for Innovative Research Groups of the National Natural Science Foundation of China (Grant No. 51621001), the Natural Science Foundation of Guangdong Province of China (Grant No. 2016A030312011) and 985 Project of South China University of Technology are gratefully acknowledged.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

6. Cambrian sequence stratigraphic framework in the middle-northern North China

Accession number: 20181304939808
Authors: Xiao, Fei (1); Wang, Jianguo (2); Wu, Heyuan (3); Wang, Peixi (2); Zhao, Zongju (2); Tian, Jianzhang (4); Jiang, Zaixing (1); Song, Chungang (5); Tian, Ran (6); Guo, Zengqiang (6)
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Publication year: 2017
Pages: 1144-1157 and 1167
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Cambrian carbonate rocks in North China platform are well developed reservoirs for deep hydrocarbon accumulation. It is of significance to study the Cambrian sequence stratigraphy and filling pattern for exploration of both buried hills and buried hill inner curtain hydrocarbon accumulations. Synthesizing the lithofacies and sedimentary cycles' characteristics of outcrop, typical drilling log and seismic data, three kinds of sequence boundaries are identified, including not only the types I and type II related to the exposure but also the boundary indicating the drowned unconformity. Furthermore, the 3rd order sequence stratigraphic framework of Cambrian in the middle-

northern North China has been established, and the Cambrian can be divided into seven 3rd order sequences tracing regionally. Through analyzing the carbon isotope cycles of whole rock reflecting the global sea level change and sedimentary cycles implying the depositing water depth, the dominating factors for the 3rd order sequences development of Cambrian in the middle-northern North China are clarified. The paleoclimate and sedimentation rate were relatively stable, inferring the tectonic setting and global sea level were vital for sequence development. The forming of sequence CSQ1(Fujunshan Formation or Changping Formation), sequence CSQ2(Mantou Formation) and sequence CSQ5(Gushan Formation) are comprehensively controlled by global sea level changes and regional tectonic subsidence, especially the sequence CSQ5 which is dominated by the drowned unconformity. While the stably aggradated sequences CSQ3(Maozhuang Formation), CSQ4(Xuzhuang Formation or Zhangxia Formation), CSQ6(Changshan Formation) and CSQ7(Fengshan Formation) are mainly dominated by the global sea level change.
Number of references: 52
Main heading: Seismology
Controlled terms: Stratigraphy - Accidents - Isotopes - Sea level - Sedimentary rocks - Sedimentology - Hydrocarbons - Tectonics
Uncontrolled terms: Cambrians - Carbon isotopes - North China - Sealevel change - Sequence stratigraphy
Classification code: 471.1 Oceanography, General - 481.1 Geology - 482.2 Minerals - 484.1 Earthquake Measurements and Analysis - 804.1 Organic Compounds - 914.1 Accidents and Accident Prevention
DOI: 10.7623/syxb201710005
Compendex references: YES
Database: Compendex
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7. Effect of multi-walled carbon nanotubes on linear viscoelastic behavior and microstructure of zwitterionic wormlike micelle at high temperature

Accession number: 20172003671674
Authors: Qin, Wenlong (1, 2); Yue, Lei (1); Liang, Guoqi (1); Jiang, Guanfeng (1); Yang, Jiang (1); Liu, Yang (3)
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Corresponding author: Yang, Jiang(jyang98@yahoo.com)
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Abbreviated source title: Chem. Eng. Res. Des.
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Issue date: 2017
Publication year: 2017
Pages: 14-22
Language: English
ISSN: 02638762
CODEN: CERDEE
Document type: Journal article (JA)
Publisher: Institution of Chemical Engineers
Abstract: The effects of hydroxyl functionalized multi-walled carbon nanotubes (MWCNTs) on linear viscoelastic behavior and microstructure of zwitterionic surfactant oleylamido propyl betaine (BET) micellar solutions were investigated by Cryo-Transmission Electron Microscopy (Cryo-TEM), Fourier Transmission Infrared Spectroscopy (FT-IR) and rheological measurements. In this study, the addition of MWCNTs has obvious effects on the rheological behavior of the mixed system: an increase in the zero-shear viscosity of the system, and appearance of shear thinning non-Newtonian behavior instead of Newtonian behavior at dilute micellar solution. The addition of MWCNTs also obviously increases the semidilute micellar solution's relaxation time, reptation time and storage modulus. Moreover, the temperature resistance of the system with MWCNTs is greatly improved compared with that without MWCNTs. The results of Cryo-TEM and FT-IR measurement demonstrate that the MWCNTs can associate with wormlike micelle to form a strong and complex network structure by micellar end-cap adsorption and hydrogen bonding interaction. The synergistic interaction enhances the viscosity and elasticity of the zwitterionic surfactant fluids at high temperature.
Number of references: 52
Main heading: Microstructure

Controlled terms: Hydrogen bonds - Shear flow - Shear thinning - Gas adsorption - Complex networks - Surface active agents - Infrared spectroscopy - Micelles - Multiwalled carbon nanotubes (MWCN) - Yarn - Elasticity - Non Newtonian flow - Rheology - High resolution transmission electron microscopy - Viscoelasticity - Hydrogen
Uncontrolled terms: Cryo-transmission electron microscopy (cryo-TEM) - Functionalized multi-walled carbon nanotubes - Hydrogen bonding interactions - Linear viscoelastic behaviors - Rheological measurements - Synergistic interaction - Worm-like micelles - Zwitterionic surfactants
Classification code: 631.1 Fluid Flow, General - 722 Computer Systems and Equipment - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801.3 Colloid Chemistry - 801.4 Physical Chemistry - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 819.4 Fiber Products - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 933.1 Crystalline Solids - 951 Materials Science
DOI: 10.1016/j.cherd.2017.04.027
Funding Details: Number: 2016KTZDGY09-06-01, Acronym: -, Sponsor: -; Number: 51304159, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

8. A new method for rock brittleness evaluation in tight oil formation from conventional logs and petrophysical data

Accession number: 20170203233447
Authors: Shi, Xian (1); Wang, Jian (2); Ge, Xinmin (3); Han, Zhongying (4); Qu, Guanzheng (5); Jiang, Shu (6)
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Corresponding author: Wang, Jian(nikebill@163.com)
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Publication year: 2017
Language: English
ISSN: 09204105
Document type: Article in Press
Publisher: Elsevier B.V., Netherlands
Abstract: Brittleness is a critical indicator for hydraulic fracturing candidate screening in unconventional reservoirs. Current rock brittleness estimation models are often inferred from mechanical parameters and mineralogical data, which primarily use empirical equations. However, the absence of shear sonic velocity data and insufficient mineral data sometimes restricts its wide application. In this article, our objective is to illustrate the application of a data-driven approach for rock brittleness estimation that employs computational intelligence technologies (multilayer perception and radial basis function models) that use conventional well logs as inputs. To reflect the local rock type variation with depth, we first updated the typical mineralogy based brittleness calculation formulas. A database of the well logs, mechanical parameters, X-ray diffraction (XRD) and QEMSCAN mineralogy results collected from a single well in the Santanghu tight oil formation in the Xinjiang basin, China was then constructed. Rock brittleness tests were performed using a multilayer perception model and radial basis function model with different inputs. The comparison of the rock brittleness results produced by the log-based soft computing technologies, mechanical-based method and mineralogy-based method demonstrated that the data-driven approach is flexible and has sufficient accuracy. According to the performance indicators, the predictive performance of the radial basis function model was found to be better than that of the multilayer perception model. This study shows that soft computing technologies can be used to infer missing data when the mineralogical data are inadequate and are less dependent on acoustic full-wave logging, and they are therefore more applicable and practical than traditional empirical formulas. © 2017 Elsevier B.V.
Main heading: Shear flow

Controlled terms: Rocks - Soft computing - Hydraulic fracturing - Brittleness - Functions - Minerals - X ray diffraction - Radial basis function networks
Uncontrolled terms: Conventional well logs - Multi-layer perception - Predictive performance - Radial basis function models - Radial basis functions - Rock brittleness - Tight oil - Unconventional reservoirs
Classification code: 482.2 Minerals - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 723 Computer Software, Data Handling and Applications - 921 Mathematics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 951 Materials Science
DOI: 10.1016/j.petrol.2016.12.036
Database: Compendex
Data Provider: Engineering Village

9. Experimental research on the effect of pipe surface wettability on flow resistance in laminar flow

Accession number: 20174704431103
Authors: Jing, Jiaqiang (1, 2); Qi, Hongyuan (1); Liang, Aiguo (3); Shi, Jianying (3); Jiang, Huayi (4); Zhang, Yixiang (4); Wang, Yulong (4, 5); Sun, Nana (4)
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Abbreviated source title: Huagong Jinzhan/Chem. Ind. Eng. Prog.
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Document type: Journal article (JA)
Publisher: Materials China
Abstract: Flow characteristics of tap water, ethylene glycol and 26# white oil in 304 stainless steel pipe, plexiglass pipe, polypropylene pipe (PP pipe) and polytetrafluoroethylene pipe (PTFE pipe) were experimentally studied based on experimental platform of small circulation line. Measurements were made for pressure drops under different flow rates. The relationships of frictional coefficient versus Reynolds number, Poiseuille number versus Reynolds number and contact angle versus frictional coefficient for three liquids flowing in four pipes were figured out respectively. Together with the contact angle measurement by the contact angle meter, the effect of pipe surface wettability on frictional coefficient was discussed. The results all showed that surface wettability of pipe has certain influence on the flow resistance. The frictional coefficient and Poiseuille number decrease with the increase of contact angle at the same Reynolds number. The effect of lyophobic pipe surface wettability on frictional coefficient is greater than that of lyophilic pipe and the phenomenon is more obvious for the smaller Reynolds numbers. © 2017, Chemical Industry Press. All right reserved.
Number of references: 24
Main heading: Contact angle
Controlled terms: Flow rate - Ethylene - Friction - Polypropylenes - Reynolds number - Ethylene glycol - Laminar flow - Wetting
Uncontrolled terms: 304 stainless steel - Experimental platform - Experimental research - Flow - Flow characteristics - Frictional coefficients - Poiseuille numbers - Surface wettability
Classification code: 631 Fluid Flow - 631.1 Fluid Flow, General - 804.1 Organic Compounds - 815.1.1 Organic Polymers - 931.2 Physical Properties of Gases, Liquids and Solids - 943.2 Mechanical Variables Measurements
DOI: 10.16085/j.issn1000-6613.2017-0149
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

10. Slow magnetic relaxation in a carboxylate-bridged CoII complex

Accession number: 20173604128697
Authors: Liu, Shuang (1, 4); Li, Lei-Lei (1); Wang, Wen-Zhen (1); Han, Tian (3); Gao, Hong-Ling (2); Cui, Jian-Zhong (2)
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, 18 Dian-zi-er Road, Xi'an; Shaanxi, China; (2) Department of Chemistry, School of Science, Tianjin University, Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), Tianjin; 300072, China; (3) Frontier Institute of Science and Technology (FIST), State Key Laboratory for Mechanical Behavior of Materials and MOE Key Laboratory for Nonequilibrium Synthesis and Modulation of Condensed Matter, Xi'an Jiaotong University, Xi'an; 710054, China; (4) Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), Nankai University, Tianjin; 300071, China
Corresponding author: Cui, Jian-Zhong(cuijianzhong@tju.edu.cn)
Source title: Journal of Molecular Structure
Abbreviated source title: J. Mol. Struct.
Volume: 1150
Issue date: December 15, 2017
Publication year: 2017
Pages: 293-298
Language: English
ISSN: 00222860
CODEN: JMOSB4
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: A new Co(II) complex, {[Co(MPA)$_{(4,4'}$–bpy)(H2O)]·2H2O}n (1) (H2MPA = 4-methylphthalic acid, $_{4,4'}$–bpy = $_{4,4'}$–bipyridine), has been prepared under solvothermal condition and fully characterized. The X-ray crystallography test demonstrates that 1 exhibits two-dimensional (2D) layer structure in which the helical Co(II) chains linked by syn-anti carboxylate bridges are connected by $_{4,4'}$–bpy ligands. Weak ferromagnetism was observed on direct-current (dc) susceptibility due to the collective effects of the helical chain structure and antiferromagnetic couplings between Co(II) ions transmitted by μ2-1,3-carboxylate groups. Interestingly, slow magnetic relaxation was observed in 1 at liquid helium temperatures without an external dc field. © 2017 Elsevier B.V.
Number of references: 47
Main heading: X ray crystallography
Controlled terms: Magnetic susceptibility - Chains - Superfluid helium - Carboxylation - Cobalt compounds
Uncontrolled terms: 4,4-bipyridine - Antiferromagnetic coupling - Cobalt complexes - Helical chain structure - Helical chains - Liquid helium temperature - Slow magnetic relaxations - Two-dimensional (2D) layer structures
Classification code: 602.1 Mechanical Drives - 701.2 Magnetism: Basic Concepts and Phenomena - 802.2 Chemical Reactions - 804 Chemical Products Generally - 933.1.1 Crystal Lattice
DOI: 10.1016/j.molstruc.2017.08.110
Funding Details: Number: 21271137,21473121,21571138, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 16JK1598, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: -, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: We acknowledge financial support from the Scientific Research Program Funded by Shaanxi Provincial Education Department (Program No. 16JK1598), and the National Natural Science Foundation of China (Nos. 21473121 , 21271137 , 21571138), and Xi'an Shiyou University .
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

11. Classification of wines according to their production regions with the contained trace elements using laser-induced breakdown spectroscopy

Accession number: 20173204020065
Authors: Tian, Ye (2, 5); Yan, Chunhua (3); Zhang, Tianlong (3); Tang, Hongsheng (3); Li, Hua (3, 4); Yu, Jialu (5, 6); Bernard, Jérôme (5); Chen, Li (5); Martin, Serge (5); Delepine-Gilon, Nicole (6); Bocková, Jana (7); Veis, Pavel (7); Chen, Yanping (1); Yu, Jin (1, 5)
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Corresponding author: Li, Hua(huali@nwu.edu.cn)
Source title: Spectrochimica Acta - Part B Atomic Spectroscopy
Abbreviated source title: Spectrochim. Acta Part B At. Spectrosc.
Volume: 135
Issue date: September 1, 2017
Publication year: 2017
Pages: 91-101
Language: English
ISSN: 05848547
CODEN: SAASBH
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Laser-induced breakdown spectroscopy (LIBS) has been applied to classify French wines according to their production regions. The use of the surface-assisted (or surface-enhanced) sample preparation method enabled a sub-ppm limit of detection (LOD), which led to the detection and identification of at least 22 metal and nonmetal elements in a typical wine sample including majors, minors and traces. An ensemble of 29 bottles of French wines, either red or white wines, from five production regions, Alsace, Bourgogne, Beaujolais, Bordeaux and Languedoc, was analyzed together with a wine from California, considered as an outlier. A non-supervised classification model based on principal component analysis (PCA) was first developed for the classification. The results showed a limited separation power of the model, which however allowed, in a step by step approach, to understand the physical reasons behind each step of sample separation and especially to observe the influence of the matrix effect in the sample classification. A supervised classification model was then developed based on random forest (RF), which is in addition a nonlinear algorithm. The obtained classification results were satisfactory with, when the parameters of the model were optimized, a classification accuracy of 100% for the tested samples. We especially discuss in the paper, the effect of spectrum normalization with an internal reference, the choice of input variables for the classification models and the optimization of parameters for the developed classification models. © 2017 Elsevier B.V.
Number of references: 45
Main heading: Principal component analysis
Controlled terms: Atomic emission spectroscopy - Supervised learning - Trace elements - Wine - Laser induced breakdown spectroscopy - Decision trees - Spectrum analysis
Uncontrolled terms: Detection and identifications - Laserinduced breakdown spectroscopy (LIBS) - LIBS - Matrix effects - Non-supervised classification - Optimization of parameters - Sample preparation methods - Supervised classification
Classification code: 822.3 Food Products - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 922.2 Mathematical Statistics - 931.1 Mechanics - 961 Systems Science
Numerical data indexing: Percentage 1.00e+02%
DOI: 10.1016/j.sab.2017.07.003
Funding Details: Number: 11574209, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 15142201000, Acronym: STCSM, Sponsor: Science and Technology Commission of Shanghai Municipality; Number: 35815RH, Acronym: -, Sponsor: Ministère des Affaires Etrangères; Number: -, Acronym: CSC, Sponsor: China Scholarship Council;
Funding text: This work was supported by the National Natural Science Foundation of China (Grant No. 11574209) and the Science and Technology Commission of Shanghai Municipality (Grant No. 15142201000). One of the authors (Y. T.) thank the China Scholarship Council (CSC) for their support. The authors thank the French Ministry of Foreign Affairs for their support through the PHC/STEFANIK 2016 program (Grant No. 35815RH).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

12. 3D geomechanical modeling and numerical simulation of in-situ stress fields in shale reservoirs: A case study of the lower Cambrian Niutitang formation in the Cen'gong block, South China

Accession number: 20172703898078

Authors: Liu, Jingshou (1, 2, 3, 4); Ding, Wenlong (1, 2, 3, 4); Yang, Haimeng (5); Wang, Ruyue (6, 7); Yin, Shuai (8); Li, Ang (1); Fu, Fuquan (1)
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Source title: Tectonophysics
Abbreviated source title: Tectonophysics
Volume: 712-713
Issue date: 21 August 2017
Publication year: 2017
Pages: 663-683
Language: English
ISSN: 00401951
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: An analysis of the in-situ state of stress in a shale reservoir was performed based on comprehensive information about the subsurface properties from wellbores established during the development of an oil and gas field. Industrial-level shale gas production has occurred in the Niutitang formation of the lower Cambrian Cen'gong block, South China. In this study, data obtained from hydraulic fracturing, drilling-induced fractures, borehole breakout, global positioning system (GPS), and well deviation statistics have been used to determine the orientation of the maximum horizontal principal stress. Additionally, hydraulic fracturing and multi-pole array acoustic logging (XMAC) were used to determine the vertical variations in the in-situ stress magnitude. Based on logging interpretation and mechanical experiments, the spatial distributions of mechanical parameters were obtained by seismic inversion, and a 3D heterogeneous geomechanical model was established using a finite element stress analysis approach to simulate the in-situ stress fields. The effects of depth, faults, rock mechanics, and layer variations on the principal stresses, horizontal stress difference $(\Delta\sigma)$, horizontal stress difference coefficient (Kh), and stress type coefficient (Sp) were determined. The results show that the direction of the maximum principal stress is ESE 120°. Additionally, the development zones of natural fractures appear to correlate with regions with high principal stress differences. At depths shallower than 375 m, the stress type is mainly a thrust faulting stress regime. At depths ranging from 375 to 950 m, the stress type is mainly a strike-slip faulting stress regime. When the depth is 950 m, the stress type is mainly a normal faulting stress regime. Depth, fault orientation, and rock mechanics all affect the type of stress. The knowledge regarding the Cen'gong block is reliable and can improve borehole stability, casing set point determination, well deployment optimization, and fracturing area selection. © 2017 Elsevier B.V.
Number of references: 67
Main heading: Hydraulic fracturing
Controlled terms: Geomechanics - Shale - Finite element method - Natural fractures - Fault slips - Natural gas fields - Oil field equipment - Rock mechanics - Boreholes - Gas industry - Numerical models - Strike-slip faults - Global positioning system - Oil well logging - Stress analysis
Uncontrolled terms: Cen'gong block - Comprehensive information - Finite element stress analysis - Geomechanical model - In-situ stress field - Lower cambrians - Maximum horizontal principal stress - Maximum principal stress
Classification code: 421 Strength of Building Materials; Mechanical Properties - 481 Geology and Geophysics - 483.1 Soils and Soil Mechanics - 484.1 Earthquake Measurements and Analysis - 511.2 Oil Field Equipment - 512.1.2 Petroleum Deposits : Development Operations - 512.2.1 Natural Gas Fields - 522 Gas Fuels - 921 Mathematics - 921.6 Numerical Methods - 931.1 Mechanics - 951 Materials Science
DOI: 10.1016/j.tecto.2017.06.030
Funding Details: Number: 41072098,41372139, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2016ZX05034-004-003,2016ZX05046-003-001, Acronym: -, Sponsor: National Major Science and Technology Projects of China;
Funding text: This research was supported by the National Natural Science Foundation of China (Grant Nos. 41372139 and 41072098) and the National Science and Technology Major Project of China (2016ZX05046-003-001, 2016ZX05034-004-003). The authors would like to thank the China Earthquake Data Center for providing the data of

present-day stress pattern. We are also grateful to the anonymous reviewers, whose comments improved the quality of this manuscript.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

13. Research on Treatment Technology and Device of Oily Sludge (*Open Access*)

Accession number: 20180304662295
Authors: Wang, J.Q. (1); Shui, F.S. (1); Li, Q.F. (1, 2)
Author affiliation: (1) School of Petroleum Engineering, Xi'An Shiyou University, No.18 Dianzi 2nd Road, Xi'an; 710065, China; (2) Yanchang Petroleum Group Exploration Company, Zaoyuan Road, Yan'an; 716099, China
Corresponding author: Shui, F.S.(279653937@qq.com)
Source title: IOP Conference Series: Materials Science and Engineering
Abbreviated source title: IOP Conf. Ser. Mater. Sci. Eng.
Volume: 281
Part number: 1 of 1
Issue: 1
Issue title: 1st International Workshop on Materials Science and Mechanical Engineering
Issue date: December 21, 2017
Publication year: 2017
Article number: 012039
Language: English
ISSN: 17578981
E-ISSN: 1757899X
Document type: Conference article (CA)
Conference name: 1st International Workshop on Materials Science and Mechanical Engineering, IWMSME 2017
Conference date: October 27, 2017 - October 29, 2017
Conference location: Kunming, Yunnan, China
Conference code: 133101
Publisher: IOP Publishing Ltd
Abstract: Oily sludge is a solid oily waste, which is produced during the process of oil exploitation, transportation, refining and treatment of oily sewage. It contains a great number of hazardous substance, and is difficult to handle with. To solve the problem of waste resources of oil sludge with high oil content and usually not easy to aggregate during the preparation of profile control agent, a new oily sludge treatment device was developed. This device consists of heat supply unit, flush and filter unit, oil removal unit and dehydration unit. It can effectively clean and filter out the waste from oily sludge, recycle the oil resources and reduce the water content of the residue. In the process of operation, the water and chemical agent are recycled in the device, eventually producing little sewage. The device is small, easy to move and has high degree of automation control. The experimental application shows that the oil removal rate of the oily sludge is up to 70%, and the higher the oil content rate the better the treatment. © Published under licence by IOP Publishing Ltd.
Number of references: 14
Main heading: Petroleum transportation
Controlled terms: Recycling - Sewage - Energy resources - Waste treatment
Uncontrolled terms: Degree of automation - Dehydration unit - Experimental application - Hazardous substances - Heat supply unit - Oil exploitation - Profile control agent - Treatment technologies
Classification code: 452.1 Sewage - 452.3 Industrial Wastes - 452.4 Industrial Wastes Treatment and Disposal - 525.1 Energy Resources and Renewable Energy Issues
Numerical data indexing: Percentage 7.00e+01%
DOI: 10.1088/1757-899X/281/1/012039
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

14. Model predictive filter based neural networks for INS/GPS integrated navigation during GPS outages

Accession number: 20174904489257

Authors: Yang, Yi (1); Zhong, Yongmin (2); Gao, Yi (1)
Author affiliation: (1) Department of Electronic Engineering, Xi'An Shiyou University, Xi'an, Shaanxi Province, China; (2) Department of Aerospace Mechanical and Manufacturing Engineering, RMIT University Bundoore, Melbourne; VIC; 3083, Australia
Source title: Proceedings of 2017 IEEE 7th International Conference on Electronics Information and Emergency Communication, ICEIEC 2017
Abbreviated source title: Proc. IEEE Int. Conf. Electron. Inf. Emerg. Commun., ICEIEC
Part number: 1 of 1
Issue title: Proceedings of 2017 IEEE 7th International Conference on Electronics Information and Emergency Communication, ICEIEC 2017
Issue date: October 19, 2017
Publication year: 2017
Pages: 469-472
Article number: 8076607
Language: English
ISBN-13: 9781509030248
Document type: Conference article (CA)
Conference name: 7th IEEE International Conference on Electronics Information and Emergency Communication, ICEIEC 2017
Conference date: July 21, 2017 - July 23, 2017
Conference location: Macau, China
Conference code: 131524
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Aiming to improve positioning precision of the INS/GPS integrated navigation system during GPS outages, a novel neural network learning algorithm based on model predictive filter (MPFNN) for INS errors compensation is proposed. MPFNN is applied to establish a highly accurate mapping relationship when GPS works well and to predict INS errors during GPS outages. Different from traditional algorithm, model predictive filter (MPF) is established by using network weights as system state variables to optimize the network weights based on the neural network's error correction. During the training process, the model error of neural networks is corrected by compensating the deviation between the actual and target output via the MPF algorithm. Performance of the proposed method has been experimentally verified in a land vehicle navigation test. The comparison results indicate that proposed method can effectively provide high accurate corrections to the standalone INS during GPS outages. © 2017 IEEE.
Number of references: 7
Main heading: Global positioning system
Controlled terms: Inertial navigation systems - Error correction - Neural networks - Bandpass filters - Air navigation
Uncontrolled terms: Gps outages - INS/GPS integrated navigation system - Integrated navigation - Land vehicle navigation - Model predictive - Model predictive filters (MPF) - Positioning precision - System state variables
Classification code: 431.5 Air Navigation and Traffic Control - 703.2 Electric Filters
DOI: 10.1109/ICEIEC.2017.8076607
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

15. Research on CO2 quality pipeline transportation based on Yanchang Oilfield CCUS (*Open Access*)

Accession number: 20171703599228
Authors: Yang, Yongchao (1); Tao, Hongsheng (1); Yang, Jinghua (1); Shang, Qinghua (1); Cao, Shuangge (2)
Author affiliation: (1) Yanchang Oil Field co., LTD, Research Center of Exploration and Development, Shannxi Yan'an, China; (2) Xi'an Shiyou University, School of Mechanical Engineering, Shaanxi Xi'an; 710065, China
Source title: MATEC Web of Conferences
Abbreviated source title: MATEC Web Conf.
Volume: 100
Part number: 1 of 1
Issue title: 13th Global Congress on Manufacturing and Management, GCMM 2016
Issue date: March 8, 2017
Publication year: 2017
Article number: 10002004

Language: English
ISSN: 22747214
E-ISSN: 2261236X
Document type: Conference article (CA)
Conference name: 13th Global Congress on Manufacturing and Management, GCMM 2016
Conference date: November 28, 2016 - November 30, 2016
Conference location: Zhengzhou, China
Conference code: 127173
Publisher: EDP Sciences
Abstract: CO2 capture,utilization and storage (CCUS) is now recognized as an important technology in the global scope of CO2 emission reduction, pipeline transportation is the main center to connect the capture point and the use storage point, the first issue to CO2 pipeline transportation is to solve CO2 source quality research. Yanchang Oilfield has the advantages of CCUS, its coal chemical capture of CO2 contains different impurities. In the CO2 pipeline transportation, the impurity content in CO2 is based on its end use and the actual situation of pipeline. The impurities will affect the efficiency of CO2-EOR, the choice of CO2 state equation, the changes of CO2 phase diagram and the capacity of pipeline transportation.
Number of references: 17
Main heading: Carbon dioxide
Controlled terms: Emission control - Enhanced recovery - Oil well flooding - Equations of state - Gas emissions - Impurities - Pipelines
Uncontrolled terms: CO2 capture - CO2 emission reduction - CO2-EOR - Coal chemicals - End-uses - Impurity content - Pipe-line transportations - State equations
Classification code: 451.2 Air Pollution Control - 511.1 Oil Field Production Operations - 619.1 Pipe, Piping and Pipelines - 804.2 Inorganic Compounds - 951 Materials Science
DOI: 10.1051/matecconf/201710002004
Compendex references: YES
Open Access type(s): All Open Access, Gold, Green
Database: Compendex
Data Provider: Engineering Village

16. Theoretical study of short pile effect in tunnel excavation (*Open Access*)

Accession number: 20174604404919
Authors: Tian, Xiao-Yan (1); Liu, Jing (1); Gao, Xiao-Mei (1); Li, Yuan (2)
Author affiliation: (1) Civil Engineering Department, School of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) China Northwest Architecture Design and Research Institute CO. LTD, Xi'an; 710018, China
Source title: IOP Conference Series: Materials Science and Engineering
Abbreviated source title: IOP Conf. Ser. Mater. Sci. Eng.
Volume: 231
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Issue title: 2017 2nd International Seminar on Advances in Materials Science and Engineering
Issue date: September 19, 2017
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Article number: 012079
Language: English
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Document type: Conference article (CA)
Conference name: 2017 2nd International Seminar on Advances in Materials Science and Engineering, ISAMSE 2017
Conference date: July 28, 2017 - July 30, 2017
Conference location: Singapore, Singapore
Conference code: 131341
Publisher: IOP Publishing Ltd
Abstract: The Misaki Sato Go ideal elastoplastic model is adopted and the two stage analysis theory is used to study the effect of tunnel excavation on short pile effect in this paper. In the first stage, the free field vertical displacement of the soil at the corresponding pile location is obtained by using empirical formula. In the second stage, the displacement is applied to the corresponding pile location. The equilibrium condition of micro physical differential equation settlement of piles. Then through logical deduction and the boundary condition expressions of the settlement calculation, obtain

the pile side friction resistance and axial force of the week. Finally, an engineering example is used to analyze the influence of the change of main parameters on their effects. © Published under licence by IOP Publishing Ltd.
Number of references: 9
Main heading: Piles
Controlled terms: Boundary conditions - Elastoplasticity - Excavation
Uncontrolled terms: Elasto-plastic models - Empirical formulas - Equilibrium conditions - Pile side frictions - Settlement calculation - Theoretical study - Two-stage analysis - Vertical displacements
Classification code: 408.2 Structural Members and Shapes
DOI: 10.1088/1757-899X/231/1/012079
Funding Details: Number: 15JK1562, Acronym: -, Sponsor: -; Number: 250205002, Acronym: -, Sponsor: -; Number: 51405385, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: Thank you for your cooperation in complying with these instructions. The National Natural Science Foundation of China Young Science Foundation: 51405385; Shaanxi Provincial Department of education special scientific research project: 15JK1562; Xi'an Petroleum University doctoral research project: 250205002.
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

17. Vibration evaluation and parameter optimization of hydraulic thruster

Accession number: 20171103439352
Authors: Peng, Yong (1); Zhang, Haokun (1)
Author affiliation: (1) Mechanical Engineering College, Xi'an Petroleum University, Xi'an, Shanxi; 710065, China
Corresponding author: Zhang, Haokun
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 10322
Part number: 1 of 1
Issue title: Seventh International Conference on Electronics and Information Engineering
Issue date: 2017
Publication year: 2017
Article number: 103223P
Language: English
ISSN: 0277786X
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CODEN: PSISDG
ISBN-13: 9781510610804
Document type: Conference article (CA)
Conference name: 7th International Conference on Electronics and Information Engineering, ICEIE 2016
Conference date: September 17, 2016 - September 18, 2016
Conference location: Nanjing, China
Conference code: 126607
Sponsor: Instrument and Control Society of Jiangsu
Publisher: SPIE
Abstract: Two difficult problems which are drilling string vibration and drilling pressure control exist in the process of drilling large displacement horizontal well. Using hydraulic thruster can not only improve the mechanical drilling speed and increase the horizontal section of footage displacement but also obtain better drill string dynamic characteristics and reduce vibration of drilling tool and prolong the life of the bottom hole assembly. By using the spring-damping model of drill string, the dynamic response of the different excitation of the drill bit is analyzed, so as to evaluate the effect of vibration reduction of hydraulic thruster. Use the three factors four levels orthogonal test method to optimize the key design parameters of hydraulic thruster. The analysis shows that the different drilling mud density should be used in the hydraulic thruster with different key parameters, in order to display its superiority. © 2017 SPIE.
Number of references: 11
Main heading: Vibration analysis
Controlled terms: Drill strings - Horizontal wells - Drills - Oil well drilling - Horizontal drilling - Testing
Uncontrolled terms: Drilling tool - Dynamic characteristics - Key design parameters - Mechanical drilling speed - Orthogonal test method - Parameter optimization - Spring-damping models - Vibration reductions
Classification code: 511.1 Oil Field Production Operations - 511.2 Oil Field Equipment - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 603.2 Machine Tool Accessories

DOI: 10.1117/12.2265356
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

18. Optical fiber micro-displacement sensor using a refractive index modulation window-assisted reflection fiber taper

Accession number: 20173604113069
Authors: Bao, Weijia (1); Qiao, Xueguang (1); Yin, Xunli (2); Rong, Qiangzhou (1); Wang, Ruohui (1); Yang, Hangzhou (1)
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Corresponding author: Bao, Weijia(vj_1991@stumail.nwu.edu.cn)
Source title: Optics Communications
Abbreviated source title: Opt Commun
Volume: 405
Issue date: December 15, 2017
Publication year: 2017
Pages: 276-280
Language: English
ISSN: 00304018
CODEN: OPCOB8
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: We demonstrate a compact fiber-optic quasi-Michelson interferometer (QMI) for micro-displacement measurement. The sensor comprises a micro-structure of a reflection taper tip containing a refractive index modification (RIM) as a coupling window over the interface between core and cladding of the fiber. Femtosecond laser-based direct inscription technique is used to achieve this window inscription and to induce large refractive index change. The RIM acts as a window for the strong coupling and recoupling of core-to-cladding modes. As the core and cladding modes are reflected at the taper tip and coupled back to lead-in fiber, a well-defined interference spectrum is achieved. The spectral intensity exhibits a high micro-bending sensitivity of 4.94dBμm because of the sensitivity to bending of recoupled intensity of cladding modes. In contrast, the spectral wavelength is insensitive to bending but linearly responds to temperature. The simultaneous measurements, including power-referenced for displacement and wavelength-referenced for temperature, were achieved by selective interference dip monitoring. © 2017 Elsevier B.V.
Number of references: 23
Main heading: Optical fibers
Controlled terms: Michelson interferometers - Modulation - Cladding (coating) - Refractive index - Displacement measurement
Uncontrolled terms: Interference spectrum - Micro displacement - Micro displacement measurements - Refractive index changes - Refractive index modulation - Refractive-index modification - Simultaneous measurement - Spectral intensity
Classification code: 741.1 Light/Optics - 741.1.2 Fiber Optics - 941.3 Optical Instruments - 943.2 Mechanical Variables Measurements
DOI: 10.1016/j.optcom.2017.08.056
Funding Details: Number: Z08119, Acronym: -, Sponsor: -; Number: 61275088,61327012, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 08JZ58, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: The National Natural Science Foundation of China under Grant 61327012 and Grant 61275088 ; the Scientific Research Program Funded by Shaanxi Provincial Education Department under Program 08JZ58 , Ministry of Education Project of Science and Technology Innovation (No. Z08119).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

19. Sub-ppt Mass Spectrometric Detection of Therapeutic Drugs in Complex Biological Matrixes Using Polystyrene-Microsphere-Coated Paper Spray

Accession number: 20173204032544
Authors: Wang, Teng (1); Zheng, Yajun (1); Wang, Xiaoting (1); Austin, Daniel E. (2); Zhang, Zhiping (1)
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E-ISSN: 15206882
CODEN: ANCHAM
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: Polystyrene (PS) is a class of polymer materials that offers great potential for various applications. However, the applications of PS microspheres in paper spray mass spectrometry are largely underexplored. Herein we prepared a series of PS microspheres via a simple dispersion polymerization and then used them as coating materials for paper spray mass spectrometry (MS) in high-sensitivity analysis of various therapeutic drugs in complex biological matrixes. In the preparation of PS-coated papers, the coating method was found playing a key role in determining the performance of the resulting paper substrate in addition to other parameters (e.g., starch type and amount, PS coating amount, and spray solvent). We also found that as a solvent was applied on PS-coated paper for paper spray, the analytes of interest would be first extracted out and then moved to the tip of paper triangle for spray along with the applied solvent. In the process, the surface energy of PS particles had a strong impact on the desorption performance of analytes from PS-coated paper substrate, and the PS with a high surface energy favored the elution of analytes to allow a high MS sensitivity. When the prepared PS coated paper was used as a substrate for paper spray, it gave high sensitivity in analysis of therapeutic drugs in various biological matrixes such as whole blood, serum, and urine with excellent repeatability and reproducibility. In contrast to uncoated filter paper, an improvement of 10-546-fold in sensitivity was achieved using PS-coated paper for paper spray, and an estimated lower limit of quantitation (LLOQs) in the range of 0.004-0.084 ng mL-1 was obtained. The present study is significant in exploring the potential of PS for high-sensitivity MS analysis, and it provides a promising platform in the translation of the MS technique to clinical applications. © 2017 American Chemical Society.
Number of references: 66
Main heading: Polystyrenes
Controlled terms: Solvents - Coatings - Mass spectrometry - Dispersions - Drug delivery - Microspheres - Body fluids - Sensitivity analysis
Uncontrolled terms: Biological matrixes - Clinical application - Dispersion polymerization - High surface energy - High-sensitivity analysis - Lower limit of quantitations - Mass spectrometric detection - Polystyrene micro-sphere
Classification code: 461.2 Biological Materials and Tissue Engineering - 801 Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 813.2 Coating Materials - 815.1.1 Organic Polymers - 921 Mathematics - 951 Materials Science
Numerical data indexing: Mass_Density 4.00e-09kg/m3 to 8.40e-08kg/m3
DOI: 10.1021/acs.analchem.7b01296
Funding Details: Number: 2016GY-231, Acronym: -, Sponsor: -; Number: 21575112, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

20. Preparation and performance of amine-tartaric salt as potential clay swelling inhibitor (*Open Access*)

Accession number: 20170103211128
Authors: Chen, Gang (1); Yan, Jiao (1); Lili, Li (1); Zhang, Jie (1); Gu, Xuefan (1); Song, Hua (2)

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Source title: Applied Clay Science
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Language: English
ISSN: 01691317
CODEN: ACLSER
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: A series of small molecular clay swelling inhibitor was prepared with tartaric acid and amines, presented as amine-tartaric salts (ATS). The inhibitor was screened based on the linear expansion rate of bentonite. The results show that the inhibitor prepared with tartaric acid and triethylenetetramine with the mole ratio of 1:1 (named as ATS-4) is the best inhibitor of the hydration expansion and dispersion of bentonite. The inhibitive properties of ATS-4 were evaluated by various methods, including clay linear swelling tests, anti-swelling tests, mud ball immersing tests, mud-making inhibition experiments and particle distribution measurements etc. The results show that ATS-4 has superior performance to inhibit the hydration swelling and dispersion of clays by controlling the particle size of clay. On the other hand, the bentonite linear expansion rate in 0.5% ATS-4 aqueous solution is much lower than that of others, and the hydration expansion degree of the mud ball in ATS-4 aqueous solution is appreciably weaker than the control test, and it is compatible with the conventional additives in water-based drilling fluids. Then, the inhibition mechanism of the amine-tartaric salt was well discussed based on thermogravimetric analysis (TGA), scanning electron microscope (SEM), X-ray diffraction analysis (XRD), single crystal X-ray diffraction and ion exchange tests. © 2016 Elsevier B.V.
Number of references: 21
Main heading: Hydration
Controlled terms: Scanning electron microscopy - X ray diffraction analysis - Particle size - Solutions - Ion exchange - Drilling fluids - Swelling - Thermogravimetric analysis - Dispersions - Single crystals - Bentonite
Uncontrolled terms: Conventional additives - Inhibition mechanisms - Inhibitive properties - Inhibitor - Particle distributions - Single crystal x-ray diffraction - Water based drilling fluids - X-ray diffraction analyses (XRD)
Classification code: 482.2 Minerals - 801 Chemistry - 802.2 Chemical Reactions - 933.1 Crystalline Solids - 951 Materials Science
Numerical data indexing: Percentage 5.00e-01%
DOI: 10.1016/j.clay.2016.12.039
Funding Details: Number: 50874092, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 16JS094, Acronym: -, Sponsor: Education Department of Shaanxi Province;
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Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

21. Backup Path Provisioning for Service Protection against Disaster Failures in Telecom Networks

Accession number: 20182705520608
Authors: Du, Xiaowu (1); Ma, Lisheng (2)
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Source title: Proceedings - 2017 International Conference on Networking and Network Applications, NaNA 2017
Abbreviated source title: Proc. - Int. Conf. Netw. Netw. Appl., NaNA
Volume: 2018-January
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Issue title: Proceedings - 2017 International Conference on Networking and Network Applications, NaNA 2017
Issue date: July 1, 2017
Publication year: 2017
Pages: 220-224
Language: English
ISBN-13: 9781538606049
Document type: Conference article (CA)
Conference name: 2017 International Conference on Networking and Network Applications, NaNA 2017
Conference date: October 16, 2017 - October 19, 2017
Conference location: Kathmandu City, Nepal
Conference code: 134340
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Telecom networks as supporting infrastructures for cloud services are vulnerable to large-scale failures in network components due to disasters. In such networks, service protection is crucial to minimize the disruptions of service connections caused by disaster failures. In this paper, we consider the optimal backup path provisioning for service connections affected by multiple potential disasters. For a network and a given set of service connections, we first use probabilistic region failure model to determine the failure probability of a path for service connections in the network with the consideration of multiple potential disasters. Based on the failure probabilities of paths in the network, we then propose an Integer Linear Program (ILP) to find the optimal backup paths for the disaster-affected service connections, such that the total failure probability of all backup paths is minimized, where the length of backup path is also taken into account. Extensive numerical results are also provided to illustrate the proposed framework for backup path provisioning. © 2017 IEEE.
Number of references: 13
Main heading: Disasters
Controlled terms: Integer programming - Probability
Uncontrolled terms: Backup path - Failure Probability - Integer linear programs - Large-scale failures - protection - Service connections - Service protections - Telecom networks
Classification code: 921.5 Optimization Techniques - 922.1 Probability Theory
DOI: 10.1109/NaNA.2017.40
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

22. Generalized matroids based on three-way decision models (*Open Access*)

Accession number: 20173204028649
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Language: English
ISSN: 0888613X
CODEN: IJARE4
Document type: Journal article (JA)
Publisher: Elsevier Inc.
Abstract: Three-way decision theory is an extension of the commonly used binary-decision model with an added third option. It is originally introduced to explain the three regions of probabilistic rough sets. Every object in a three-way decision model can be assigned to one of the three regions according to its evaluation value under an evaluation function. This paper first introduces three-way decision models based on subset-evaluation which generalize the original models. By the axiomatic approach, we characterize a matroid in terms of evaluation function and then define three-way matroids based on this characterization. Furthermore, three-way matroids are generalized to three-way fuzzy matroids and an equivalent description of three-way fuzzy matroid in terms of fuzzy independent set system is presented. Finally, we give the second description of three-way fuzzy matroid: a three-way fuzzy matroid is exactly the

greatest element of an equivalence class. Additionally, relations of notions introduced in this paper are also pointed out. © 2017
Number of references: 37
Main heading: Function evaluation
Controlled terms: Decision theory - Equivalence classes - Rough set theory - Combinatorial mathematics - Matrix algebra
Uncontrolled terms: Axiomatic approach - Binary decision - Decision modeling - Decision models - Evaluation function - Independent set - Probabilistic rough sets - Three-way decisions
Classification code: 921.1 Algebra - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.6 Numerical Methods - 961 Systems Science
DOI: 10.1016/j.ijar.2017.07.012
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Funding text: This work was partly supported by the National Natural Science Foundation of China (61202178, 61472471, 71161016), the Natural Science Foundation of Shaanxi Province of China (2017JM7022, 2017JM1036) and the Fundamental Research Funds for the Central Universities (JB170702, JBZ170601).
Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

23. Effect of asphaltene precipitation on CO2-flooding performance in low-permeability sandstones: A nuclear magnetic resonance study (*Open Access*)

Accession number: 20173304045928
Authors: Wang, Chen (1); Li, Tiantai (1); Gao, Hui (1); Zhao, Jinsheng (1); Li, Huazhou Andy (2)
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Pages: 38367-38376
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: With nuclear magnetic resonance (NMR), a novel experimental study is conducted to reveal the pore-scale formation damage mechanism of tight sandstones caused by asphaltene precipitation during CO2 flooding. For each core-flooding experiment, the T2 responses of the hydrogen nucleus in the core samples are measured before and after CO2 flooding, and then compared to quantitatively determine the asphaltene precipitate distribution in pore throats with different sizes. It is found that in the immiscible flooding stage, the degree of asphaltene precipitation increases with an increase in the CO2 injection pressure. After entering the miscible flooding stage, asphaltene can be still precipitated, but with a much lower magnitude. The core permeability tends to be reduced after CO2 flooding, and the permeability reduction is positively correlated with the amount of asphaltene precipitated. The results of the NMR experiments show that during the immiscible flooding stage, oil is recovered primarily from the relatively larger pores. A small amount of asphaltene precipitation occurs in the larger pores (1-1000 ms), filling up a small portion of these pore spaces, while little asphaltene shows up in the smaller pores (0.01-1 ms). As the pressure increases beyond the minimum miscibility pressure (MMP), more oil contained in smaller pores is able to be recovered. The smaller pores tend to be more affected by the precipitated asphaltene in comparison to the larger pores. With the asphaltene-filling phenomenon taking place more in the smaller pores, the tight-core permeability can be substantially compromised after CO2 flooding. © 2017 The Royal Society of Chemistry.
Number of references: 38

Main heading: Carbon dioxide
Controlled terms: Nuclear magnetic resonance - Asphaltenes - Floods - Sandstone - Nuclear magnetic resonance spectroscopy - Oil well flooding
Uncontrolled terms: Asphaltene precipitation - Injection pressures - Low permeability sandstone - Minimum miscibility pressure - Nuclear magnetic resonance studies - Nuclear magnetic resonance(NMR) - Permeability reduction - Precipitate distributions
Classification code: 482.2 Minerals - 511.1 Oil Field Production Operations - 513 Petroleum Refining - 804.2 Inorganic Compounds
Numerical data indexing: Time 1.00e-03s to 1.00e+00s, Time 1.00e-05s to 1.00e-03s
DOI: 10.1039/c7ra06392j
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

24. Microbial degradation of crude oil:implications for biochemical treatment of contaminated wastewater

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Authors: Yu, Tao (1); Fan, Daidi (1); Qu, Chengtun (2); Zhao, Jiao (1); Xu, Renjun (3)
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Abbreviated source title: UPB Sci Bull Ser B
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Publication year: 2017
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ISSN: 14542331
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CODEN: SBPSFZ
Document type: Journal article (JA)
Publisher: Politechnica University of Bucharest
Abstract: Some microbes are able to emulsify and degrade crude oil and can be used for biochemical treatment of oil-contaminated wastewater from oilfields, microbial restoration of oil-contaminated soils, and the extraction of crude oil from contaminated soils. In this study, 6 highly efficient crude oil-degrading bacteria (Microbacterium sp.,Ochrobactrum intermedium, Alcaligenesfaecalis, Brevibacilluslaterosporus, Stenotrophomonas, and P. aeruginosa) were isolated, cultivated, and purified from soils exposed to long-Term crude oil contamination. For P. aeruginosa, the most efficient conditions for oil degradation were found to be pH ~7-8, inoculums size of -2%-4%, oil content of -1%-4%, salt content of -0.8%-1.0%, shake speed of -180-200 r/min, a constant temperature of 37°C, and a degradation time of 7 days. A sudden decline in crude oil biodegradation degreewas associated with calcium sulfate deposition on the surface of pseudomonas bacteria, which cut off energy and nutrient pathways between the bacteria and its environment. The results of this study provide new insights in the stability of microbial methods for treating highly scaled wastewater from oilfields.
Number of references: 27
Main heading: Calcium sulfate
Controlled terms: Biodegradation - Bacteria - Contamination - Soils - Oil fields - Soil pollution - Crude oil - Wastewater treatment
Uncontrolled terms: Bacterial growth - Bacterial surfaces - Calcium sulfate - Contaminated wastewater - Crude oil contaminations - Ochrobactrum intermedium - Oil contaminated wastewater - P.aeruginosa
Classification code: 452.4 Industrial Wastes Treatment and Disposal - 461.8 Biotechnology - 483.1 Soils and Soil Mechanics - 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 801.2 Biochemistry - 804.2 Inorganic Compounds
Numerical data indexing: Age 1.92e-02yr, Percentage -1.00e+00% to 4.00e+00%, Percentage -2.00e+00% to 4.00e+00%, Percentage -8.00e-01% to 1.00e+00%, Rotational_Speed -1.80e+02RPM, Temperature 3.10e+02K

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

25. Effects of surfactants and alkalis on the stability of heavy-oil-in-water emulsions

Accession number: 20170803363353
Authors: Sun, Nana (1); Jing, Jiaqiang (2); Jiang, Huayi (3); An, Yunpeng (4); Wu, Cheng (5); Zheng, Sijia (5); Qi, Hongyuan (5)
Author affiliation: (1) State Key Laboratory of Oil and Gas Reservoir Geology, Exploitation-Southwest Petroleum University, Xi'an Shiyou University, China; (2) State Key Laboratory of Oil, Gas Reservoir Geology and Exploitation-Southwest, Petroleum University and Oil and Gas Fire Protection Key Laboratory of Sichuan Province, China; (3) Xi'an Shiyou University, China; (4) China Pipeline Petroleum Engineering Corporation, China; (5) State Key Laboratory of Oil, Gas Reservoir Geology and Exploitation-Southwest, Petroleum University, China
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Volume: 22
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Publication year: 2017
Pages: 120-129
Language: English
ISSN: 1086055X
CODEN: SPJRFW
Document type: Journal article (JA)
Publisher: Society of Petroleum Engineers (SPE)
Abstract: In this work, the effects of combining a surfactant/alkali on the stability of heavy-oil-in-water emulsions are analyzed by use of bottle testing, spinning-drop interfacial-tension (IFT) meters, microscopes, conductivity meters, zeta-potential analyzer Turbiscan laboratory expert stabilizer, and Anton Paar rheometer. The experimental results showed that the formulated surfactant (BS- 12 and OP-10) had an optimal mass ratio (1:2), and the water-separation rates initially decreased sharply as the concentrations of the surfactant increased, before decreasing moderately until reaching a minimum value. The formulated alkali solution exerted a positive synergistic effect in tandem with the surfactant at low alkali concentrations. In this way, an increasing number of petroleum soaps are produced by reactions between the alkali solutions and the active components in heavy crude oil. However, the effect was reversed at high alkali concentrations, where the compression of the alkali on the electric double layer was more significant. Images of the emulsions taken with a microscope showed that the sizes of the oil droplets were the smallest when the alkali concentration was 0.2% and mass ratio of NaOH and TEA (triethanolamine) was 1:1, which indicated that the amount of petroleum soap produced reached the maximum at this point. In addition, TEA, as a type of surface-active molecule, can form cross-multiple adsorption and hydrogen-bonding structure with surfactant and petroleum soap at the water/oil interface. When the oil/water ratio was 7:3, the water-separation rate reached its lowest point 5.33% for 3 hours. In addition, the emulsion stabilized by the surfactant and the compositional alkali possesses salt tolerance and temperature resistance. When the concentration of the bivalent salt (CaCl2 and MgCl2) increased to 0.01molL-1, the water-separation rate was less than 20%, and when the temperature increased from 30 to 60°C, the growth of back-scattering (BS) value was less than 2%. Copyright © 2017 Society of Petroleum Engineers.
Number of references: 31
Main heading: Surface active agents
Controlled terms: Backscattering - Chlorine compounds - Hydrogen bonds - Magnesium compounds - Crude oil - Emulsions - Separation - Sodium hydroxide - Emulsification - Ostwald ripening - Gas adsorption
Uncontrolled terms: Alkali concentrations - Electric double layer - Heavy oil-in-water emulsion - Hydrogen bonding structures - Surface-active molecules - Temperature resistances - Water/oil interfaces - Zeta potential analyzers
Classification code: 512.1 Petroleum Deposits - 801.4 Physical Chemistry - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.2 Inorganic Compounds
Numerical data indexing: Percentage 2.00e+00%, Percentage 2.00e+01%, Percentage 2.00e-01%, Percentage 5.33e+00%, Temperature 3.03e+02K to 3.33e+02K, Time 1.08e+04s

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

26. Quantitative detection of harmful elements in alloy steel by LIBS technique and sequential backward selection-random forest (SBS-RF)

Accession number: 20174504372826
Authors: Ruan, Fangqi (1); Qi, Juan (1); Yan, Chunhua (1); Tang, Hongsheng (1); Zhang, Tianlong (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: Zhang, Tianlong
Source title: Journal of Analytical Atomic Spectrometry
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Volume: 32
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Pages: 2194-2199
Language: English
ISSN: 02679477
E-ISSN: 13645544
CODEN: JASPE2
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: In recent years, LIBS quantitative analysis based on multivariate regression has received considerable attention, and variable selection is critical for improving accuracy of multivariate regression analysis of LIBS. In the present study, sequential backward selection combined with random forest was proposed to improve detection accuracy of sulfur and phosphorus in steel. First, LIBS spectrum line of S and P was identified by the NIST database. Second, input variables for RF calibration model were selected and optimized by SBS, and RF model parameters (ntree and mtry) were optimized by out-of-bag (OOB) estimation. Finally, optimized input variables and model parameters were employed to build an SBS-RF calibration model for quantitative analysis of P and S in steel. Results showed that the SBS-RF model provided good predictions for S (R2 = 0.9991) and P (R2 = 0.9994) compared with those provided by the univariate method, PLS model and traditional RF model. Thus, LIBS coupled with SBS-RF is an effective method for quality supervision and control of steel products. © 2017 The Royal Society of Chemistry.
Number of references: 44
Main heading: Regression analysis
Controlled terms: Steel metallurgy - Quality control - Alloy steel - Decision trees - Multivariant analysis - Principal component analysis
Uncontrolled terms: Detection accuracy - Harmful elements - Multivariate regression - Multivariate regression analysis - Quality supervision - Quantitative detection - Univariate method - Variable selection
Classification code: 531.1 Metallurgy - 545.3 Steel - 913.3 Quality Assurance and Control - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 922 Statistical Methods - 922.2 Mathematical Statistics - 961 Systems Science
DOI: 10.1039/c7ja00231a
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Funding text: This study was supported by the National Natural Science Foundation of China (No. 21375105, 21675123 and 21605123) and the Scientic Research Plan of Shaanxi Province of China (No. 2016KJXX-16).
Compendex references: YES

Database: Compendex
Data Provider: Engineering Village

27. Classification and discrimination of coal ash by laser-induced breakdown spectroscopy (LIBS) coupled with advanced chemometric methods

Accession number: 20174104259119
Authors: Zhang, Tianlong (1); Yan, Chunhua (1); Qi, Juan (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: Zhang, Tianlong(tlzhang@nwu.edu.cn)
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Abbreviated source title: J Anal At Spectrom
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Language: English
ISSN: 02679477
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CODEN: JASPE2
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: The classification and identification of coal ash contributes to recycling and reuse of metallurgical waste. This work explores the combination of the laser-induced breakdown spectroscopy (LIBS) technique and independent component analysis-wavelet neural network (ICA-WNN) for the classification analysis of coal ash. A series of coal ash samples were compressed into pellets and prepared for LIBS measurements. At first, principal component analysis (PCA) was used to identify and remove abnormal spectra in order to optimize the training set for the WNN model. And then, ICA was employed to select and optimize input variables for the WNN model. The classification of coal ash was carried out by using the WNN model with optimized model parameters (the number of hidden neurons (NHN), the number of iterations (NI), the learning rate (LR) and the momentum) and input variables optimized by ICA. Under the optimized WNN model parameters, the coal ash samples for test sets were identified and classified by using WNN and artificial neural network (ANN) models, and the WNN model shows a better classification performance. It was confirmed that the LIBS technique coupled with the WNN method is a promising approach to achieve the online analysis and process control of the coal industry. © 2017 The Royal Society of Chemistry.
Number of references: 43
Main heading: Laser induced breakdown spectroscopy
Controlled terms: Classification (of information) - Coal - Coal ash - Atomic emission spectroscopy - Neural networks - Principal component analysis - Independent component analysis - Coal industry
Uncontrolled terms: Artificial neural network models - Classification analysis - Classification and identifications - Classification of coals - Classification performance - Laserinduced breakdown spectroscopy (LIBS) - Number of hidden neurons - Wavelet neural networks
Classification code: 503 Mines and Mining, Coal - 524 Solid Fuels - 716.1 Information Theory and Signal Processing - 903.1 Information Sources and Analysis - 922.2 Mathematical Statistics - 931.1 Mechanics
DOI: 10.1039/c7ja00218a
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Funding text: The work was supported by the National Natural Science Foundation of China (No. 21375105, 21605123 and 21675123).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

28. Effect of impregnation sequence of Mo and Ni on the performance of Mo-Ni/Al2O3 catalyst in thioetherification

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Authors: Shen, Zhi-Bing (1, 2); Ke, Ming (2); Zhang, Jun-Tao (1); Liang, Sheng-Rong (1)
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Document type: Journal article (JA)
Publisher: Science Press
Abstract: Mo-Ni/Al2O3 catalysts were prepared by different impregnation sequences of Mo and Ni; the effect of impregnation sequence on the performance of Mo-Ni/Al2O3 catalysts in thioetherification was investigated. The results showed that the activity of the catalyst obtained by first impregnating Mo and then Ni (SI-mn) is close to that prepared by co-impregnation of Mo and Ni (MN); both are much more active than the catalyst obtained by first impregnating Ni and then Mo (SI-nm). For the SI-mn catalyst, Mo loaded on Al2O3 at the first stage can weaken the interaction between Ni and supporter, leading to a strong electronic effect between Ni and Mo, which can promote the formation of active phase in the presulfidation process and then enhance the catalytic performance of Mo-Ni/Al2O3 in thioetherification and selective hydrogenation of diene. Similar phenomena are observed for the MN catalyst obtained by co-impregnation, which also exhibits high activity in thioetherification. © 2017, Science Press. All right reserved.
Number of references: 32
Main heading: Impregnation
Controlled terms: Alumina - Aluminum oxide - Catalyst activity - Hydrogenation - Manganese compounds - Molybdenum - Nickel - Olefins
Uncontrolled terms: Coimpregnation - Consecutive impregnation - Electronic effects - Mn catalyst - Mo-ni/al2O3 catalyst - Performance - Selective hydrogenation - Selective hydrogenation of diene - Thioetherification -]+ catalyst
Classification code: 543.3 Molybdenum and Alloys - 548.1 Nickel - 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: Size 7.62E-02m
Funding Details: Number: 21276276, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

29. Optimal path selection approach for fuzzy reliable shortest path problem

Accession number: 20170403277118
Authors: Yang, Youlong (1); Yan, Dandan (1); Zhao, Junhang (2)
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Corresponding author: Yan, Dandan(dandanyan@stu.xidian.edu.cn)
Source title: Journal of Intelligent and Fuzzy Systems
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Pages: 197-205
Language: English
ISSN: 10641246
E-ISSN: 18758967

Document type: Journal article (JA)
Publisher: IOS Press BV
Abstract: In real-world problems, the shortest path might contain more edges which may be full of uncertainty and risk of potential data loss. In this paper, we propose a novel algorithm, solving the fuzzy reliable shortest path problem in a mixed network with various fuzzy arc lengths, for dealing with reliability and safety in the presence of uncertainty. For this purpose, it makes us try to avoid the path containing lots of edges. Here, we first present a R s path selection approach for computing the fuzzy reliable shortest path in a network with several types of fuzzy arc lengths by defining a distance function for fuzzy weight of edge using α - cut. Finally, examples are worked out to illustrate the application of the fuzzy reliable shortest path. Extensive experiments using fuzzy networks and the results of statistical tests have shown that the proposed method has an appropriate trade-off both the reliable path and the shortest path. © 2017 - IOS Press and the authors.
Number of references: 28
Main heading: Economic and social effects
Controlled terms: Fuzzy logic - Graph theory - Fuzzy sets
Uncontrolled terms: Arc length - Distance functions - Fuzzy numbers - Optimal path selection - Reliability and safeties - Shortest path - Shortest path problem - Uncertainty and risks
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 971 Social Sciences
DOI: 10.3233/JIFS-151393
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Compendex references: YES
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Data Provider: Engineering Village

30. Theoretical Analysis on the Effect of Tunnel Excavation on Building strip foundation (*Open Access*)

Accession number: 20174604404928
Authors: Tian, Xiaoyan (1, 2); Gu, Shuancheng (1); Huang, Rongbin (1)
Author affiliation: (1) School of Architecture and Civil Engineering, Xi'An University of Science and Technology, Xi'an; 710054, China; (2) Civil Engineering Department, School of Mechanical Engineering, Xi'An Shiyou University, Xi'an; 710065, China
Source title: IOP Conference Series: Materials Science and Engineering
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Article number: 012088
Language: English
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Document type: Conference article (CA)
Conference name: 2017 2nd International Seminar on Advances in Materials Science and Engineering, ISAMSE 2017
Conference date: July 28, 2017 - July 30, 2017
Conference location: Singapore, Singapore
Conference code: 131341
Publisher: IOP Publishing Ltd
Abstract: In this paper, according to the characteristics of the ground settlement troughs curves, the influence of tunnel excavation on the effect of strip foundation was studied by inverse analysis firstly. The differential equation of the synergistic effect of the strip foundation and foundation under the tunnel excavation was established by using the equilibrium condition of the micro-element physical force. Then, the conceptual definite initial parameter method was used to solve the corresponding homogeneous equation. According to the plane section assumption, combined with the basic theory of material mechanics, considering the differential characteristic of hyperbolic trigonometric function, and using matlabmathmatica software, the theoretical calculation expression of displacement and internal force which

is about the tunnel passes through the strip foundation was obtained. Finally, combined with engineering case analysis, changes of the relative position between the tunnel and the foundation, the influences of the main parameters on the foundation effect were studied. The results show that: The influence scope of the tunnel on the foundation is [-0.5 ~ 1.5] times of the foundation length, and when the tunnel center at the end of the foundation, there exists the maximum settlement. The parameters about the soil loss rate, the excavation section and the buried depth of the tunnel have great influence on the foundation effect. The change of foundation height has a great influence on its internal force. © Published under licence by IOP Publishing Ltd.
Number of references: 9
Main heading: Foundations
Controlled terms: Differential equations - Excavation - Hyperbolic functions - Tunnels - Environmental engineering - Inverse problems
Uncontrolled terms: Differential characteristic - Equilibrium conditions - Homogeneous equations - Material mechanics - Relative positions - Synergistic effect - Theoretical calculations - Trigonometric functions
Classification code: 401.2 Tunnels and Tunneling - 483.2 Foundations - 921 Mathematics - 921.2 Calculus
DOI: 10.1088/1757-899X/231/1/012088
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

31. Constructing three-way concept lattices based on apposition and subposition of formal contexts

Accession number: 20165103155410
Authors: Qian, Ting (1, 2); Wei, Ling (1); Qi, Jianjun (3)
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Corresponding author: Wei, Ling(wl@nwu.edu.cn)
Source title: Knowledge-Based Systems
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Language: English
ISSN: 09507051
CODEN: KNSYET
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Three-way concept analysis provides a new model to make three-way decisions. Its basic structure can be shown by the three-way concept lattices. Thus, how to construct three-way concept lattices is an important issue in the three-way concept analysis. This paper proposes approaches to create the three-way concept lattices of a given formal context. First, we can transform the given formal context and its complementary context into new formal contexts which are isomorphic to the given formal context and its complementary context respectively. And then, Type I-combinatorial context and Type II-combinatorial context are defined, which are apposition and subposition of these new formal contexts, respectively. Second, we prove that the concept lattice of Type I-combinatorial context is isomorphic to object-induced three-way concept lattice and the concept lattice of Type II-combinatorial context is isomorphic to attribute-induced three-way concept lattice of the given formal context. And then, the approaches of creating the three-way concept lattices are proposed based on the concept lattices of Type I-combinatorial context and Type I-combinatorial context. Finally, we give the corresponding algorithms of constructing three-way concept lattices based on the above approaches and conduct several experiments to illustrate the efficient of proposed algorithms. © 2016 Elsevier B.V.
Number of references: 38
Main heading: Information analysis
Controlled terms: Artificial intelligence - Software engineering
Uncontrolled terms: Apposition - Basic structure - Concept analysis - Concept Lattices - Formal contexts - Subposition - Three-way decision - Type II

Classification code: 723.1 Computer Programming - 723.4 Artificial Intelligence - 903.1 Information Sources and Analysis
DOI: 10.1016/j.knosys.2016.10.033
Funding Details: Number: 11071281,11371014, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 201508610023, Acronym: CSC, Sponsor: China Scholarship Council; Number: 2014JM8306, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province;
Funding text: This work is partially supported by the National Natural Science Foundation of China (grant nos. 11371014 and 11071281), the Natural Science Basic Research Plan in Shaanxi Province of China (program no. 2014JM8306) and the State Scholarship Fund of China (grant no. 201508610023).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

32. Simplified analysis about horizontal displacement of deep soil under tunnel excavation (*Open Access*)

Accession number: 20175104555075
Authors: Tian, Xiaoyan (1, 2); Gu, Shuancheng (1); Huang, Rongbin (1)
Author affiliation: (1) School of Architecture and Civil Engineering, Xi'An University of Science and Technology, Xi'an; 710054, China; (2) Civil Engineering Department, School of Mechanical Engineering, Xi'An Shiyou University, Xi'an; 710065, China
Source title: IOP Conference Series: Earth and Environmental Science
Abbreviated source title: IOP Conf. Ser. Earth Environ. Sci.
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Part number: 1 of 1
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Issue title: 2017 3rd International Conference on Energy, Environment and Materials Science, EEMS 2017
Issue date: November 28, 2017
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Article number: 012002
Language: English
ISSN: 17551307
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Document type: Conference article (CA)
Conference name: 2017 3rd International Conference on Energy, Environment and Materials Science, EEMS 2017
Conference date: July 28, 2017 - July 30, 2017
Conference location: Singapore, Singapore
Conference code: 132577
Publisher: IOP Publishing Ltd
Abstract: Most of the domestic scholars focus on the study about the law of the soil settlement caused by subway tunnel excavation, however, studies on the law of horizontal displacement are lacking. And it is difficult to obtain the horizontal displacement data of any depth in the project. At present, there are many formulas for calculating the settlement of soil layers. In terms of integral solutions of Mindlin classic elastic theory, stochastic medium theory, source-sink theory, the Peck empirical formula is relatively simple, and also has a strong applicability at home. Considering the incompressibility of rock and soil mass, based on the principle of plane strain, the calculation formula of the horizontal displacement of the soil along the cross section of the tunnel was derived by using the Peck settlement formula. The applicability of the formula is verified by comparing with the existing engineering cases, a simple and rapid analytical method for predicting the horizontal displacement is presented. © Published under licence by IOP Publishing Ltd.
Number of references: 15
Main heading: Soils
Controlled terms: Strain - Site selection - Stochastic systems - Tunnels
Uncontrolled terms: Analytical method - Calculation formula - Empirical formulas - Horizontal displacements - Integral solutions - Simplified analysis - Stochastic medium theory - Tunnel excavation
Classification code: 401.2 Tunnels and Tunneling - 483.1 Soils and Soil Mechanics - 731.1 Control Systems - 951 Materials Science - 961 Systems Science
DOI: 10.1088/1755-1315/94/1/012002

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33. Transient pressure model for horizontal wells with inclined fractures

Accession number: 20175104547702
Authors: Ren, Zongxiao (1, 2); Wu, Xiaodong (1); Qu, Zhan (2); Han, Guoqing (1); Wu, Xiaojun (1); Wang, Jinghui (1)
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Publication year: 2017
Pages: 1059-1065
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Due to the anisotropic formation, uneven distribution of geo-stress and other factors, hydraulic fracturing fissures are not vertical to horizontal wellbore. However, the current transient pressure models for fracturing horizontal wells are mainly established under the precondition of vertical fissures. To solve the actual problem, based on the Gringarten source function and coordinate rotation and translation principles, the pressure model was established for the multi-staged horizontal well with arbitrary fracture dip in this study. Through calculation, the reservoir flow process of multi-staged fractured horizontal well can be divided into four flow stages, i.e., linear flow, the first radial flow, dual radial flow and pseudo radial flow. The calculation indicates that the smaller the angle between the fracture and horizontal wellbore is, the shorter the duration of the first radial flow will be, and the earlier the pseudo radial flow will occur. Fracture penetration ratio mainly affects the early flow of fracturing horizontal well. When the fracture penetration ratio is less than a certain value, longitudinal radial flow will occur; the lower the fracture penetration ratio is, the longer the duration of longitudinal radial flow will be. For the fractured horizontal wells with uniform distribution of fissures and vertical shaft, the production among fractures will be equal in the late development period. However for the multi-staged fractured horizontal wells with inclined fissures, various fractures will correspond to different yields in the late development period due to the influence of dip angle. © 2017, Editorial Office of ACTA PETROLEI SINICA. All right reserved.
Number of references: 24
Main heading: Horizontal wells
Controlled terms: Hydraulic fracturing - Boreholes - Radial flow - Oil field equipment - Fracture
Uncontrolled terms: Anisotropic formations - Coordinate conversion - Current transients - Fractured horizontal wells - Inclined fracture - Source functions - Transient pressures - Uniform distribution
Classification code: 511.2 Oil Field Equipment - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 951 Materials Science
DOI: 10.7623/syxb201709007
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

34. Sedimentary characteristics and controlling factors of Oligocene deep-water channel-lobe in Rovuma Basin of the East Africa

Accession number: 20175104547701
Authors: Chen, Yuhang (1, 2); Yao, Genshun (2); Lü, Fuliang (2); Lu, Yintao (2); Chen, Liang (3); Tang, Pengcheng (2); Cao, Quanbin (2)
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) PetroChina Hangzhou Research Institute of Geology, Hangzhou; Zhejiang; 310023, China; (3) CNOOC Research Institute, Beijing; 100027, China
Corresponding author: Chen, Yuhang(cyh@xsyu.edu.cn)
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Publication year: 2017
Pages: 1047-1058
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: In recent years, several huge natural gas reservoirs have been discovered consecutively in Paleogene deep-water sedimentary sand bodies of deep-water regions in Rovuma Basin of the East Africa, and this basin has been a hot spot for global natural-gas exploration. However, due to the low exploration degree of Rovuma Basin and the relatively lagging research on deep-water sedimentary sand bodies, the further hydrocarbon exploration is seriously restricted. Based on cores, logging and 3D seismic data, the Oligocene sequence stratigraphic framework of the continental-slope deep-water regions in Rovuma Basin of the East Africa is established. Meanwhile, through the analysis on water channel-lobe characteristics in combination with regional geological data, the controlling factors of the rich-sand deep-water sediments such as water channel and lobe are discussed to establish the corresponding sedimentary model. The Oligocene Rovuma Basin is divided into three third -order sequences from bottom to top, i.e., SQ1, SQ2 and SQ3, and the channel-lobe sediments are developed in the low-stand system tract of each sequence. In SQ1 and SQ2 of the study area, the channel-lobe sediments are developed, while SQ3 is dominated by channel sediment. Affected by the East Africa continent uplift and global "icehouse" climate at the end of Eocene, the basin provenance supply was increased and the deltas prograded seawards, leading to the gravity flow sediments such as continental slope channel-lobe. The channel-lobe sediment is reworked by Antarctic bottom water flowing northwards, and the sand-stratum ratio of channel-lobe is increased by washing gravity flow sediment to form lateral accretion bodies and drift bodies on the north side of channel, while the late gravity flow sediment is restricted, resulting in the southward migration of channel and the southward extension of lobe. The research results can provide a certain theoretical basis for the prediction of deep-water reserving sand bodies and hydrocarbon exploration in Rovuma Basin and even the whole East African continental margin basin.
Number of references: 43
Main heading: Sediments
Controlled terms: Seismology - Hydrocarbons - Petroleum prospecting - Sedimentology - Stratigraphy - Sand - Geological surveys - Natural gas - Gravitation
Uncontrolled terms: Bottom current - Channel-lobe - Controlling factors - Rovuma Basin - Sedimentary models
Classification code: 481.1 Geology - 483 Soil Mechanics and Foundations - 483.1 Soils and Soil Mechanics - 484.1 Earthquake Measurements and Analysis - 512.1.2 Petroleum Deposits : Development Operations - 522 Gas Fuels - 804.1 Organic Compounds - 931.5 Gravitation, Relativity and String Theory
DOI: 10.7623/syxb201709006
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

35. Dependence of deformation mechanisms on layer spacing in multilayered Ti/Al composite

Accession number: 20170103208700
Authors: An, M.R. (1); Deng, Q. (1); Su, M.J. (1); Song, H.Y. (2); Li, Y.L. (1)

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Corresponding author: Deng, Q.
Source title: Materials Science and Engineering: A
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Volume: 684
Issue date: January 27, 2017
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Pages: 491-499
Language: English
ISSN: 09215093
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Molecular dynamics simulations are performed to investigate the effects of layer spacing and temperature on the deformation mechanism of Ti(0001)/Al(111) multilayered composite. The results indicate that the interface rotation driven by local stress concentration dominates the plastic deformation in the sample with smaller layer thickness at both 0.01 K and 300 K. The confined layer slip of dislocations in Al layer is observed, while basal/prismatic interface formation and the transformation of hcp-Ti to fcc-Ti are presented in Ti layer in the samples with larger thickness at 0.01 K. The results also show that the confined layer slip of dislocations and necking in Al layer is the underlying deformation mechanism in the samples with larger layer thickness at 300 K. We have also presented an in-depth discussion of relative deformation mechanisms in this work. © 2016 Elsevier B.V.
Number of references: 57
Main heading: Molecular dynamics
Uncontrolled terms: Basal/prismatic interface - Deformation mechanism - Dynamics simulation - Layer thickness - Layer-spacing - Molecular dynamic simulation - Multi-layered - Multilayered composites - Phases transformation - Prismatic interfaces
Classification code: 801.4 Physical Chemistry
Numerical data indexing: Temperature 1.00E-02K, Temperature 3.00E+02K
DOI: 10.1016/j.msea.2016.12.005
Funding Details: Number: 2016KW-049, Acronym: -, Sponsor: -; Number: 11372256,11527803,11572259, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: B07050, Acronym: -, Sponsor: Higher Education Discipline Innovation Project;
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Database: Compendex
Data Provider: Engineering Village

36. Phase transformation and microstructure evolution of the deformed Ti-30Zr-5Nb shape memory alloy

Accession number: 20170903389643
Authors: Qu, Wentao (1); Sun, Xuguang (1); Yuan, Bifei (1); Xiong, Chengyang (2); Li, Yan (2); Nie, Yongsheng (3)
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Corresponding author: Qu, Wentao(wtqu@xsyu.edu.cn)
Source title: Materials Characterization
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Pages: 81-85
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Publisher: Elsevier Inc.
Abstract: The phase transformation and microstructures of the deformed Ti-30Zr-5Nb shape memory alloy were investigated. The X-ray diffraction measurements indicated that the Ti-30Zr-5Nb alloy was composed of a single orthorhombic α''_martensite phase. The alloy exhibited one yielding behavior in the tensile test, with a critical stress of ~ 600 MPa and a tensile strain of approximately 15%. A shape memory recovery accompanied by a permanent strain was exhibited in the deformed alloys when heated at 873 K. The permanent strain increased with increasing pre-strain. The microstructure evolution of the deformed alloy was investigated by transmission electron microscopy. The results showed that the martensite reorientation occurred and the dislocations were generated during deformation. The alloy displayed a reversible martensite transformation start temperature as high as 763 K. However, no strain-induced martensite stabilization was found in the deformed alloy with different pre-strain levels, potentially because the large chemical energy of the Ti-30Zr-5Nb alloy depressed the effects of the elastic energy and the dissipative energy. © 2017 Elsevier Inc.
Number of references: 48
Main heading: Shape memory effect
Controlled terms: Binary alloys - Energy dissipation - Martensitic transformations - Tensile testing - Titanium alloys - Martensite - Microstructure - X ray diffraction - Ternary alloys - High resolution transmission electron microscopy - Niobium alloys - Zirconium alloys
Uncontrolled terms: Dissipative energy - Martensite reorientation - Martensite transformations - Micro-structure evolutions - Shape memory recovery - Start temperature - Strain-induced martensite - X-ray diffraction measurements
Classification code: 525.4 Energy Losses (industrial and residential) - 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 - 951 Materials Science
Numerical data indexing: Pressure 6.00e+08Pa, Temperature 7.63e+02K, Temperature 8.73e+02K, Percentage 1.50e+01%
DOI: 10.1016/j.matchar.2017.02.015
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

37. Simultaneous measurement of transverse pressure and temperature based on multi-core fiber cascaded with fiber bragg grating

Accession number: 20171103436791
Authors: Jiang, You-Hua (1); Fu, Hai-Wei (1); Zhang, Jin-Le (1); Jia, Zhen-An (1); Qiao, Xue-Guang (2)
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Corresponding author: Fu, Hai-Wei(hwfu@xsyu.edu.cn)
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Article number: 0106002
Language: Chinese
ISSN: 10044213
CODEN: GUXUED
Document type: Journal article (JA)
Publisher: Chinese Optical Society
Abstract: An all-fiber sensing system based on the Mach-Zehnder Interferometer (MZI) and Fiber Bragg Grating (FBG) was proposed for the measurement of transverse pressure and temperature simultaneously. The MZI was fabricated by splicing of a lateral-offset Multi-Core Fiber (MCF) with two single mode fibers, the modal interference was formed

due to the mode field mismatch among MCF and Single Mode Fibers (SMFs), which made the external pressure directly acted on the light field inside of the multi-core fiber, thus a high pressure sensitivity of interferometer can be achieved. Experimental results show that the pressure sensitivity of the MZI is 28.57 nm/(N·mm-1), and the linearity is 0.997, while FBG is not sensitive to the pressure change. Both the MZI and the FBG show a good linearity between the wavelength shift and temperature, and the sensitivity is 56.1pm/ and 11.3pm/, respectively. For a spectrometer with a resolution of 0.02 nm, the proposed sensor can reach a resolution of 7.0×10-4N/mm for pressure and of 0.03 for temperature. The transmission spectrum of the MZI and the resonance peaks of the FBG have different spectral responses to pressure and temperature changes. By using optical spectrum analyzer to monitor the wavelength shift of the transmission spectrum of the sensor, so that the dual-parameters of pressure and temperature can be measured conveniently.The proposed sensor has a simple structure a high sensitivity, it can be well applied to transverse pressure measurement.
Number of references: 18
Page count: 6
Main heading: Single mode fibers
Controlled terms: Mach-Zehnder interferometers - Fiber Bragg gratings - Parameter estimation - Optical fiber fabrication - Spectrum analyzers
Uncontrolled terms: All fiber - Fiber Mach-Zehnder interferometers - Fiber optics sensors - Multi core - Parameter measurement
Classification code: 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941.3 Optical Instruments
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Funding Details: Number: 2015cx140837, Acronym: -, Sponsor: -; Number: 14JS073, Acronym: -, Sponsor: -; Number: 61077060,61275088, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
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38. Strain effects on the energy band structure and electronic states of single-layer MoTe2, WTe2 and their heterostructures

Accession number: 20174504373712
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ISSN: 10584587
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Document type: Journal article (JA)
Publisher: Taylor and Francis Ltd.
Abstract: First-principle calculations are done to investigate the strain effects on the energy band structure and electronic states of single-layer MoTe2, WTe2 and their vertically stacked heterostructures. It is illustrated that their band gaps decrease with increasing tensile strain, but increase with compressive strain, and have a maximum value at a compressive strain of 2%. The ideal single-layer MoTe2, WTe2 and their hybrid structure are direct band-gap semiconductors, which are maintained up to a tensile strain of 3%, but change into indirect ones at a compressive strain of 2–3%. The band gap of the MoTe2/WTe2 heterostructures is substantially reduced owing to the coupling between MoTe2 and WTe2 sublayers. The band structure is type II alignment, and is advantageous to photoelectric

applications. In brief, lattice straining might induce the rearrangement of band structure, and thus could be adopted to tune the physical properties of 2D materials as well as their hybrids. © 2017 Taylor & Francis Group, LLC.
Number of references: 30
Main heading: Heterojunctions
Controlled terms: Electronic states - Tensile strain - Tellurium compounds - Energy gap
Uncontrolled terms: Compressive strain - Direct band gap semiconductors - First principle calculations - Hybrid structure - MoTe2 - Single layer - Strain effect - WTe2
Classification code: 714.2 Semiconductor Devices and Integrated Circuits - 931.1 Mechanics - 933.3 Electronic Structure of Solids
Numerical data indexing: Percentage 2.00e+00%, Percentage 3.00e+00%
DOI: 10.1080/10584587.2017.1352380
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

39. Effect of pH Value and Salinity on Rheological Properties of Carbon Nanotubes/ Wormlike Micelle Solution

Accession number: 20174404325839
Authors: Qin, Wenlong (1); Jiang, Guanfeng (1); Liang, Guoqi (1); Li, Ran (1); Yang, Jiang (1)
Author affiliation: (1) Provincial Key Laboratory of Unusual Well Stimulation, Xi'an Petroleum University, Xi'an; 710065, China
Corresponding author: Yang, Jiang(jyang@xsyu.edu.cn)
Source title: Shiyou Xuebao, Shiyou Jiagong/Acta Petrolei Sinica (Petroleum Processing Section)
Abbreviated source title: Shiyou Xuebao Shiyou Jiagong
Volume: 33
Issue: 5
Issue date: September 25, 2017
Publication year: 2017
Pages: 985-991
Language: Chinese
ISSN: 10018719
CODEN: SXSHEY
Document type: Journal article (JA)
Publisher: Science Press
Abstract: The effects of salinity and pH on rheological properties of a nano-fluid containing anionic wormlike micelle were studied by rheological measurements. The interaction mechanisms between wormlike micelle and carbon nanotube were investigated by zeta potential measurements. The results showed that a pH-responsive wormlike micelle system was formed by 3.0% sodium-methyl-N-oleoylaminoethylsalfonate (JXJ209) dissolved in 3.0% brine with potassium chloride (KCl). At the value of pH range from 7.0-10.0 and the salinity range from 3.0%-7.0%, the strong micelle network structures can be formed and the value of zero-shear viscosity of the solution can reach to 2.5-5.3 Pa·s. The dispersion stability of hydroxyl functionalized multi-walled carbon nanotubes (MWNT-OH) in surfactant solutions with JXJ209 was decreased with the increase of salinity. The decrease was more significant under the condition of acidity (pH12.0). The MWNT-OH can obviously improve the viscosity and elasticity of anionic wormlike micelle solution under the conditions of low salinity and alkaline because the MWNT-OH is more stable under the same condition. The zero-shear viscosity of the composite fluids decreased gradually with the increase of temperature and it was still more than 50 mPa·s at 70, showing a good application potential. © 2017, Editorial Office of Acta Petrolei Sinica(Petroleum Processing Section). All right reserved.
Number of references: 16
Main heading: Rheology
Controlled terms: Multiwalled carbon nanotubes (MWCN) - Potash - Potassium chloride - Yarn - Anionic surfactants - Alkalinity - Micelles
Uncontrolled terms: Dispersion stability - Functionalized multi-walled carbon nanotubes - Interaction mechanisms - Nanofluids - Rheological measurements - Salinity - Worm-like micelles - Zeta potential measurements
Classification code: 761 Nanotechnology - 801.1 Chemistry, General - 801.3 Colloid Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804.2 Inorganic Compounds - 819.4 Fiber Products - 931.1 Mechanics - 933.1 Crystalline Solids
Numerical data indexing: Percentage 3.00e+00%, Percentage 3.00e+00% to 7.00e+00%
DOI: 10.3969/j.issn.1001-8719.2017.05.022

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

40. Scheduling and routing in multi-channel allocation based on the greedy algorithm for wireless mesh network

Accession number: 20182405304935
Authors: Zhang, Weiwei (1); He, Jiafeng (2); Gao, Guowang (3); Ren, Lili (1); Shen, Xuanjing (1)
Author affiliation: (1) College of Computer Science and Technology, Jilin University Changchun Normal University, Changchun; 130032, China; (2) Troops 31693 PLA, Harbin; 150036, China; (3) College of Electronic Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Shen, Xuanjing(xjshen@jlu.edu.cn)
Source title: Proceedings of Science
Abbreviated source title: Proc. Sci.
Volume: 2017-December
Part number: 1 of 1
Issue title: Information Science and Cloud Computing, ISCC 2017
Issue date: 2017
Publication year: 2017
Language: English
E-ISSN: 18248039
Document type: Conference article (CA)
Conference name: 5th International Conference on Information Science and Cloud Computing, ISCC 2017
Conference date: December 16, 2017 - December 17, 2017
Conference location: Guangzhou, China
Conference code: 136705
Publisher: Sissa Medialab Srl
Abstract: Considering the channel dependence, this paper designs greedy algorithm in Multi-Channel Allocation joint scheduling and routing. Unlike the traditional multi-channel Wireless Mesh channel allocation, the proposed scheme considers scheduling and routing, and the network is divided into two states by network segmentation. The linear planning allocation method is used to minimize the average end-to-end delay for the maximum transmission link number for the total channel resource and routing scheduling problem for link consumption that adopt the integer linear programming method modelling, the greedy heuristic algorithm can be used. The simulation analysis shows that the algorithm of this paper can effectively improve the throughput of the network. © Copyright owned by the author(s).
Number of references: 11
Main heading: Heuristic algorithms
Controlled terms: Integer programming - Routing algorithms - Scheduling - MESH networking - Heuristic methods - Mesh generation - Wireless mesh networks (WMN)
Uncontrolled terms: Average end-to-end delays - Channel allocation - Integer linear programming methods - Multi-channel allocations - Network segmentation - Scheduling and routing - Scheduling problem - Simulation analysis
Classification code: 722 Computer Systems and Equipment - 722.3 Data Communication, Equipment and Techniques - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 723.1 Computer Programming - 723.5 Computer Applications - 912.2 Management - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.5 Optimization Techniques
Funding Details: Number: 41774081, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: -, Sponsor: Department of Science and Technology of Jilin Province; Number: 15JS095, Acronym: -, Sponsor: Department of Education, Shanxi Province;
Funding text: 1Corresponding author:Xuanjing Shen This paper is supported by National Natural Science Foundation of China (NSFC) (41774081), the Poverty Alleviation Project of Science and Technology of Department of Science and Technology of Jilin Province(Grant:20150417020CB), Major project of Education Department of Shanxi province(15JS095)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

41. Linear hexanuclear nickel complexes with rich electrochemical features and facility to reduction

Accession number: 20165103136328
Authors: Wang, Wen-Zhen (1); Zhao, Dan (1); Zhao, Meng-Jiao (1); Li, Haoyong (1); Liu, Shuang (1); Ismayilov, Rayyat H. (2, 3); Lee, Gene-Hsiang (2); Peng, Shie-Ming (2, 3)
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, 18 Dian-zi-er Road, Xi'an; Shaanxi, China; (2) Department of Chemistry, National Taiwan University, Taiwan, China; (3) Institute of Chemistry, Academia Sinica, Taiwan, China
Corresponding author: Peng, Shie-Ming(smpeng@ntu.edu.tw)
Source title: Journal of Molecular Structure
Abbreviated source title: J. Mol. Struct.
Volume: 1130
Issue date: February 15, 2017
Publication year: 2017
Pages: 748-752
Language: English
ISSN: 00222860
CODEN: JMOSB4
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Two novel linear hexanuclear nickel complexes [Ni6(μ6-dpznda)4Cl2](PF6)2 (1) and [Ni6(μ6-dpznda)4(NCS)2](PF6)2 (2) (H2dpznda = N2,N7-di(pyrazin-2-yl)-1,8-naphthyridine-2,7-diamine) were synthesized and structurally characterized. Both the two complexes consist of a linear metal chain and four supporting ligands which are helically wrapped around the metal core. The single crystal X-ray structural analysis showed that the complex 1 belonged to rhombohedral system, space group R-3 with a = b = 34.2051(8), c = 20.7751(5) Å, V = 21050.2(9) Å3 and Z = 9. Direct-current magnetic susceptibility measurements showed weak antiferromagnetic interactions with coupling parameters of g = 2.04 and J = -8.27 cm-1 for 1 and g = 2.02 and J = -12.62 cm-1 for 2, respectively (= –J12, S1 = S2 = 1). The decrease of magnetic moments at low temperature was partly attributed to ZFS. The electrochemical study on complex 1 shows rich features and facility to reduction in its cyclic voltammogram by displaying four reversible redox couples at E1/2 = +0.01, -0.29, -0.64 and -0.73 V (vs. Ag/AgCl). © 2016 Elsevier B.V.
Number of references: 27
Main heading: Metals
Controlled terms: Nickel compounds - Reduction - Synthesis (chemical) - Magnetic moments - Single crystals - Temperature - Magnetic susceptibility
Uncontrolled terms: Antiferro-magnetic interactions - Atomic chains - Electrochemical features - Electrochemical studies - Magnetic susceptibility measurements - Nickel complex - Reversible redox couples - X ray structural analysis
Classification code: 641.1 Thermodynamics - 701.2 Magnetism: Basic Concepts and Phenomena - 802.2 Chemical Reactions - 933.1 Crystalline Solids
DOI: 10.1016/j.molstruc.2016.11.006
Funding Details: Number: -, Acronym: NSC, Sponsor: National Science Council; Number: 2013JM2005, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 16JK1598, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Provincial Department of Education;
Funding text: Our gratitude would be extended to the Nature Science Foundation of Shaanxi Province , PR China (No: 2013JM2005), Scientific Research Program Funded by Shaanxi Provincial Education Department (Program No. 16JK1598), and the National Science Council of the ROC for financial support of this work. Appendix A
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

42. Thermophysical properties of nano- and microfluids with [Ni5(μ5-pppmda)4Cl2] metal string complex particles

Accession number: 20164703044374
Authors: Suleimanov, Baghir A. (1); Ismayilov, Rayyat H. (1); Abbasov, Hakim F. (1); Wang, Wen-Zhen (2); Peng, Shie-Ming (3)
Author affiliation: (1) "Oil Gas Scientific Research Project" Institute, SOCAR, Baku, Azerbaijan; (2) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; Shaanxi, China; (3) Department of Chemistry, National Taiwan University, Taipei, Tiwan, China

Corresponding author: Suleimanov, Baghir A.(Baghir.Suleymanov@socar.az)
Source title: Colloids and Surfaces A: Physicochemical and Engineering Aspects
Abbreviated source title: Colloids Surf. A Physicochem. Eng. Asp.
Volume: 513
Issue date: January 5, 2017
Publication year: 2017
Pages: 41-50
Language: English
ISSN: 09277757
E-ISSN: 18734359
CODEN: CPEAEH
Document type: Journal article (JA)
Publisher: Elsevier B.V.
Abstract: The paper presents a study and comparative analysis of microfluids and nanofluids based on aqueous glycerol solutions, by study of the thermal conductivity, rheology, interfacial tension and solution stability. Cu, Ni and Al nanoparticles were used for preparation of the nanofluids. A newly synthesized monocrystalline pentanickel (II) metal string complex [Ni5(μ5-pppmda)4Cl2] was used to form the microparticles which were compared with dispersed nickel microparticles. © 2016
Number of references: 34
Main heading: Thermodynamic properties
Controlled terms: Nanofluidics
Uncontrolled terms: Al-nanoparticles - Aqueous glycerols - Comparative analysis - Complex particles - Micro-particles - Microfluids - Monocrystalline - Solution stability
Classification code: 632.5.2 Nanofluidics - 641.1 Thermodynamics - 761 Nanotechnology
DOI: 10.1016/j.colsurfa.2016.11.026
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

43. Reconstruction of a digital core containing clay minerals based on a clustering algorithm

Accession number: 20174204272608
Authors: He, Yanlong (1, 2); Pu, Chunsheng (1, 2); Jing, Cheng (1, 2); Gu, Xiaoyu (2); Chen, Qingdong (3); Liu, Hongzhi (2); Khan, Nasir (2); Dong, Qiaoling (4)
Author affiliation: (1) School of Petroleum Engineering, Xian Shiyou University, Xi'an, Shanxi; 710065, China; (2) School of Petroleum Engineering, China University of Petroleum, Qingdao, Shandong; 266555, China; (3) CNOOC Energy Technology and Services Limited, Tianjin, Tianjin; 300457, China; (4) Daqing Oilfield Company Ltd., CNPC, Daqing, Heilongjiang; 163712, China
Source title: Physical Review E
Abbreviated source title: Phys. Rev. E
Volume: 96
Issue: 4
Issue date: October 9, 2017
Publication year: 2017
Article number: 043304
Language: English
ISSN: 24700045
E-ISSN: 24700053
Document type: Journal article (JA)
Publisher: American Physical Society
Abstract: It is difficult to obtain a core sample and information for digital core reconstruction of mature sandstone reservoirs around the world, especially for an unconsolidated sandstone reservoir. Meanwhile, reconstruction and division of clay minerals play a vital role in the reconstruction of the digital cores, although the two-dimensional data-based reconstruction methods are specifically applicable as the microstructure reservoir simulation methods for the sandstone reservoir. However, reconstruction of clay minerals is still challenging from a research viewpoint for the better reconstruction of various clay minerals in the digital cores. In the present work, the content of clay minerals was considered on the basis of two-dimensional information about the reservoir. After application of the hybrid method, and compared with the model reconstructed by the process-based method, the digital core containing clay clusters

without the labels of the clusters' number, size, and texture were the output. The statistics and geometry of the reconstruction model were similar to the reference model. In addition, the Hoshen-Kopelman algorithm was used to label various connected unclassified clay clusters in the initial model and then the number and size of clay clusters were recorded. At the same time, the K-means clustering algorithm was applied to divide the labeled, large connecting clusters into smaller clusters on the basis of difference in the clusters' characteristics. According to the clay minerals' characteristics, such as types, textures, and distributions, the digital core containing clay minerals was reconstructed by means of the clustering algorithm and the clay clusters' structure judgment. The distributions and textures of the clay minerals of the digital core were reasonable. The clustering algorithm improved the digital core reconstruction and provided an alternative method for the simulation of different clay minerals in the digital cores. © 2017 American Physical Society.
Number of references: 69
Main heading: Sandstone
Controlled terms: Clay minerals - Textures
Uncontrolled terms: Hybrid method - Number and size - Process-based - Reconstruction method - Reference modeling - Reservoir simulation methods - Sandstone reservoirs - Unconsolidated sandstone reservoirs
Classification code: 482.2 Minerals
DOI: 10.1103/PhysRevE.96.043304
Funding Details: Number: 51074029,51104173,51474034, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The authors express their appreciation to the National Natural Science Foundation of China (Grants No. 51074029, No. 51104173, and No. 51474034) for the financial support of this work.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

44. Routing analysis of protocol AODV in wireless mesh network

Accession number: 20182405304981
Authors: Zhang, Weiwei (1); He, Jiafeng (2); Gao, Guowang (3); Ren, Lili (1); Shen, Xuanjing (1)
Author affiliation: (1) College of Computer Science and Technology, Jilin University, Changchun Normal University, Changchun; 130032, China; (2) Troops 31693 PLA, Harbin; 150036, China; (3) College of Electronic Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Shen, Xuanjing(xjshen@jlu.edu.cn)
Source title: Proceedings of Science
Abbreviated source title: Proc. Sci.
Volume: 2017-December
Part number: 1 of 1
Issue title: Information Science and Cloud Computing, ISCC 2017
Issue date: 2017
Publication year: 2017
Language: English
E-ISSN: 18248039
Document type: Conference article (CA)
Conference name: 5th International Conference on Information Science and Cloud Computing, ISCC 2017
Conference date: December 16, 2017 - December 17, 2017
Conference location: Guangzhou, China
Conference code: 136705
Publisher: Sissa Medialab Srl
Abstract: According to the characteristic in a wireless Mesh network system structure, this paper issues the method and principle and optimize the performance based on the AODV . Using the simulation platform NS2, this paper compares and analyzes the transmission delay, average send success speed and the transmission delay. This paper makes full of use data from MAC to conduct hierarchical design, fully considers all kinds all impact factors and sets the routing criteria in order to improve the routing performance. © Copyright owned by the author(s).
Number of references: 7
Main heading: Simulation platform
Controlled terms: MESH networking - Routing protocols - Wireless mesh networks (WMN) - Mesh generation
Uncontrolled terms: Analysis of protocols - Hierarchical design - Impact factor - Network systems - Performance based - Routing criteria - Routing performance - Transmission delays

Classification code: 722 Computer Systems and Equipment - 722.3 Data Communication, Equipment and Techniques - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
Funding Details: Number: 41774081, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: -, Sponsor: Department of Science and Technology of Jilin Province; Number: 15JS095, Acronym: -, Sponsor: Department of Education, Shanxi Province;
Funding text: 1Corresponding author:Xuanjing Shen This paper is supported by National Natural Science Foundation of China (NSFC) (41774081), the Poverty Alleviation Project of Science and Technology of Department of Science and Technology of Jilin Province(Grant:20150417020CB), Major project of Education Department of Shanxi province(15JS095)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

45. All-fiber dissipative soliton laser based on single-walled carbon nanotube absorber in normal dispersion regime

Accession number: 20171103448305
Authors: Duan, L.N. (1); Li, L. (2); Wang, Y.G. (2); Wang, X. (2)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, 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
Corresponding author: Wang, Y.G.(chinawygxjw@opt.ac.cn)
Source title: Optik
Abbreviated source title: Optik
Volume: 137
Issue date: May 1, 2017
Publication year: 2017
Pages: 308-312
Language: English
ISSN: 00304026
Document type: Journal article (JA)
Publisher: Elsevier GmbH
Abstract: We demonstrat a compact Yb-doped fiber (YDF) laser based on the single-walled carbon nanotube (SWCNT) wall-paper absorber. It can operate at dissipative solitons mode-locking state stably for more than 24 h at the room temperature, and there is no significant degradation of the laser spectra, pulse train, and output power. The spectral bandwidth of the mode-locked pulses varies from 0.35 to 0.64 nm depending on the level of the pump power. The amplified pulses possess single pulse energy of 3.87 nJ and pulse duration of 421.9 ps. The repetition rate is ~23.83 MHz. The largest output power reaches 92.3 mW. © 2017 Elsevier GmbH
Number of references: 37
Main heading: Locks (fasteners)
Controlled terms: Fiber lasers - Yarn - Mode-locked fiber lasers - Optical pumping - Solitons - Ytterbium compounds - Laser mode locking - Pulse repetition rate - Single-walled carbon nanotubes (SWCN)
Uncontrolled terms: Amplified pulse - Dissipative solitons - Mode-locked pulse - Normal dispersion - Pulse durations - Single pulse energy - Singlewalled carbon nanotube (SWCNT) - Spectral bandwidth
Classification code: 744.1 Lasers, General - 744.4 Solid State Lasers - 761 Nanotechnology - 819.4 Fiber Products - 933.1 Crystalline Solids
DOI: 10.1016/j.ijleo.2017.03.028
Funding Details: Number: 61378024, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: CAS, Sponsor: Chinese Academy of Sciences;
Funding text: This work was supported by the "Hundreds of Talents Programs" of the Chinese Academy of Sciences and by the National Natural Science Foundation of China under Grants 61378024.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

46. A simulation evaluation method for testing casing and tubing connections based on ISO 13679 test procedures

Accession number: 20175104556659
Authors: Zhang, Jianbing (1); Bai, Song (2); Li, Shuanggui (3); Chen, Xiaohua (3)
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) Shaanxi Institute of Technology, Xi'an; Shaanxi; 710300, China; (3) Engineering Technology Institute of Sinopec Northwest Oilfield Company, Urumqi; Xinjiang; 830011, China
Source title: Natural Gas Industry
Abbreviated source title: Natur. Gas Ind.
Volume: 37
Issue: 10
Issue date: October 25, 2017
Publication year: 2017
Pages: 66-72
Language: Chinese
ISSN: 10000976
CODEN: TIGOE3
Document type: Journal article (JA)
Publisher: Natural Gas Industry Journal Agency
Abstract: It is time-consuming and costly to evaluate tubing and casing connections by conducting a full-scale test in accordance with ISO 13679:2002-Petroleum and natural gas industries-Procedures for testing casing and tubing connections. Therefore, we explored a method through computer simulation by which an efficient evaluation was made on the gas-tight seal connections of casting and tubing in line with the test regulations of the ISO 13679. An indoor test was thus conducted on the economical J55-grade gas-tight seal connections with Ø73.0 mm × 5.51 mm. First, test procedures and methods for evaluating connections specified in the ISO 13679 were adopted, and the ABAQUS finite element analysis software was applied. Then, considering the geometric nonlinearity, material nonlinearity and boundary condition nonlinearity in the finite element analysis process, the material constitutive relation of elastoplastic bilinear isotropic model and hyperelastic Mooney-Rivlin model was applied to make simulation calculation of the working conditions of making up of connections and of level-II -Series B test/Test Load Envelope of ISO 13679. And, the key parameters were obtained including contact displacement, maximum contact pressure, seal-integrated intensity and equivalent stress of the connections under different working conditions. On this basis, an effective evaluation was made on structures and sealing properties of connections under different working conditions. The simulation results agreed so well with the full-scale test results with an error less than 7.3%. Finally, the above parameters were applied in simulated evaluation of connections' structures and sealing performances under different working conditions. In conclusion, this simulation evaluation method based upon the test content and procedures of ISO 13679 is more feasible and economical than a full-scale test in the evaluation of gas-tight connections.
Number of references: 20
Main heading: ABAQUS
Controlled terms: Gas industry - Gases - Elastoplasticity - Software testing - Finite element method - Tubing - Seals
Uncontrolled terms: Casing - Elastic-plastic contact - ISO 13679 - Premium threads - Simulation evaluation
Classification code: 522 Gas Fuels - 619.1 Pipe, Piping and Pipelines - 619.1.1 Pipe Accessories - 723.5 Computer Applications - 921 Mathematics - 921.6 Numerical Methods
Numerical data indexing: Percentage 7.30e+00%, Size 5.51e-03m
DOI: 10.3787/j.issn.1000-0976.2017.10.009
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

47. Compact vector fiber-optic displacement sensor using an asymmetric Mach–Zehnder interferometer

Accession number: 20172003678336
Authors: Yin, Xunli (1); Zhou, Ruixiang (2)
Author affiliation: (1) Faculty of Science, Xi'an Shiyou University, No. 18, Dianzi 2nd Road, Yanta District, Xi'an; 710065, China; (2) School of Physics, Northwest University, No. 229, Taibai North Road, Beilin District, Xi'an; 710069, China
Corresponding author: Yin, Xunli(lixunyin@163.com)
Source title: Optics Communications
Abbreviated source title: Opt Commun

Volume: 400
Issue date: October 1, 2017
Publication year: 2017
Pages: 74-78
Language: English
ISSN: 00304018
CODEN: OPCOB8
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: We demonstrate a fiber-optic Mach–Zehnder interferometer for vector displacement measurement. The sensor is a compact structure in which a short length of thin-core fiber (TCF) is sandwiched between two single mode fibers (SMFs) by core-aligned fusion splicing. The TCF stub contains a refractive index modification (RIM) region which serves as a mode-coupling window over the interface between the TCF's core and cladding. We employed femtosecond laser-based direct inscription to achieve precise position of the RIM over a chosen length close to the core–cladding interface of the TCF and ensure large and stable refractive index increase in the inscribed region. Strong coupling between core and cladding modes is generated at the RIM, resulting in a well-defined interference spectrum in transmission. The transmission spectrum exhibits strong bending dependence and direction discrimination due to the azimuthally asymmetrical distribution of the RIM over the fiber's cross section. We achieved vector displacement measurement by wavelength interrogation of the interference spectrum. In the frequency spectrum, the intensity of a cladding mode resonance presents linear response to displacement as well as temperature independence. © 2017 Elsevier B.V.
Number of references: 17
Main heading: Displacement measurement
Controlled terms: Fiber optics - Single mode fibers - Vectors - Interferometers - Refractive index
Uncontrolled terms: Asymmetrical distributions - Cladding mode resonances - Fiber optic displacement sensor - Fiber optics sensors - Refractive index increase - Refractive index modulation - Refractive-index modification - Vector displacement
Classification code: 741.1 Light/Optics - 741.1.2 Fiber Optics - 921.1 Algebra - 941.3 Optical Instruments - 943.2 Mechanical Variables Measurements
DOI: 10.1016/j.optcom.2017.04.069
Funding Details: Number: 338020009, Acronym: -, Sponsor: -; Number: S2016YFJQ0899, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 61605159, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work was supported by the National Natural Science Foundation of China (No. 61605159), Natural Science Foundation of Shaanxi Province (No. S2016YFJQ0899), Natural Science Foundation of Northwest University (No. 338020009).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

48. Typical curves and their analysis method for well test data without radial flow response

Accession number: 20174304303639
Authors: Lin, Jia'en (1, 2); He, Hui (2, 3); Han, Zhangying (2, 3)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) MOE Engineering Research Center of Development & Management of Western Low & Ultra-Low Permeability Oilfield, Xi'an; Shaanxi; 710065, China; (3) Xi'an Sinoline Petroleum Science Technology Company Limited, Xi'an; Shaanxi; 710065, China
Corresponding author: Lin, Jia'en(jn5000@126.com)
Source title: Shiyou Xuebao/Acta Petrolei Sinica
Abbreviated source title: Shiyou Xuebao
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Issue: 5
Issue date: May 1, 2017
Publication year: 2017
Pages: 562-569
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)

Publisher: Science Press
Abstract: The radial flow response does not exhibit after a long time testing for the low and ultra-low permeability reservoirs. In this case, it is difficult to determine the formation parameters effectively by using the conventional Gringarten-Bourdet's typical curve method. Based on a short-time asymptotic solution of homogeneous infinite well testing model, the relation between the dimensionless time and bottom pressure and the combination parameters of dimensionless wellbore storage coefficient and skin factor (ζ function) was obtained. A new type of early-time transient well testing interpretation type curve was constructed by using the dimensionless bottom pressure and ζ function, which can reduce the non unique solution problem of early-time transient well testing data analysis. The homogeneous Darcy flow model and homogeneous non-Darcy flow model considering the threshold pressure gradient were established to construct the new type curves. The characteristics and asymptotics of the above two kinds of type curves were also discussed. The results showed that compared with the conventional type curves the two new kinds of type curves were more sensitive to the parameter changes in homogenous model, which would effectively reduce the non unique solution problem of the well testing interpretation. © 2017, Editorial Office of ACTA PETROLEI SINICA. All right reserved.
Number of references: 40
Main heading: Radial flow
Controlled terms: Petroleum reservoir engineering - Low permeability reservoirs - Pressure gradient - Well testing - Digital storage
Uncontrolled terms: Formation parameter - Homogenous models - Non-unique solutions - Threshold pressure gradient - Type curves - Ultra-low permeability reservoirs - Well bore storage - Well testing interpretation
Classification code: 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 722.1 Data Storage, Equipment and Techniques - 944.4 Pressure Measurements
DOI: 10.7623/syxb201705009
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

49. Influence of surface microstructure and chemical compositions on grooving corrosion of carbon steel welded joints

Accession number: 20181004883154
Authors: Lu, Yongxin (1); Li, Xiao (1); Xu, Lianyong (1, 2); Jing, Hongyang (1); Han, Yongdian (1)
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Source title: Materialpruefung/Materials Testing
Abbreviated source title: Materialpruefung
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Issue date: November 2017
Publication year: 2017
Pages: 957-964
Language: English
ISSN: 00255300
CODEN: MTPRAJ
Document type: Journal article (JA)
Publisher: Carl Hanser Verlag
Abstract: Corrosion behavior of a welded joint is complicated and can be strongly dependent on its local chemical composition and microstructure of the surface. To gain a thorough insight into the grooving corrosion behavior of welded joint, it is necessary to understand the corrosion mechanism of different regions of the welded joint. In this study, the influence of the lattice constant on the electron work function (EWF) and corrosion rate of base metal and two weld metals was investigated using a constant potential polarization approach and a scanning Kelvin probe (SKP). Experimental results showed that surface EWF decreased with increasing lattice constant, whereas the corrosion rate increased with an increase in lattice constant. At the same time, it was theoretically demonstrated that the lattice constant can affect the local EWF fluctuation of a welded joint. The fluctuation further leads to the corrosion rate difference of the different regions of the welded joint. So, the lattice constant change in the surface structure is a possible reason for the average grooving susceptibility coefficient difference of two kinds of welded joint. Besides, the alloying elements distribution of two kinds of welded joint zones should be a main reason for the average grooving

susceptibility coefficient difference of joints verified by the EPMA measurements and the quantitative calculatinon of the contents of Cu, Ni and Si in the joints. © Carl Hanser Verlag, München.
Number of references: 49
Main heading: Welds
Controlled terms: Microstructure - Carbon steel - Corrosion rate - Corrosive effects - Alloying elements - Steel corrosion - Alloying - Lattice constants - Surface structure - Welding
Uncontrolled terms: Alloying compositions - Chemical compositions - Corrosion mechanisms - Electron work functions - Elements distribution - Grooving Corrosion - Scanning Kelvin probes - Surface microstructures
Classification code: 531.1 Metallurgy - 538.2 Welding - 539.1 Metals Corrosion - 545.3 Steel - 931.2 Physical Properties of Gases, Liquids and Solids - 933.1.1 Crystal Lattice - 951 Materials Science
DOI: 10.3139/120.111096
Funding Details: Number: 2014JM2-5068, Acronym: -, Sponsor: -; Number: cxsf2014-12, Acronym: -, Sponsor: -; Number: 51575382, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 14JK1568, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: The authors wish to acknowledge the fi nancial support provided by the project of the National Natural Science Foundation of China (Grant No.: 51575382), Marine Economic Innovation and Development of Regional Demonstration Projects of China (Grant No.: cxsf2014-12), Basic Research Plan of Shaanxi Natural Science (Grant No.: 2014JM2-5068) and Research Plan of Education Department of Shaanxi Province (Grant No.: 14JK1568).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

50. Prediction of shear wave velocity in shale reservoir based on logging data and machine learning

Accession number: 20181905166687
Authors: Weijun, Ni (1, 2); Qi, Li (1, 2); Tao, Feng (3)
Author affiliation: (1) Key Laboratory of Petroleum Engineering of Ministry of Education, China University of Petroleum (Beijing), Beijing, China; (2) College of Petroleum Engineering, Xi'an Shiyou University, China; (3) Gas Plant 5, Changqing Oilfield Company, Xi'an, China
Source title: 2017 2nd International Conference on Knowledge Engineering and Applications, ICKEA 2017
Abbreviated source title: Int. Conf. Knowl. Eng. Appl., ICKEA
Volume: 2017-January
Part number: 1 of 1
Issue title: 2017 2nd International Conference on Knowledge Engineering and Applications, ICKEA 2017
Issue date: December 7, 2017
Publication year: 2017
Pages: 231-234
Language: English
ISBN-13: 9781538621509
Document type: Conference article (CA)
Conference name: 2nd International Conference on Knowledge Engineering and Applications, ICKEA 2017
Conference date: October 21, 2017 - October 23, 2017
Conference location: London, United kingdom
Conference code: 133656
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In order to solve the problem of lacking shear wave velocity information in oil and gas field, based on conventional logging data, a support vector machine(SVM) model is used to map the relationship between shear wave velocity and natural gamma, acoustic time difference and resistivity of shale, and then a machine learning method for shear wave velocity prediction is proposed. The model was trained and tested by 11500 sample data of Weiyuan block in Sichuan basin, and the accuracy of prediction of the test set was 97.2 percent. © 2017 IEEE.
Number of references: 11
Main heading: Support vector machines
Controlled terms: Gas industry - Forecasting - Shale oil - Shear flow - Shear waves - Acoustic wave velocity - Acoustic logging - Wave propagation
Uncontrolled terms: Conventional logging - Logging data - Machine learning methods - Oil and gas fields - Sample data - Shear wave velocity - Sichuan Basin - Time-differences

Classification code: 522 Gas Fuels - 523 Liquid Fuels - 631.1 Fluid Flow, General - 723 Computer Software, Data Handling and Applications - 751.1 Acoustic Waves - 751.2 Acoustic Properties of Materials - 931.1 Mechanics - 941.2 Acoustic Variables Measurements
Numerical data indexing: Percentage 9.72e+01%
DOI: 10.1109/ICKEA.2017.8169935
Funding Details: Number: 15JK1567,16JK1613, Acronym: -, Sponsor: -; Number: 2014K05-02, Acronym: -, Sponsor: -; Number: 51574194, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2010QN011,2016BS09, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: National Science Foundation of China (51574194) , Project of Special Science Study of Shaanxi Education Department(16JK1613, 15JK1567) ,Project of science and technology industry of Shaanxi Province (2014K05-02), Youth Science and Technology Innovation Funded by xi' an shiyou university(2010QN011, 2016BS09).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

51. A multiple-valued logic approach for multigranulation rough set model

Accession number: 20170203239765
Authors: She, Yanhong (1, 2); He, Xiaoli (2); Shi, Huixian (3); Qian, Yuhua (1)
Author affiliation: (1) School of Computer and Information Technology, Shanxi University, Taiyuan; 030006, China; (2) College of Science, Xi'an Shiyou University, Xi'an; 710065, China; (3) College of Mathematics and Information Sciences, Shaanxi Normal University, Xi'an; 710062, China
Corresponding author: Shi, Huixian(rubyshi@163.com)
Source title: International Journal of Approximate Reasoning
Abbreviated source title: Int J Approximate Reasoning
Volume: 82
Issue date: March 1, 2017
Publication year: 2017
Pages: 270-284
Language: English
ISSN: 0888613X
CODEN: IJARE4
Document type: Journal article (JA)
Publisher: Elsevier Inc.
Abstract: Rough sets have often been studied under a three-valued logic framework. In this paper, we attempt to extend the previous study in two ways. Firstly, we extend the previous study from single-granulation to multigranulation. Secondly, we study multigranulation rough set theory from the viewpoint of three-way decision. More precisely, we embody the idea of three-way decision theory in the definition of multigranulation rough set theory. This leads to an axiomatic definition of decision-oriented aggregation operators on 3={0,12,1}, which are quite different from those conjunctions proposed so far. Moreover, considering that a multigranulation rough set also divides the universe into five disjoint subsets, we present a five-valued semantics for multigranulation rough set model, and a kind of non-deterministic matrices is thus given. © 2016 Elsevier Inc.
Number of references: 34
Main heading: Rough set theory
Controlled terms: Computer circuits - Decision theory - Many valued logics - Mathematical operators - Semantics
Uncontrolled terms: Axiomatic definitions - Five-valued logic - Multi-granulation rough sets - Multigranulation rough set models - Multiple valued logic - Oriented aggregation - Three-valued logic - Three-way decision
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 721.3 Computer Circuits - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 961 Systems Science
DOI: 10.1016/j.ijar.2016.12.006
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

52. Effective method and technical measures to improve oil recovery in late stage of oilfield water injection

Accession number: 20172503804732

Authors: Li, Yong-Ai (1); Song, Xiao-Feng (2); Li, Chen (1, 3); Zhou, Yu-Meng (1)
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Corresponding author: Li, Yong-Ai
Source title: Agro Food Industry Hi-Tech
Abbreviated source title: Agro Food Ind. Hi-Tech
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Pages: 486-490
Language: English
ISSN: 17226996
E-ISSN: 20354606
Document type: Journal article (JA)
Publisher: TeknoScienze, Viale Brianza,22, Milano, 20127, Italy
Abstract: The economic development is inseparable from the oil, people for the consumption of oil are also rising, and the volatility of international oil price is large. In order to effectively improve the amount of crude oil extraction, many countries have done a lot of research in the field of oil recovery. In this paper, through the analysis of the relevant concepts of oil recovery in the later stage of oil filling, a variety of ways to improve oil recovery were proposed, and the methods were compared and the microbial oil recovery technology was analyzed and studied in detail, which provided a powerful reference for the study of enhancing oil recovery in the later period of oilfield water injection.
Number of references: 15
Main heading: Enhanced recovery
Controlled terms: Crude oil - Water injection - Oil well flooding
Uncontrolled terms: Crude oil extraction - Development stages - Economic development - Enhanced oil recovery - Improve oil recovery - Microbial oil - Oil recoveries - Technical measures
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 612.1 Internal Combustion Engines, General
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

53. Time-domain greedy heuristic approximation algorithm for multi-channel assignment in wireless mesh network

Accession number: 20183105616360
Authors: Zhang, Wei-Wei (1, 2); He, Jia-Feng (3); Gao, Guo-Wang (4); Ren, Li-Li (2); Shen, Xuan-Jing (1)
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Corresponding author: Shen, Xuan-Jing
Source title: Proceedings - 2017 International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery, CyberC 2017
Abbreviated source title: Proc. - Int. Conf. Cyber-Enabled Distrib. Comput. Knowl. Discov., CyberC
Volume: 2018-January
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Issue title: Proceedings - 2017 International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery, CyberC 2017
Issue date: July 1, 2017
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ISBN-13: 9781538622094
Document type: Conference article (CA)
Conference name: 9th International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery, CyberC 2017
Conference date: October 12, 2017 - October 14, 2017

Conference location: Nanjing, China
Conference code: 134224
Sponsor: IEEE Communication Society; Jiangsu Computer Society; Nanjing University of Posts and Telecommunications; Tech Mahindra; Teradata
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: A wireless Mesh network is a multi-radio network with the uncertainty of node heterogeneity. This paper proposed a multi-channel allocation algorithm based on Time-Domain Greedy heuristic approximation algorithm. The main idea of this algorithm is to make use of the characteristics of different channels to work at the same time, withoutinterference withanother channel. It considers the different interfaces in the geographically distributed channels. The channel assignmentallows time slot to be allocated in parallel. This not only can improve the overall throughput of the whole network, but also can reduce the other overhead that caused by the time of channel reallocation and channel changes. The simulation results show that the algorithm is improved on the basis of the original, and achieves the desired effect. © 2017 IEEE.
Number of references: 15
Main heading: Mesh generation
Controlled terms: Approximation algorithms - MESH networking - Wireless mesh networks (WMN)
Uncontrolled terms: Channel change - Channel re-allocation - Distributed channels - Greedy heuristics - Key words - Multi channel - Multi-channel allocations - Multi-radio
Classification code: 722 Computer Systems and Equipment - 722.3 Data Communication, Equipment and Techniques - 722.4 Digital Computers and Systems - 723.5 Computer Applications - 921 Mathematics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI: 10.1109/CyberC.2017.98
Funding Details: Number: 41774081, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: -, Sponsor: Department of Science and Technology of Jilin Province; Number: 15JS095, Acronym: -, Sponsor: Department of Education, Shanxi Province;
Funding text: ACKNOWLEDGEMENTS This paper is supported by National Natural Science Foundation of China (NSFC) (41774081),the Poverty Alleviation Project of Science and Technology of Department of Science and Technology of Jilin Province(Grant:20150417020CB), Major project of Education Department of Shanxi province (15JS095).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

54. Temperature dependency of cladding-etched fiber Bragg grating surrounded with liquid

Accession number: 20170103212427
Authors: Liu, Yinggang (1); Zhang, Wei (2); Fu, Haiwei (1); Jia, Zhenan (1); Ma, Chengju (1)
Author affiliation: (1) Ministry of Education Key Laboratory on Photoelectric Oil-Gas Logging and Detecting, Xi'an Shiyou University, Xi'an; 710065, China; (2) School of Environmental and Municipal Engineering, Xi'an University of Architecture and Technology, Xi'an; 710055, China
Corresponding author: Liu, Yinggang(ygliu@xsyu.edu.cn)
Source title: Optik
Abbreviated source title: Optik
Volume: 132
Issue date: March 1, 2017
Publication year: 2017
Pages: 401-406
Language: English
ISSN: 00304026
Document type: Journal article (JA)
Publisher: Elsevier GmbH
Abstract: Through packaging a cladding-etched fiber Bragg grating (FBG) with different liquid, we investigate the temperature dependency of etched FBG surrounded with liquid. Research results indicate that, for the etched FBG with diameter of 11.8 μm and the employed liquid with refractive index of 1.456, the Bragg wavelength and corresponding peak power are changing with the variation of ambient temperature nonlinearly. In different temperature ranges, the Bragg wavelength can shift to opposite directions with different temperature coefficient. All the characteristics are different from the temperature dependency of ordinary non-etched FBG and the etched FBG surrounded with distilled water. These characteristics of cladding-etched FBG depend on not only the refractive index and the thermo-optic coefficient of ambient liquid but also the remainder thickness of fiber-cladding. While all the factors are designed reasonably, the characteristics of ordinary FBG can be changed in accordance with the requirement, which can provide

guides for the applications of etched FBG in temperature compensation, gas sensing, thermo-optic switches and other functional applications. © 2016 Elsevier GmbH
Number of references: 17
Main heading: Liquids
Controlled terms: Refractive index - Temperature - Cladding (coating) - Fiber Bragg gratings
Uncontrolled terms: Etched fiber bragg grating - Fiber optics sensors - Functional applications - Temperature coefficient - Temperature compensation - Temperature dependencies - Thermo-optic coefficients - Thermooptic effects
Classification code: 641.1 Thermodynamics - 741.1 Light/Optics
DOI: 10.1016/j.ijleo.2016.12.070
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

55. Effect of Rhenium Addition on Isothermal Oxidation Behavior of a Nickel-base Single Crystal Superalloy

Accession number: 20174704440856
Authors: Chang, Jianxiu (1); Wang, Dong (2); Dong, Jiasheng (2); Wang, Di (2); Wu, Hanchang (3); Zhang, Gong (2); Lou, Langhong (2)
Author affiliation: (1) College of Materials Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Institute of Metal Research, Chinese Academy of Sciences, Shenyang; 110016, China; (3) Guiyang AECC Power Investment Casting Ltd. Co., Guiyang; 550014, China
Corresponding author: Wang, Dong(dwang@imr.ac.cn)
Source title: Cailiao Yanjiu Xuebao/Chinese Journal of Materials Research
Abbreviated source title: Cailiao Yanjiu Xuebao
Volume: 31
Issue: 9
Issue date: September 25, 2017
Publication year: 2017
Pages: 695-702
Language: Chinese
ISSN: 10053093
CODEN: CYXUEV
Document type: Journal article (JA)
Publisher: Chinese Journal of Materials Research
Abstract: Effect of rhenium (Re) addition on isothermal oxidation behavior of a nickel-base single crystal superalloy was investigated by means of intermittent measurement of weight change as well as scanning electron microscope (SEM) and X-ray diffractometer (XRD). It was shown that, a scale composed of a (Cr, Ti)-enriched outer oxide layer, an inner Al2O3 layer and an inner TiN layer was formed for both the Re-containing and Re-free alloys, however, the Al2O3 layer was much more complete and the amount of TiN was much less on the Re-containing alloy rather than those on the Re-free alloy. Re was found to lower the oxidation rate of the alloy and improve the stability of the entire oxide scale during longterm oxidation by increasing the activity of Cr and thus increasing the content of Cr2O3 in the scale. Enhancement of Cr2O3 formation may then accelerate the selective oxidation of Al and thus promote the formation of a continuous Al2O3 layer beneath the outer oxide scale, as a result, which inhibited the formation of the inner nitride. © All right reserved.
Number of references: 26
Main heading: Thermooxidation
Controlled terms: Single crystals - Alumina - Aluminum oxide - Scale (deposits) - Titanium oxides - Nickel alloys - Superalloys - Isotherms - Nickel - Oxidation resistance - Scanning electron microscopy
Uncontrolled terms: Intermittent measurements - Isothermal oxidations - Metallic material - Nickel base single crystal superalloy - Oxidation rates - Rheniums (Re) - Selective oxidation - X ray diffractometers
Classification code: 531 Metallurgy and Metallography - 539.1 Metals Corrosion - 548.1 Nickel - 548.2 Nickel Alloys - 802.2 Chemical Reactions - 804.2 Inorganic Compounds - 933.1 Crystalline Solids
DOI: 10.11901/1005.3093.2016.575
Funding Details: Number: 2016YFB0701403, Acronym: -, Sponsor: -; Number: 51631008, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;

Funding text: Correspondent: WANG Dong, Tel: (024)23748882, E-mail: dwang@imr.ac.cn Supported by National Natural Science Foundation of China (No. 51631008) and National Key Research and Devel-opment Program of China (No. 2016YFB0701403) Manuscript received 2016-09-30; in revised form 2016-11-30
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

56. Martensitic transformations and the shape memory effect in Ti-Zr-Nb-Al high-temperature shape memory alloys

Accession number: 20164302939787
Authors: Zhang, Fei (1, 2); Yu, Zhiguo (1, 2); Xiong, Chengyang (1, 2); Qu, Wentao (3); Yuan, Bifei (3); Wang, Zhenguo (1, 2); Li, Yan (1, 2)
Author affiliation: (1) School of Materials Science and Engineering, Beihang University, Beijing; 100191, China; (2) Key Laboratory of Aerospace Materials and Performance (Ministry of Education), Beihang University, Beijing; 100191, China; (3) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Li, Yan(liyan@buaa.edu.cn)
Source title: Materials Science and Engineering: A
Abbreviated source title: Mater. Sci. Eng. A
Volume: 679
Issue date: January 2, 2017
Publication year: 2017
Pages: 14-19
Language: English
ISSN: 09215093
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: The microstructures, phase transformations, mechanical properties and shape memory effect of Ti-20Zr-10Nb-xAl (x=1, 2, 3, 4 at%) alloys were investigated. The X-ray diffraction results show that the alloys are composed of a single martensitic α''_phase and that the corresponding unit cell volume decreases with increasing Al content. The reverse martensitic transformation start temperature (As) of the Ti-20Zr-10Nb-Al alloy is 534 K and decreases with increasing Al content. The addition of Al results in solid solution strengthening and grain refinement strengthening, thus improving the mechanical properties and the shape memory effect of the Ti-20Zr-10 Nb-xAl alloys. The Ti-20Zr-10Nb-3Al alloy shows the greatest shape memory strain (3.2%) and the largest tensile strain (17.6%) as well as a very high tensile strength (886 MPa). © 2016 Elsevier B.V.
Number of references: 35
Main heading: Microstructure
Controlled terms: Aluminum alloys - Binary alloys - Grain refinement - High strength alloys - Martensitic transformations - Niobium alloys - Shape memory effect - Tensile strain - Tensile strength - Titanium alloys - X ray diffraction - Zirconium alloys
Uncontrolled terms: Al content - High-temperature shape memory alloys - Martensitics - Phases transformation - Shape-memory - Shape-memory effect - Ti-zr - Transformations start temperatures - Unit-cell volume - X- ray diffractions
Classification code: 531.1 Metallurgy - 531.2 Metallography - 541.2 Aluminum Alloys - 542.3 Titanium and Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Numerical data indexing: Percentage 1.76e+01%, Percentage 3.20e+00%
DOI: 10.1016/j.msea.2016.10.023
Funding Details: Number: 51371016, Acronym: -, 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: The authors acknowledge funding from 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

57. Molecular dynamics study of deformation behavior of crystalline Cu/amorphous Cu50Zr50 nanolaminates

Accession number: 20171803620515
Authors: Song, H.Y. (1, 2, 3); Xu, J.J. (1); Zhang, Y.G. (1); Li, S. (2); Wang, D.H. (2); Li, Y.L. (3)
Author affiliation: (1) School of Science, Xi'an Institute of Posts and Telecommunications, Xi'an; 710121, China; (2) College of Materials Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (3) School of Aeronautics, Northwestern Polytechnical University, Xi'an; 710072, China
Corresponding author: Song, H.Y.(gsfshy@sohu.com)
Source title: Materials and Design
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Volume: 127
Issue date: August 5, 2017
Publication year: 2017
Pages: 173-182
Language: English
ISSN: 02641275
E-ISSN: 18734197
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Crystalline/amorphous (C/A) metallic nanolaminates have been increasingly studied due to its excellent mechanical behaviors. Here, the effects of layer thickness and sample size on the deformation behavior of C/A Cu/CuZr nanolaminates under tension loading are investigated using molecular dynamics simulation method. For nanolaminates with equal layer thickness of crystalline and amorphous, a transition in the plastic deformation mode takes place in the C/A nanolaminates from homogeneous plastic co-deformation between interfacial dislocation and shear transformation zones to multiple shear bands interaction. For the nanolaminates with fixed amorphous layer, the peak stress decreases with the decreasing crystalline layer thickness, consisting with the results calculated by the mixed rule. However, when crystalline layer thickness is > 5 nm, the peak stress reaches a plateau, which can be well-explained by the confined layer slip model. In addition, the results indicate that the plastic deformation behavior of nanolaminates transits from global plastic deformation to local plastic deformation with decreasing aspect ratio. © 2017
Number of references: 51
Main heading: Metallic glass
Controlled terms: Plastic deformation - Crystalline materials - Zirconium alloys - Binary alloys - Copper alloys - Aspect ratio - Molecular dynamics
Uncontrolled terms: Deformation mechanism - Interfacial dislocations - Local plastic deformation - Molecular dynamics simulation methods - Multiple shear bands - Nano-laminates - Plastic deformation behavior - Shear transformation zones
Classification code: 531 Metallurgy and Metallography - 544.2 Copper Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 801.4 Physical Chemistry - 933.1 Crystalline Solids
Numerical data indexing: Size 5.00e-09m
DOI: 10.1016/j.matdes.2017.04.077
Funding Details: Number: 2016KW-049, Acronym: -, Sponsor: -; Number: 2012KJXX-39, 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 New Scientific and Technological Star of Shaanxi Province (Grant No. 2012KJXX-39) and the Program for International Cooperation and Exchanges of Shaanxi Province (Grant No. 2016KW-049).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

58. Comparative studies of three nonfractured unconventional sandstone reservoirs with superlow permeability: Examples of the Upper Triassic Yanchang Formation in the Ordos Basin, China

Accession number: 20171603573204
Authors: Wang, Ruifei (1); Xu, Guangjian (2); Wu, Xuguang (3); Liu, Zhongqun (3); Chi, Yungang (1)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Department of Geology and Geophysics, Texas A and M University, College Station; TX; 77843, United States; (3) Sinopec North China Company, Zhengzhou; 450006, China
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Abbreviated source title: Energy Fuels
Volume: 31
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Pages: 107-118
Language: English
ISSN: 08870624
E-ISSN: 15205029
CODEN: ENFUEM
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: Unconventional sandstone reservoirs with ultralow permeability (1 mD airair represents the permeability in air) and superlow permeability (0.1 mD air2.) A comparative study has been performed here on three Upper Triassic sandstone reservoirs with superlow permeability in the southern Ordos Basin to understand the characteristics of each reservoir, the differences in reservoir porosity and permeability, and their causes. The study shows that pore type is the main factor that controls the physical property of nonfractured, superlow permeability sandstone reservoirs in the area of study. The main pore type observed in all three reservoirs is dissolution-enhanced intergranular, which comprises a maximum of 70% of the total porosity. Remnant intergranular and intragranular dissolution pores are also observed in these reservoirs. The pore throat size of dissolution-enhanced intergranular pores is generally 2-3 times larger than that of the intragranular dissolution type. Therefore, the reservoir with the greatest quantity of dissolution-enhanced intergranular pores has a poorer sorting of pore throat sizes and stronger microscopic heterogeneity. The dissolution-enchanced intergranular pores, on the other hand, also contribute to higher surface porosity, larger average pore diameter, higher pore throat coordination value, and, most importantly, higher permeability. This latter result contrasts with observations of conventional sandstone reservoirs, in which better pore throat sorting is favored for permeability. © 2016 American Chemical Society.
Number of references: 59
Main heading: Dissolution
Controlled terms: Porosity - Low permeability reservoirs - Sandstone - Petroleum reservoir engineering - Metamorphic rocks
Uncontrolled terms: Comparative studies - Economic potentials - Intergranular pores - Ordos basin , China - Pore-throat size - Reservoir porosity - Sandstone reservoirs - Yanchang Formation
Classification code: 482.2 Minerals - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 802.3 Chemical Operations - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Area 1.00e-12m2, Percentage 7.00e+01%
DOI: 10.1021/acs.energyfuels.6b01616
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

59. Dynamical behaviors of scroll rings in the presence of a dc electric field

Accession number: 20202208736846
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Source title: Physics Letters, Section A: General, Atomic and Solid State Physics
Abbreviated source title: Phys Lett Sect A Gen At Solid State Phys
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Language: English
ISSN: 03759601
CODEN: PYLAAG
Document type: Journal article (JA)

Publisher: Elsevier B.V., Netherlands
Abstract: Experimental observations of scroll rings in excitable media have shown that, a dc electric field perpendicular to the plane of the ring can change the rate at which the ring shrinks, and in some cases it may cause the scroll ring to expand even though its filament tension is positive. Here we propose a kinematical model to account for these effects by extending the theory of dynamics of the free scroll ring to include the influence of electric field. In addition, some other significant results, for example, the electric field can slow down the drift velocity of the scroll ring along its symmetry axis and in some situations may reverse its drift direction, are also predicted by the kinematical model. Direct numerical simulations of a reaction–diffusion model are performed, and the obtained results are in quantitative agreement with the numerical solutions of the kinematical model. © 2017 Elsevier B.V.
Number of references: 57
Main heading: Numerical models
Controlled terms: Electric fields
Uncontrolled terms: Dc electric field - Diffusion equations - Drift velocities - Dynamical behaviors - Kinematical models - Numerical solution - Quantitative agreement - Theory of dynamics
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 921 Mathematics
DOI: 10.1016/j.physleta.2017.08.001
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

60. Analysis and simulation of metal casing effect on induction logging

Accession number: 20171403517160
Authors: Wu, Yinchuan (1, 2); Guo, Baolong (1); Zhang, Jiatian (2)
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Corresponding author: Wu, Yinchuan(ycwu1997@sina.com)
Source title: Optik
Abbreviated source title: Optik
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Issue date: June 1, 2017
Publication year: 2017
Pages: 302-313
Language: English
ISSN: 00304026
Document type: Journal article (JA)
Publisher: Elsevier GmbH
Abstract: Induction logging is an effective method of measuring formation conductivity in open hole. However, when the metallic pipes are inserted into the borehole, the standard induction logging is found to be invalild. In this paper, a system of single-well through-casing induction logging is modeled. The influences of the casing parameters (conductivity, permeability and thickness) and the current frequency on magnetic field are studied. Meanwhile, the optimum receiver location is analyzed. Simulation results show that: under the same conditions, the value of the magnetic field is 3–5 orders of magnitude higher in cased hole than that in open hole, the formation conductivity can be distinguished by detecting the effective magnetic field in cased hole. The optimun receiver location has a variation when the casing parameters and the current frequency are changed. © 2017 Elsevier GmbH
Number of references: 17
Main heading: Electromagnetic fields
Controlled terms: Induction logging - Electromagnetic logging - Magnetic fields
Uncontrolled terms: Analysis and simulation - Apparent conductivity - Cased hole - Current frequency - Metal casing - Optimum receivers - Orders of magnitude - Receiver location
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 701 Electricity and Magnetism - 701.2 Magnetism: Basic Concepts and Phenomena
DOI: 10.1016/j.ijleo.2017.03.059
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

61. Multi-channel Allocation Algorithm Based on AODV Protocol in Wireless Mesh Networks

Accession number: 20183005590873
Authors: Wei-Wei, Zhang (1, 2); Jia-Feng, He (3); Guo-Wang, Gao (4); Li-Li, Ren (2); Xuan-Jing, Shen (1)
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Corresponding author: Xuan-Jing, Shen
Source title: Proceedings - 2017 International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery, CyberC 2017
Abbreviated source title: Proc. - Int. Conf. Cyber-Enabled Distrib. Comput. Knowl. Discov., CyberC
Volume: 2018-January
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Issue title: Proceedings - 2017 International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery, CyberC 2017
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Publication year: 2017
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Conference location: Nanjing, China
Conference code: 134224
Sponsor: IEEE Communication Society; Jiangsu Computer Society; Nanjing University of Posts and Telecommunications; Tech Mahindra; Teradata
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: A Wireless Mesh Networks (WMN) consists of wireless mesh routers and terminals connected by wireless multi-hop communication. It can be divided into three network types, including terminal mesh networks, infrastructure mesh networks, and hybrid mesh networks according to the network topology and the node function. For infrastructure mesh networks, the network throughput will determine the number of terminals which can access the network. How to effectively use multiple orthogonal channels and multiple interfaces to increase the throughput of WMNs and decrease the radio link transmission interference is of great significance. In this paper, firstly, the characteristics of WMN are studied. According to these characteristics in WMNs, the interfaces in mesh router node are classified to two types: one is Data Backhaul Interface (BI), and another is Internal Traffic Transfer Interface (TI). In view of this, we proposed a channel assignment scheme based on group management. Secondly, the routing protocols of WMN are studied, and a new routing protocol based on AODV and multi-channel is proposed to increase the network throughput by taking advantage of multiple orthogonal channels. Finally, simulation experiments by the OPNET are conducted and the results of our proposed algorithm is compared with the standard AODV. The comparison shows that improved AODV based on our proposed algorithm is superior than the standard AODV from the aspect of increasing the network throughput, decreasing media access delay, and keeping higher packet delivery rate. © 2017 IEEE.
Number of references: 13
Main heading: Routing protocols
Controlled terms: Internet protocols - MESH networking - Wireless mesh networks (WMN) - Routers - Mesh generation - Radio links - Radio transmission
Uncontrolled terms: AODV - Channel assignment scheme - Multi channel - Multi-channel allocations - Multiple interfaces - Multiple orthogonal channels - Radio link transmission - Wireless mesh routers
Classification code: 716.3 Radio Systems and Equipment - 722 Computer Systems and Equipment - 722.3 Data Communication, Equipment and Techniques - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI: 10.1109/CyberC.2017.99
Funding Details: Number: 15JS095, Acronym: -, Sponsor: -; Number: 41774081, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: -, Sponsor: Department of Science and Technology of Jilin Province;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

62. Mode-dependent robust stability and stabilisation of uncertain networked control systems via an average dwell time switching approach

Accession number: 20172903943596
Authors: Wu, Ying (1); Wu, Yanpeng (2)
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Publication year: 2017
Pages: 1726-1735
Language: English
ISSN: 17518644
E-ISSN: 17518652
Document type: Journal article (JA)
Publisher: Institution of Engineering and Technology, United States
Abstract: The stability analysis and synthesis problem of networked control systems (NCSs) with communication limits and system uncertainties is investigated via an average dwell time switching control method. Active time-varying sampling strategy and hybrid node driven mode are proposed to generate a series of one-step time delay subsystems of closed-loop NCS. Gridding approach is introduced to transform the continuous time axis into discrete time sequences which limits the switching rules in a finite set. By constructing multiple parameter-dependent quadratic Lyapunov-like functions with norm bounded uncertainties, sufficient stability conditions are derived and the robust mode-dependent network controller is designed to guarantee the proposed uncertain switched NCS globally asymptotically stable for any switching signal with admissible ADT. A for-loop algorithm is integrated into the formulated LMI optimisation problem to avoid predefining the switching sequence and the occurring times of network induced factors. Finally, simulation results illustrate the effectiveness of the proposed methods. © The Institution of Engineering and Technology 2017.
Number of references: 32
Main heading: Networked control systems
Controlled terms: Control system analysis - Control system synthesis - Switching - Delay control systems - Uncertainty analysis - Continuous time systems - Control system stability
Uncontrolled terms: Communication limits - Discrete-time sequences - Globally asymptotically stable - Lyapunov-like functions - Networked Control Systems (NCSs) - Norm-bounded uncertainty - System uncertainties - Time-varying samplings
Classification code: 731.1 Control Systems - 731.2 Control System Applications - 731.4 System Stability - 922.1 Probability Theory - 961 Systems Science
DOI: 10.1049/iet-cta.2016.1598
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

63. White Bleached Sandstone Genesis and Paleo-Weathered Crust Forming Environment of the Jurassic Yanan Formation in the Northeastern Ordos Basin

Accession number: 20173804179753
Authors: Zhang, Long (1, 2); Liu, Chiyang (2); Lei, Kaiyu (2); Sun, Li (2); Cun, Xiaoni (2); Du, Fangpeng (2); Deng, Hui (3)

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Corresponding author: Liu, Chiyang(lcy@nwu.edu.cn)
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Volume: 91
Issue: 6
Issue date: June 15, 2017
Publication year: 2017
Pages: 1345-1359
Language: Chinese
ISSN: 00015717
Document type: Journal article (JA)
Publisher: Geological Society of China
Abstract: Bleached white sandstone represent the evidence of hydrocarbon migration in the northeastern Ordos Basin. Previous studies only focus on the chemical bleaching from the perspective of hydrocarbon-rock interaction, but ignoring its forming environment. Bleached sandstones in study area only distribute in the weathered rock under the Jurassic unconformity, indicating unconformity played important role in the formation of bleached white sandstone. Combining field, petrographic, and geochemical analyses, the characteristics of unconformity structure were deeply investigated. The results show that the weathered clay zone is not developed in the Jurassic unconformity. The unconformity structure can be classified into two types: weathered rock zone developed(type I) and non-weathered rock zone developed(type II). Sandstone in the upper part of weathered rock is composed of quartz and kaolinite, marked by secondary pores by dissolution, kaolinization of biotite, and loss of alkali and alkaline earth elements(K, Na, Ca, and Mg). K-feldspar content is higher in sandstone of the lower part of weathered crust, and biotite was partially weathered to hydro-biotite, K and Mg were retained in K-feldspar and hydro-biotite. Pore fluid exchange was restricted in the fine-grained sediments, with low porosity and permeability, causing weaker weathering process and hydrocarbon-induced alteration. Kaolinite in white sandstone was the product of weathering process, rather than product of hydrocarbon-rock interaction. Weathering enhanced the porosity and permeability of sandstone and oxidation during weathering led to the formation of iron oxides grain coatings, which changed the colour of sandstone from gray/green to red. Hydrocarbon reduction caused migration of Fe and bleaching of red weathered sandstone, which further decreased the degree of cementation after weathering. Hydrocarbon-induced sandstone bleaching is a key record of hydrocarbon migration and accumulation in paleo weathered clastic rock. © 2017, Science Press. All right reserved.
Number of references: 63
Main heading: Hydrocarbons
Controlled terms: Quartz - Feldspar - Sandstone - Iron oxides - Kaolinite - Porosity - Sedimentology - Weathering - Bleaching - Analytical geochemistry - Cleaning - Metamorphic rocks - Mica
Uncontrolled terms: Alkaline-earth elements - Fine-grained sediment - Fluid-rock interaction - Hydrocarbon migration - Low porosity and permeability - Ordos Basin - Unconformity structure - Weathered clastic crust
Classification code: 481.1 Geology - 481.2 Geochemistry - 482.2 Minerals - 801 Chemistry - 802.3 Chemical Operations - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 811.1.1 Papermaking Processes - 931.2 Physical Properties of Gases, Liquids and Solids
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

64. Ultrasonic imaging of seismic physical models using fiber Bragg grating Fabry-Perot probe

Accession number: 20170703341339
Authors: Rong, Qiangzhou (1); Shao, Zhihua (1); Yin, Xunli (2); Gang, Tingting (1); Liu, Fu (3); Sun, An (4); Qiao, Xueguang (1)
Author affiliation: (1) School of Physics, Northwest University, Xi'an; 710069, China; (2) School of Physics, Xi'An Shiyou University, Xi'an; 100044, China; (3) Carleton University, Ottawa; ON; K1S 5B6, Canada; (4) City Science and Technology Engineering, Southeast University, Nanjing; 210018, China
Source title: IEEE Journal of Selected Topics in Quantum Electronics
Abbreviated source title: IEEE J Sel Top Quantum Electron
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Pages: 223-228
Article number: 7581053
Language: English
ISSN: 1077260X
E-ISSN: 15584542
CODEN: IJSQEN
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: A fiber-optic sensor has been proposed and demonstrated for the ultrasonic wave (UW) imaging of seismic physical models. The sensor probe comprises a fiber Bragg grating Fabry-Perot (FBG-FP) mounted inside the tip of an aluminum cone, which focuses the UW effectively into the fiber. The FBG-FP probe possesses an excellent UW sensitivity because of the narrow-band notches on the top of the reflection spectrum caused by the FP interference. A spectral band-side filter technique is used to measure the UW signal. Because of the symmetrical structure of the sensor, it provides a directional UW detection with a high-signal-to-noise ratio. As expected, the two-dimensional images of the four physical models are reconstructed by the fast scanning of the sensor. © 1995-2012 IEEE.
Number of references: 20
Main heading: Seismology
Controlled terms: Fiber optic sensors - Signal to noise ratio - Ultrasonic imaging - Probes - Computerized tomography - Fabry-Perot interferometers - Fiber Bragg gratings - Ultrasonic waves
Uncontrolled terms: F-P interference - Fiber Sensor - Filter techniques - High signal-to-noise ratio - Physical model - Reflection spectra - Symmetrical structure - Two dimensional images
Classification code: 484.1 Earthquake Measurements and Analysis - 716.1 Information Theory and Signal Processing - 723.5 Computer Applications - 741.1.2 Fiber Optics - 753.1 Ultrasonic Waves - 941.3 Optical Instruments
DOI: 10.1109/JSTQE.2016.2614947
Funding Details: Number: Z08119, Acronym: -, Sponsor: -; Number: 61077060,61275088,61327012,61605159, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2007AA03Z413,2009AA06Z203, Acronym: -, Sponsor: National High-tech Research and Development Program; Number: 2008CR1063, Acronym: -, Sponsor: Science and Technology Development Center, Ministry of Education;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

65. Very High Cycle Fatigue Behaviors of Bainite/Martensite Multi-phase Steel and Mechanism of Non-inclusion Induced Crack Initiation

Accession number: 20180604758620
Authors: Gao, Guhui (1); Chen, Qianru (2, 3); Guo, Haoran (1); Cheng, Cheng (1); Bai, Bingzhe (1)
Author affiliation: (1) School of Mechanical, Electronic and Control Engineering, Beijing Jiaotong University, Beijing; 100044, China; (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (3) Well Cementing Compangy, CNPC Chuanqing Drilling Engineering Company Limited, Xi'an; 710018, China
Source title: Cailiao Daobao/Materials Review
Abbreviated source title: Cailiao Daobao/Mater. Rev.
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Issue date: October 25, 2017
Publication year: 2017
Pages: 48-52
Language: Chinese
ISSN: 1005023X
Document type: Journal article (JA)
Publisher: Cailiao Daobaoshe/ Materials Review

Abstract: In order to improve the fatigue properties of the steel component used in high speed railway and oil exploration, the bainite/martensite (B/M) multiphase high strength steels with excellent fatigue properties have been developed. Many results showed that the very high cycle fatigue (VHCF) property of B/M steels is less sensitive to the inclusion than that of conventional tempered martensite steels. Hence, both non-inclusion and inclusion-induced crack initiations occurred in the B/M steels under VHCF test. The microstructure morphologies, i. e., phase types, microstructure homogeneity and refinement degree, could influence the non-inclusion induced crack initiation. The VHCF crack initiation sites are determined by the competition between the inclusion level and the microstructure morphologies of the B/M steels. Enhanced VHCF properties of B/M steels have been achieved through coordinated adjustment of physical and/or chemical metallurgy treatment (e. g., microstructure optimization and inclusion size reduction). The mechanism of non-inclusion induced crack initiations is also discussed.
Number of references: 17
Main heading: Grain refinement
Controlled terms: Crack initiation - High-cycle fatigue - Steel metallurgy - Railroad transportation - High strength steel - High strength alloys - Alloy steel - Bainite - Microstructure - Railroads
Uncontrolled terms: Crack initiation sites - High - speed railways - Microstructure homogeneity - Microstructure morphologies - Microstructure optimizations - Multiphase microstructure - Retained austenite - Very high cycle fatigue
Classification code: 433.1 Railroad Transportation, General - 531.1 Metallurgy - 531.2 Metallography - 545.3 Steel - 951 Materials Science
DOI: 10.11896/j.issn.1005-023X.2017.020.011
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

66. Investigation of salt and alkali sensitivity damage mechanisms in clay-containing reservoirs using nuclear magnetic resonance

Accession number: 20162202446265
Authors: Fang, Wenchao (1, 2); Jiang, Hanqiao (2); Li, Jie (2); Li, Wei (3); Li, Pan (4); Gu, Hao (1); Feng, Xiaonan (2); Zhao, Lin (2)
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Corresponding author: Fang, Wenchao(wenchaoxf2011@outlook.com)
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Publication year: 2017
Pages: 533-540
Language: English
ISSN: 02726351
E-ISSN: 15480046
CODEN: PTCHDS
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: A novel experimental methodology based on nuclear magnetic resonance (NMR) is proposed to examine sensitivity damage mechanisms in clay-containing reservoirs. We successfully implemented this methodology for Nanyang tight oil reservoir. By performing experiments under conditions of different brine salinities and pH values, the degrees of potential salt and alkali sensitivity damage were determined first; thereafter, the damage mechanisms were identified by analyzing the NMR T2 spectra and (magnetic resonance) MR images. The T2 spectra clearly showed the quantitative exchange between small pores and big pores, and the changes in pore size at different positions in the core were visualized in the MR images obtained before the centrifugation of the core. To understand the behavior of clay size variation and clay migration in the damage process, the core was centrifuged, leaving only the clay bound water in the core, and then MR images were acquired again. The salt sensitivity damage mechanisms of clay swelling and clay migration and alkali sensitivity damage mechanism of clay dispersion and migration in Nanyang tight oil

reservoir were effectively identified. Additionally, owing to the use of core-scale MR images, the sensitivity damage processes at the reservoir scale could be interpreted well. © 2017 Taylor & Francis.
Number of references: 33
Main heading: Nuclear magnetic resonance
Controlled terms: Petroleum reservoir engineering - Dispersions - Failure (mechanical) - Magnetic resonance imaging - Magnetism - Pore size
Uncontrolled terms: Alkali sensitivity - Clay dispersion - Clay swelling - Experimental methodology - Formation damage - Nuclear magnetic resonance(NMR) - Salt sensitivity - T2 spectrums
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 701.2 Magnetism: Basic Concepts and Phenomena - 746 Imaging Techniques - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
DOI: 10.1080/02726351.2016.1170082
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

67. Investigation on jurassic shale gas reservoir characteristics from northern Qaidam basin

Accession number: 20173604133228
Authors: Xu, Guixi (1); Wang, Shuzhong (1); Luo, Xiangrong (2); Jing, Zefeng (1)
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Source title: Key Engineering Materials
Abbreviated source title: Key Eng Mat
Volume: 748 KEM
Part number: 1 of 1
Issue title: Advanced Materials and Engineering Materials VI - 6th ICAMEM
Issue date: 2017
Publication year: 2017
Pages: 441-445
Language: English
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CODEN: KEMAEY
ISBN-13: 9783035711837
Document type: Conference article (CA)
Conference name: 6th International Conference of Advanced Materials and Engineering Materials, ICAMEM 2017
Conference date: March 11, 2017 - March 12, 2017
Conference location: Singapore, Singapore
Conference code: 196819
Publisher: Trans Tech Publications Ltd
Abstract: The Jurassic continental shale from northern Qaidam basin was selected as the research object, through the analysis of X-ray diffraction (XRD), field emission scanning electron microscopy (SEM) and nitrogen adsorption experiment, the mineral composition and pore structure characteristics of Jurassic continental shale from the northern Qaidam basin have been investigated in detail. All shale samples studied are quite rich in clay minerals. The clay mineral content ranges from 59.8% to 83.3% with an average of 74.6%, and the brittle mineral content accounts for 16.5% to 39.3%. Nitrogen adsorption test results indicate that for mesopores and macropores of shale samples the average pore width is $_{2\sim200}$ nm, mainly centering on $_{10\sim50}$ nm, and the micropores of the shale samples have a centralized distribution of $_{0.5\sim1}$ nm. The shale samples show high specific surface areas of $_{4.6\sim15.2}$ m2/g. According to SEM results, interparticle mineral matrix pores are main pore type and slit-type pore are well developed. © 2017 Trans Tech Publications, Switzerland.
Number of references: 4
Main heading: Pore structure
Controlled terms: X ray diffraction - Clay minerals - Gas adsorption - Shale - Field emission microscopes - Nitrogen - Scanning electron microscopy
Uncontrolled terms: Centralized distribution - Field emission scanning electron microscopy - High specific surface area - Mineral composition - Nitrogen adsorption - Northern Qaidam Basin - Shale gas reservoirs - Structure characteristic

Classification code: 482.2 Minerals - 741.3 Optical Devices and Systems - 802.3 Chemical Operations - 804 Chemical Products Generally - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Percentage 1.65e+01% to 3.93e+01%, Percentage 5.98e+01% to 8.33e+01%, Percentage 7.46e+01%
DOI: 10.4028/www.scientific.net/KEM.748.441
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Funding text: The research was supported by Project 2015KTCL01-08 of Shaanxi province science and technology program. The authors would like to acknowledge the state key laboratory of multiphase flow in power engineering in Xi #an Jiaotong University for laboratory equipment support.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

68. Assessment of the geostress field of deep-thick gypsum cap rocks: A case study of Paleogene Formation in the southwestern Tarim Basin, NW China

Accession number: 20171703591423
Authors: Yin, Shuai (1, 2); Zhou, Wen (3); Shan, Yuming (3); Ding, Wenlong (2); Xie, Runcheng (3); Guo, Chunhua (3)
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Corresponding author: Yin, Shuai
Source title: Journal of Petroleum Science and Engineering
Abbreviated source title: J. Pet. Sci. Eng.
Volume: 154
Issue date: 2017
Publication year: 2017
Pages: 76-90
Language: English
ISSN: 09204105
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Gypsum rocks have extremely low permeability and good pressure sealing capability, and they are widely distributed in different strata all over the world. A deep-thick gypsum cap rock is developed in the Paleogene formation of the southwestern Tarim Basin in China. The regions below the gypsum rocks have huge potential for oil and gas resources. Casing deformation and blockage during tripping operations often occur during the drilling process in the gypsum bed, which severely affects the efficient drilling of deep oil and gas. Therefore, it is necessary to comprehensively assess the geostress field of gypsum cap rocks under high-stress background conditions. Through triaxial synchronized mechanical and acoustic testing experiments, high-stress formation environments were simulated and the mechanical parameters of gypsum rocks were obtained. We used dispersion correction technology to transform the measured high-frequency (1 MHz) wave velocities of the samples to the wave velocities of well-logging frequency (20 kHz). The transformed wave velocities can be used for the well-logging assessment of rock mechanical parameters and geostress. We built well-logging interpretation models for the shear-wave slowness, mechanical parameters and geostress of the Paleogene gypsum rocks. Each model showed high assessment accuracy. Combined with the paleomagnetic analysis of the Paleogene gypsum bed and the results of the fast shear-wave direction analysis, radial expansion position analysis and induced fracture analysis on the reservoir below the Paleogene gypsum bed, we suggest that the direction of geostress in the study region is NW10°. Three-dimensional finite element method was used to simulate the geostress field of the gypsum bed. The Paleogene formation in the study region does not have faults. The geostress distribution of the gypsum rock layer is mainly controlled by structural relief, burial depth, and lithology. This study provided a typical example of a comprehensive assessment of the geostress field of deep-thick gypsum cap rocks. © 2017 Elsevier B.V.
Number of references: 45
Main heading: Lithology
Controlled terms: Gypsum - Shear flow - Shear waves - Acoustic logging - Rocks - Energy resources - Finite element method
Uncontrolled terms: Cap rock - Comprehensive assessment - Geo-stress - Gypsum rock - Rock mechanical parameters - Southwestern tarim basins - Tarim Basin - Three-dimensional finite element method

Classification code: 481.1 Geology - 482.2 Minerals - 525.1 Energy Resources and Renewable Energy Issues - 631.1 Fluid Flow, General - 751.2 Acoustic Properties of Materials - 921.6 Numerical Methods - 931.1 Mechanics - 941.2 Acoustic Variables Measurements
DOI: 10.1016/j.petrol.2017.04.021
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Funding text: This research was supported by the National Natural Science Foundation of China (Grant Nos 41372139 and 41072098) and the National Science and Technology Major Project of China (2016ZX05046-003-001, 2011ZX05018–001–002, 2011ZX05033–004 and 2011ZX05009–002–205). The authors would like to thank the staff of all of the laboratories that cooperated in performing the tests and analyses. We are also grateful to the anonymous reviewers, whose comments improved the quality of this manuscript.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

69. Distribution and qualitative and quantitative analyses of chlorides in distillates of shengli crude oil

Accession number: 20171803628944
Authors: Ma, Rui (1); Zhu, Jianhua (1); Wu, Bencheng (1); Hu, Jigen (2); Li, Xiaohui (3)
Author affiliation: (1) College of Chemical Engineering, China University of Petroleum, Beijing; 102249, China; (2) Henan Beijia Lubrication Science and Technology Company, Limited, Luohe; Henan; 462003, China; (3) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; Shanxi; 710065, China
Corresponding author: Zhu, Jianhua(rdcas@cup.edu.cn)
Source title: Energy and Fuels
Abbreviated source title: Energy Fuels
Volume: 31
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Publication year: 2017
Pages: 374-378
Language: English
ISSN: 08870624
E-ISSN: 15205029
CODEN: ENFUEM
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: This work investigated the distribution of the chlorine element in Shengli (SL) crude oil using a microcoulomb titrameter and a salt content determinator. The species and contents of organic chlorides in light distillates (bp © 2016 American Chemical Society.
Number of references: 15
Main heading: Kerosene
Controlled terms: Crude oil - Gas chromatography - Naphthas - Chlorine compounds
Uncontrolled terms: Electron capture detectors - Organic chlorides - Organochlorine compounds - Organochlorines - Qualitative and quantitative analysis - Salt content
Classification code: 512.1 Petroleum Deposits - 513.3 Petroleum Products - 523 Liquid Fuels - 802.3 Chemical Operations - 804.1 Organic Compounds
Numerical data indexing: Mass_Density 1.89e-01kg/m3, Mass_Density 8.37e-01kg/m3, Temperature 5.73e+02K
DOI: 10.1021/acs.energyfuels.6b02527
Funding Details: Number: -, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

70. Generalized three-way decision models based on subset evaluation (*Open Access*)

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Corresponding author: Li, Xiaonan(lxn2007@163.com)
Source title: International Journal of Approximate Reasoning
Abbreviated source title: Int J Approximate Reasoning
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Pages: 142-159
Language: English
ISSN: 0888613X
CODEN: IJARE4
Document type: Journal article (JA)
Publisher: Elsevier Inc.
Abstract: The notion of three-way decisions was originally introduced based on the need to explain the three regions of probabilistic rough sets. In a three-way decision model, every object can be evaluated by a function and according to the evaluation value, the object can be arranged in one of the three regions (i.e., positive, negative, and boundary regions). In this study, we generalize Yao's three-way decision models to a case where every subset in the universe can be evaluated by the evaluation function, and we then propose generalized three-way models. The properties and examples of these new models are presented, as well as extensions of these models. We also give some remarks regarding Hu's three-way decision spaces. Three-way matroids are introduced based on Hu's axiomatic approach and our generalized three-way models. Furthermore, three-way matroids are generalized to three fuzzy matroids as an application of our new model. Finally, we suggest future research related to our new models and three-way fuzzy matroids. © 2017 Elsevier Inc.
Number of references: 46
Main heading: Function evaluation
Controlled terms: Matrix algebra - Combinatorial mathematics - Rough set theory
Uncontrolled terms: Axiomatic approach - Boundary regions - Decision modeling - Decision models - Decision space - Evaluation function - Probabilistic rough sets - Three-way decision
Classification code: 921.1 Algebra - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.6 Numerical Methods
DOI: 10.1016/j.ijar.2017.01.005
Funding Details: Number: 11571012,61202178,61472471, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2016M602851, Acronym: -, Sponsor: China Postdoctoral Science Foundation; Number: JB150709, Acronym: -, Sponsor: Fundamental Research Funds for the Central Universities;
Funding text: This study was supported by the National Natural Science Foundation of China (Nos. 61202178, 61472471, 11571012), the Fundamental Research Funds for the Central Universities (No. JB150709), and the China Postdoctoral Science Foundation (No. 2016M602851).
Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

71. Test study on a MSMA active control system under multiple support excitation

Accession number: 20181304939855
Authors: Liu, Yang (1, 3); Weng, Guang-Yuan (2); Wang, She-Liang (1)
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Abbreviated source title: Zhendong Gongcheng Xuebao
Volume: 30
Issue: 6
Issue date: December 2017
Publication year: 2017
Pages: 1022-1028

Language: Chinese
ISSN: 10044523
CODEN: ZXUEEA
Document type: Journal article (JA)
Publisher: Nanjing University of Aeronautics an Astronautics
Abstract: In order to improve vibration control effects of magnetic controlled shape memory alloy (MSMA) active control system, with the Kiewitt shell structure as the research object, the multiple support excitation control algorithm is presented, and the iterative process of the algorithm is improved. Additionally, following the principles of multiple support excitation tests on Kiewitt shell structure for simulating earthquake shaking table, the actuation performances of the MSMA active control system are analyzed by using the MATLAB software to simulate the multiple support excitation control algorithm. Then the MSMA active control system simulation technology is developed. The reliability of the control strategy of the MSMA active control system and the simulation technology is verified in the tests and simulation. On this basis, the multiple support excitation control tests for Kiewitt shell structure are performed, and the changes of the peak seismic response is analyzed. The results indicate that the peak seismic response controlled under the multiple support excitations is about 10% lower than that under the single-point excitation. © 2017, Editorial Board of Journal of Vibration Engineering. All right reserved.
Number of references: 10
Main heading: Shells (structures)
Controlled terms: Seismic response - Shape memory effect - Vibration control - Control systems - MATLAB - Iterative methods - Software testing
Uncontrolled terms: Active control systems - Active vibration controls - Control strategies - Magnetic controlled - MSMA - Multiple support excitations - Shell structure - Simulation technologies
Classification code: 408.2 Structural Members and Shapes - 484.2 Secondary Earthquake Effects - 723.5 Computer Applications - 731.1 Control Systems - 731.3 Specific Variables Control - 921 Mathematics - 921.6 Numerical Methods - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Numerical data indexing: Percentage 1.00e+01%
DOI: 10.16385/j.cnki.issn.1004-4523.2017.06.016
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

72. Characterization of prefilters of EQ-algebra by falling shadow

Accession number: 20182605366862
Authors: Li, Yijun (1, 2); Saeid, Arsham Borumand (3); Wang, Jun Tao (4)
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Corresponding author: Li, Yijun(liyijun6@mail.sysu.edu.cn)
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Abbreviated source title: J. Intelligent Fuzzy Syst.
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Issue: 6
Issue date: 2017
Publication year: 2017
Pages: 3805-3818
Language: English
ISSN: 10641246
E-ISSN: 18758967
Document type: Journal article (JA)
Publisher: IOS Press BV
Abstract: In this paper, some types of falling fuzzy prefilters of EQ-algebras are introduced and studied. The notion of falling fuzzy prefilters of EQ-algebras are introduced, and the relationships between falling fuzzy prefilters and fuzzy prefilters are discussed. Moreover, the notions of falling fuzzy positive implicative (implicative, fantastic) prefilters are also proposed and some of their characterizations are displayed. The relationships among these special falling fuzzy prefilters are mainly investigated by using their characterizations. In particular, some conditions for a falling fuzzy positive implicative prefilter is equivalent to a falling fuzzy implicative prefilter are provided. © 2017-IOS Press and the authors. All rights reserved.
Number of references: 19
Main heading: Algebra

Controlled terms: Artificial intelligence
Uncontrolled terms: Falling shadows - Prefilters
Classification code: 723.4 Artificial Intelligence - 921.1 Algebra
DOI: 10.3233/JIFS-17680
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

73. Facile fabrication of robust polydopamine microcapsules for insulin delivery

Accession number: 20164302932240
Authors: Li, Hong (1); Jia, Yi (2); Feng, Xiyun (2); Li, Junbai (2)
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Beijing National Laboratory for Molecular Sciences, CAS Key Lab of Colloid, Interface and Chemical Thermodynamics, Institute of Chemistry, Chinese Academy of Sciences, Beijing; 100190, China
Corresponding author: Li, Junbai(jbli@iccas.ac.cn)
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Language: English
ISSN: 00219797
E-ISSN: 10957103
CODEN: JCISA5
Document type: Journal article (JA)
Publisher: Academic Press Inc.
Abstract: Inspired by the composition of adhesive proteins in mussel, a facile, low-cost, and green approach to construct robust polydopamine (PDA) microcapsules as carriers for insulin delivery is developed. The morphology and shell thickness of the capsules could be tuned by varying the concentration of dopamine or the pH of Tris-HCl buffer. The PDA capsules are stable enough for long-term storage and transportation in practical application. The fluorescent property of PDA capsules labeled with FITC is beneficial in monitoring the safety and efficacy of drug carriers. Furthermore, the PDA shell coated insulin particles exhibit pH-responsive release behavior, making them promising for the oral administration of insulin in diabetic patients. © 2016 Elsevier Inc.
Number of references: 55
Main heading: Controlled drug delivery
Controlled terms: Encapsulation - Microstructure - Insulin - Targeted drug delivery
Uncontrolled terms: Facile fabrication - Fluorescent property - Long-term storage - Microcapsules - Oral administration - PH-responsive - Release behaviors - Self-polymerization
Classification code: 461.2 Biological Materials and Tissue Engineering - 951 Materials Science
DOI: 10.1016/j.jcis.2016.10.012
Funding Details: Number: 2016BS24, Acronym: -, Sponsor: -; Number: 21320102004, Acronym: -, Sponsor: -; Number: 2014JM2048, Acronym: -, Sponsor: -;
Funding text: We acknowledge the financial support from the National Nature Science Foundation of China (Project Nos. 21320102004 , 21433010 , 21303221 , and 21321063), Science & Technology Research Program of Shaanxi Province (No. 2014JM2048) and Youth Science and Technology Innovation Fund of Xi'an Shiyou University (2016BS24).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

74. Abnormal adsorption and desorption behavior of pharmaceutical drugs on polystyrene microspheres (*Open Access*)

Accession number: 20171503555493
Authors: Wang, Teng (1); Zheng, Yajun (1); Wang, Xiaoting (1); Wang, Qiang (2); Ke, Congyu (1); Austin, Daniel E. (3); Han, Xiaoxiao (1); Zhang, Zhiping (1)
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) School of Chemistry and Molecular Engineering, Nanjing Tech University, Nanjing; 211816, China; (3) Department of Chemistry and Biochemistry, Brigham Young University, Provo, Utah; 84602, United States
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Pages: 19639-19644
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: Herein we report an abnormal adsorption and desorption behavior where a stronger adsorption interaction between polystyrene particles and pharmaceutical drugs results in preferable desorption behavior. This behavior is contrary to the conventional view, in which a weaker adsorption interaction would lead to a more favorable desorption behavior of target molecules at solid surfaces. Different from other materials, numerous experimental results from a combination of mass spectrometry and infrared spectroscopy indicated quantitatively that the adsorption and desorption behavior of pharmaceutical drugs on polystyrene were independent of drug structure and solvent, while the intermolecular hydrogen bond interaction between polystyrene and the drug played a critical role in determining the adsorption and desorption behavior. © The Royal Society of Chemistry.
Number of references: 74
Main heading: Polystyrenes
Controlled terms: Adsorption - Hydrogen bonds - Molecules - Infrared spectroscopy - Mass spectrometry - Desorption - Drug delivery - Drug interactions
Uncontrolled terms: Adsorption and desorptions - Adsorption interactions - Desorption behavior - Intermolecular hydrogen bonds - Pharmaceutical drugs - Polystyrene micro-sphere - Polystyrene particle - Target molecule
Classification code: 461.6 Medicine and Pharmacology - 801 Chemistry - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 802.3 Chemical Operations - 815.1.1 Organic Polymers - 931.3 Atomic and Molecular Physics
DOI: 10.1039/C7RA01693J
Funding Details: Number: 2014K13-16,2016GY-231, Acronym: -, Sponsor: -; Number: 21373112,21575112, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: We thank Dr Milton Lee for helpful discussion and suggestions on the manuscript. This work was supported by the National Natural Science Foundation of China (21373112 and 21575112) and Shaanxi S&T Research Development Project of China (No. 2014K13-16 and 2016GY-231).
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Database: Compendex
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75. Theoretical investigations on phase stability, elastic constants and electronic structures of Ga3Zr polymorphs under high pressure

Accession number: 20165003127921
Authors: Ma, WenQing (1); Zhang, Jing (2, 3)
Author affiliation: (1) School of Material Science and Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (2) School of Mechanical and Precision Instrument Engineering, Xi'an University of Technology, Xi'an; Shaanxi; 710048, China; (3) School of Computer Science and Engineering, Xi'an University of Technology, Xi'an; Shaanxi; 710048, China
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Source title: Journal of Alloys and Compounds

Abbreviated source title: J Alloys Compd
Volume: 696
Issue date: 2017
Publication year: 2017
Pages: 1010-1018
Language: English
ISSN: 09258388
CODEN: JALCEU
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: By using density functional theory (DFT) method, the phase stability, elastic properties, Debye temperature and electronic structure of zirconium trigallide (Ga3Zr) have been investigated. The polymorphs of D022- and Ll2-Ga3Zr are compared under various pressures from 0 GPa to 60 GPa. The results show that phase transition from D022-Ga3Zr to Ll2-Ga3Zr will occur when pressure is over 28.48–36.34 GPa. With the pressure going up, the elastic constants, mechanical moduli and Debye temperature of both phases increase. For L12-Ga3Zr, better ductility and lower Debye temperature of L12-Ga3Zr is confirmed. The pressure-induced Zr-4d delocalization can strengthen its orbital hybridization with Ga(s,p), which leads to stronger atomic bonding, and subsequently makes the L12-Ga3Zr more stable under high pressure. © 2016
Number of references: 40
Main heading: Density functional theory
Controlled terms: Elastic constants - Phase stability - Gallium compounds - Chemical bonds - Binary alloys - Electronic structure - Zirconium alloys - Gallium alloys
Uncontrolled terms: Atomic bonding - Delocalizations - Density functional theory methods - Elastic properties - High pressure - Mechanical modulus - Orbital hybridization - Theoretical investigations
Classification code: 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 801.4 Physical Chemistry - 922.1 Probability Theory - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics
DOI: 10.1016/j.jallcom.2016.12.030
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

76. Weighted processing for microresistivity imaging logging in oil-based mud using a support vector regression model

Accession number: 20173704155029
Authors: Gao, Jian-Shen (1); Sun, Jian-Meng (2); Jiang, Yan-Jiao (3); Zhang, Peng-Yun (2); Wu, Jie (1)
Author affiliation: (1) Xi'an Shiyou University, School of Electronic Engineering, Key Laboratory of Education Ministry for Photoelectric Logging and Detection, Xi'an, China; (2) China University of Petroleum (East), School of Geosciences, Qingdao, China; (3) Northeast Petroleum University, College of Earth Sciences, Daqing, China
Source title: Geophysics
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Language: English
ISSN: 00168033
E-ISSN: 19422156
CODEN: GPYSA7
Document type: Journal article (JA)
Publisher: Society of Exploration Geophysicists
Abstract: We have developed a weighted processing method for wireline microresistivity imaging logging in oil-based mud to estimate not only the low but also the high formation resistivity quantitatively using a support vector regression (SVR) model. Furthermore, the standoff between the logging tool and the formation is also optimized out quite well. The general vertical coupling process is an unweighted method that is only suitable for low-resistivity formation and causes a puzzling reversal phenomenon in high-resistivity formation. Therefore, we have first determined the necessity of introducing a weighted coefficient, and then we developed an improved coupling processing method, i.e., a weighted

processing model. We have implemented a sensitivity analysis to determine the change regularity and range of the weighted coefficient. We have developed an SVR model with four main controlling parameters: frequency, real part of measured impedance, imaginary part of measured impedance, and equivalent resistivity to optimize out the weighted coefficient, thus to estimate the formation resistivity accurately. Furthermore, a similar SVR model is also developed to obtain the unknown standoff. We have determined the effectiveness and advantage of the weighted processing in estimating the formation resistivity with two references, respectively, the imaging results in water-based mud and from the general unweighted processing, using three simulated cases. Meanwhile, the optimization of the standoff is also verified. © 2017 Society of Exploration Geophysicists.
Number of references: 41
Main heading: Sensitivity analysis
Controlled terms: Regression analysis - Processing - Image processing
Uncontrolled terms: Controlling parameters - Equivalent resistivity - Formation resistivity - Measured impedance - Support vector regression (SVR) - Support vector regression models - Vertical coupling - Weighted coefficients
Classification code: 723.2 Data Processing and Image Processing - 913.4 Manufacturing - 921 Mathematics - 922.2 Mathematical Statistics
DOI: 10.1190/GEO2016-0592.1
Funding Details: Number: 41374124,41474108,41574122, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2011ZX05014-004-002h, Acronym: -, Sponsor: Science and Technology Major Project of Guangxi;
Funding text: This research is supported by the National Science and Technology Major Project (2011ZX05014-004-002h) and the National Natural Science Foundation of China (nos. 41474108, 41574122, and 41374124).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

77. Formation of a hexagonal closed-packed phase in Al0.5CoCrFeNi high entropy alloy

Accession number: 20174104267902
Authors: Wang, J. (1); Zhang, Y. (1); Niu, S.Z. (1); Wang, W.Y. (1); Kou, H.C. (1); Li, J.S. (1); Wang, S.Q. (2); Beaugnon, E. (3, 4)
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Issue date: December 1, 2017
Publication year: 2017
Pages: 879-884
Language: English
ISSN: 21596859
E-ISSN: 21596867
Document type: Journal article (JA)
Publisher: Cambridge University Press
Abstract: We report that a hexagonal closed-packed (HCP) phase with high cobalt content precipitates in Al0.5CoCrFeNi high entropy alloy (HEA) after 650 °C/8 h heat-Treatment. The precipitate with the shape of plate is completely located at the interdendritic region. Results of electron diffraction and high resolution transmission electron microscopy show that the HCP phase was transformed from the body-centered cubic phase through a simple shear and the two phase obey an orientation relationship. The thermodynamic stability of Al0.5CoCrFeNi HEA should be carefully reevaluated, especially at the vulnerable temperature. Copyright © Materials Research Society 2017.
Number of references: 30
Main heading: Entropy
Controlled terms: Iron alloys - High-entropy alloys - Thermodynamic stability - Aluminum alloys - High resolution transmission electron microscopy - Cobalt alloys - Chromium alloys - Crystal structure - Precipitates
Uncontrolled terms: Body-centered-cubic phase - Cobalt content - Hexagonal closed packed (hcp) - Interdendritic regions - Orientation relationship - Simple shear - Two phase

Classification code: 531 Metallurgy and Metallography - 541.2 Aluminum Alloys - 543.1 Chromium and Alloys - 545.2 Iron Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 641.1 Thermodynamics - 741.3 Optical Devices and Systems - 802.3 Chemical Operations - 804 Chemical Products Generally - 933.1.1 Crystal Lattice
DOI: 10.1557/mrc.2017.109
Funding Details: Number: 2016JQ5003, Acronym: -, Sponsor: -; Number: SKLSP201505, Acronym: -, Sponsor: -; Number: 51571161, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: TEM, Sponsor: Työ- ja Elinkeinoministeriö; Number: -, Acronym: NPU, Sponsor: Northwestern Polytechnical University; Number: -, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province;
Funding text: Authors are grateful to X.Y. Gao for expert TEM characteristic. This study was financially supported by the National Natural Science Foundation of China (Grant No. 51571161), the Natural Science Basic Research Plan in Shaanxi Province of China (NO. 2016JQ5003) and State Key Laboratory of Solidification Processing (NO. SKLSP201505) of Northwestern Polytechnical University.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

78. Stability analysis of delayed genetic regulatory networks via a relaxed double integral inequality (*Open Access*)

Accession number: 20181004885110
Authors: Li, Fu-Dong (1, 2); Zhu, Qi (3, 4); Xu, Hao-Tian (4); Jiang, Lin (4)
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Corresponding author: Zhu, Qi(qzhu@xsyu.edu.cn)
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Abbreviated source title: Math. Probl. Eng.
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Issue date: 2017
Publication year: 2017
Article number: 4157256
Language: English
ISSN: 1024123X
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Document type: Journal article (JA)
Publisher: Hindawi Limited, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States
Abstract: Time delay arising in a genetic regulatory network may cause the instability. This paper is concerned with the stability analysis of genetic regulatory networks with interval time-varying delays. Firstly, a relaxed double integral inequality, named as Wirtinger-type double integral inequality (WTDII), is established to estimate the double integral term appearing in the derivative of Lyapunov-Krasovskii functional with a triple integral term. And it is proved theoretically that the proposed WTDII is tighter than the widely used Jensen-based double inequality and the recently developed Wiringter-based double inequality. Then, by applying the WTDII to the stability analysis of a delayed genetic regulatory network, together with the usage of useful information of regulatory functions, several delay-range- and delay-rate-dependent (or delay-rate-independent) criteria are derived in terms of linear matrix inequalities. Finally, an example is carried out to verify the effectiveness of the proposed method and also to show the advantages of the established stability criteria through the comparison with some literature. © 2017 Fu-Dong Li et al.
Number of references: 83
Main heading: Stability criteria
Controlled terms: Linear matrix inequalities - Lyapunov functions - Time delay
Uncontrolled terms: Double integrals - Genetic regulatory networks - Integral terms - Interval time-varying delays - Lyapunov-Krasovskii functionals - Rate independents - Regulatory functions - Stability analysis
Classification code: 713 Electronic Circuits - 731.4 System Stability - 921 Mathematics - 921.1 Algebra - 961 Systems Science
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Funding Details: Number: 163612, Acronym: -, Sponsor: -;

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Compendex references: YES
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Data Provider: Engineering Village

79. Critical distance of stress shadow of multiple-cracks based on displacement discontinuity model

Accession number: 20180204623688
Authors: Yan, Xiangzhen (1); Dong, Wei (2); Fan, Heng (3); Yan, Yifei (2); Xu, Jianguo (1, 4)
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Corresponding author: Fan, Heng(fanheng1@126.com)
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)
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Document type: Journal article (JA)
Publisher: University of Petroleum, China
Abstract: A small specimen test is conducted in MTS to get the elastic modulus and Poisson's ratio of tight sandstone core in R13 field. The irregularity of hydraulic crack surface is ignored, and the cracks are simplified as smooth and parallel to each other. Considering the discontinuity of the multi-cracks, they are treated as discontinuous boundaries of the continuous stratum. Then the displacement discontinuity method is used to construct a boundary element model, which is applicable to calculate the distribution of stress around the multi-crack system, and determine the critical distance of the crack swarms' stress shadow with different clusters and different ways of cloth sewn. The results show that the appearance of artificial multiple-cracks has significantly changed the distribution of stress field around the cracks. The more the cluster number, the longer the distance takes effect. But the influence of the cluster number increasing on the distance becomes smaller, taking on a logarithmic tendency. However, the change of crack spacing between 20 and 30 meters, in a single stage has little influence on the critical distance of stress shadow. This study indicates that the boundary element model based on the displacement discontinuity theory can accurately predict the distribution of the stress field around the multiple-cracks and the critical distance of the crack swarms' stress shadow.

Number of references: 19
Main heading: Cracks
Controlled terms: Boundary element method - Stresses
Uncontrolled terms: Boundary element models - Cluster numbers - Critical distance - Displacement discontinuity - Displacement discontinuity method - Multiple crack - Stress field around the crack - Tight sandstones
Classification code: 921.6 Numerical Methods
Numerical data indexing: Size 2.00e+01m to 3.00e+01m
DOI: 10.3969/j.issn.1673-5005.2017.06.017
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

80. Inhibiting effects of nitrogen compounds on deep hydrodesulfurization of straight-run gas oil over a NiW/Al2O3 catalyst

Accession number: 20164302937771
Authors: Tao, Xiujuan (1); Zhou, Yasong (2); Wei, Qiang (2); Ding, Sijia (2); Zhou, Wenwu (2); Liu, Tingting (2); Li, Xiaohui (3)
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Corresponding author: Tao, Xiujuan(taoxiujuan@sust.edu.cn)
Source title: Fuel
Abbreviated source title: Fuel
Volume: 188
Issue date: January 15, 2017
Publication year: 2017
Pages: 401-407
Language: English
ISSN: 00162361
CODEN: FUELAC
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: The inhibiting effects of nitrogen compounds on the hydrodesulfurization (HDS) of thiophene-series sulfur compounds in straight-run gas oil over a NiW/Al2O3 catalyst were studied. The nitrogen compounds investigated here were quinoline and indole; nitrogen to sulfur mass ratios (N/S) varying from 0.9 to 1.2 were comparably studied. The results showed that quinoline was much easier to be converted but harder to be denitrogenated as compared with indole. Quinoline displayed stronger inhibiting effects on the HDS of individual sulfur compounds in the gas oil than that of indole. Langmuir–Hinshelwood type rate equations were used to compare the nitrogen inhibiting effects. The nitrogen inhibiting effects on these thiophene series sulfur compounds decreased in the order 4,6-DMDBT(4,6-dimethyl-dibenzothiophene) > 4-MDBT > C1DBT > DBT > C2-C3DBT. The HDS of C2-C3DBT group with relative substituents at different 4 and 6 positions got the lowest nitrogen inhibiting effects due to their better approach abilities to the catalyst. © 2016
Number of references: 40
Main heading: Thiophene
Controlled terms: Nitrogen compounds - Polycyclic aromatic hydrocarbons - Catalysts - Hydrodesulfurization
Uncontrolled terms: 4 ,6-Dimethyl-dibenzothiophene - 4 ,6-DMDBT - Deep hydrodesulfurization - Inhibiting effect - Mass ratio - Ni-W/Al2O3 - Rate equations - Straight run gas oil
Classification code: 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds
DOI: 10.1016/j.fuel.2016.09.055
Funding Details: Number: 126021602, Acronym: -, Sponsor: -; Number: -, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: MOST, Sponsor: Ministry of Science and Technology of the People's Republic of China; Number: U1362203, Acronym: КННК, Sponsor: China National Petroleum Corporation; Number: 2010CB226905, Acronym: NKRDPC, Sponsor: National Key Research and Development Program of China;
Funding text: This study was financially supported by the Ministry of Science and Technology of China through the National Basic Research Program (Grant No. 2010CB226905), the Union Fund of the National Natural Science Foundation of China and CNPC (Grant No. U1362203) and Scientific Research Fund of Shaanxi University of Science and Technology (Grant No. 126021602).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

81. New concentration metrics for performance evaluation of estimation algorithms

Accession number: 20173804175934
Authors: Mao, Yanhui (1, 2); Gao, Yongxin (3); Gao, Yi (1); Cheng, Weibin (1); Wang, Yuelong (1)
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Source title: 20th International Conference on Information Fusion, Fusion 2017 - Proceedings
Abbreviated source title: Int. Conf. Inf. Fusion, Fusion - Proc.

Part number: 1 of 1
Issue title: 20th International Conference on Information Fusion, Fusion 2017 - Proceedings
Issue date: August 11, 2017
Publication year: 2017
Article number: 8009670
Language: English
ISBN-13: 9780996452700
Document type: Conference article (CA)
Conference name: 20th International Conference on Information Fusion, Fusion 2017
Conference date: July 10, 2017 - July 13, 2017
Conference location: Xi'an, China
Conference code: 129983
Sponsor: China Gezhouba Group No.3 Engineering Co., Ltd (CGGC); Energy China; et al.; Hangzhou Dianzi Univeristy; LIFT; SATPRO
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Different estimators have different optimization criteria according to the concrete application considered. Most existing metrics on estimation performance are some averages of estimation errors, which usually give 'big' or 'small' results to show the 'bad' or 'good' performance of the evaluated estimators. However, these metrics are only appropriate for measuring minimum mean-square error (MMSE), linear MMSE and even least square estimators and have bias on ones like maximum a posteriori estimators. To handle this problem, a concentration measure is proposed in [1] to measure how concentrative the estimation errors are relative to a desired probability density function. This study proposed several concentration measures including both relative and absolute ones. And the existing concentration measure is extended to more general cases. Illustration examples are provided to verify the effectiveness of our proposed measures. © 2017 International Society of Information Fusion (ISIF).
Number of references: 20
Main heading: Mean square error
Controlled terms: Information fusion - Probability density function - Errors
Uncontrolled terms: Concentration measures - Estimation errors - Estimation performance - Least square estimators - Maximum a Posteriori Estimator - Minimum mean square errors (MMSE) - Performance evaluation - Relative errors
Classification code: 903.1 Information Sources and Analysis - 922.1 Probability Theory - 922.2 Mathematical Statistics
DOI: 10.23919/ICIF.2017.8009670
Funding Details: Number: -, Acronym: -, Sponsor: Fundamental Research Funds for the Central Universities; Number: 51604226, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This research is supported in part by the National Natural Science Foundation of China (61403299, 51604226) and the Fundamental Research Funds for the Central Universities of China.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

82. Change of the chemical and physical properties of heavy oil before and after CO2 treatment

Accession number: 20174704421462
Authors: Zheng, Liming (1, 3); Jing, Cheng (2, 3); Liu, Jing (3); Zhang, Lei (3, 4)
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Source title: Petroleum Science and Technology
Abbreviated source title: Petrol Sci Technol
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Issue date: August 18, 2017
Publication year: 2017
Pages: 1724-1730
Language: English

ISSN: 10916466
E-ISSN: 15322459
CODEN: PSTEFV
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: In order to improve the heavy oil displacement effect by CO2 flooding, the change of the chemical and physical properties of heavy oil before and after CO2 treatment is systematically investigated by indoor simulation experiment. Experimental results show that CO2 treatment can decrease the amount of the saturates but increase that of the aromatics, and yet has little impact on those of resins and asphaltenes. Besides, the corresponding consequence is that there has an increase in the viscosity of the heavy oil and the particle size of the asphaltene micelle, and a decrease in the conductivity of the heavy oil and n-heptane systems and the stability of the asphaltene micelle after CO2 treatment. The conclusions can provide a certain guidance for high-efficiency development of heavy oil reservoir by CO2 flooding. © 2017 Taylor & Francis Group, LLC.
Number of references: 17
Main heading: Crude oil
Controlled terms: Heavy oil production - Particle size - Petroleum reservoir engineering - Petroleum reservoirs - Asphaltenes - Floods - Micelles - Heptane - Reservoirs (water) - Carbon dioxide - Oil well flooding
Uncontrolled terms: Chemical and physical properties - CO2 treatment - Heavy oil reservoirs - High-efficiency - Indoor simulation - n-Heptanes - Oil displacement
Classification code: 441.2 Reservoirs - 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 513 Petroleum Refining - 801.3 Colloid Chemistry - 804.1 Organic Compounds - 804.2 Inorganic Compounds
DOI: 10.1080/10916466.2017.1360909
Funding Details: Number: 51504215, Acronym: -, Sponsor: -; Number: 16CX02020A, Acronym: -, Sponsor: Fundamental Research Funds for the Central Universities;
Funding text: This study was supported by the Fundamental Research Funds for the Central Universities (16CX02020A) and the National Natural Science Funds (51504215).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

83. Numerical simulation of failure mechanism of horizontal borehole in transversely isotropic shale gas reservoirs

Accession number: 20172303729030
Authors: Jia, Lichun (1); Chen, Mian (2); Jin, Yan (2); Jiang, Hailong (3)
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Corresponding author: Jia, Lichun(jlc802@163.com)
Source title: Journal of Natural Gas Science and Engineering
Abbreviated source title: J. Nat. Gas Sci. Eng.
Volume: 45
Issue date: 2017
Publication year: 2017
Pages: 65-74
Language: English
ISSN: 18755100
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Usually, the shale gas reservoirs are characterized by well-developed weak planes, which results in complex borehole instability issues during horizontal drilling. To better understand the borehole collapse, the present work is to model the borehole failure by using the particle flow code (PFC2D). Firstly, the model of shale is developed in form of layered formations. Then, effect of different factors including the wellbore pressure, weak planes number, formations dip angles, mechanical properties of weak planes and the stress states are discussed respectively. The simulation results reveal that the failure of weak planes is particularly prominent and the ultimate cracks mainly concentrate in weak planes. The collapse zone gradually enlarges as the wellbore pressure decreases, which results in square borehole in low wellbore pressure. As the number of weak planes decreases, the number of fractures also decreases

gradually. When the dip angle of weak planes is 30° and 60°, the number of sliding fractures is higher than that of 0° and 90° dip angle, which is opposite to the uniaxial compression strength. The fractures gradually decrease as the mechanical properties of weak planes strengthen, indicating that the weak planes become much stable gradually. The horizontal borehole drilling along the direction of maximum horizontal in-situ stress is much stable in this study. The results agree well with those observed in laboratory and in field. This numerical approach is very helpful to understand the failure mechanism of borehole in shale gas reservoirs. © 2017 Elsevier B.V.
Number of references: 51
Main heading: Boreholes
Controlled terms: Numerical models - Stresses - Horizontal drilling - Oil field equipment - Fracture - Horizontal wells - Shale gas
Uncontrolled terms: Borehole instability - Layered formations - Numerical approaches - Particle flow code - Shale gas reservoirs - Transversely isotropic - Uni-axial compression - Weak planes
Classification code: 511.1 Oil Field Production Operations - 511.2 Oil Field Equipment - 512.1.1 Oil Fields - 512.2 Natural Gas Deposits - 522 Gas Fuels - 921 Mathematics - 951 Materials Science
DOI: 10.1016/j.jngse.2017.05.015
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

84. Preparation and swelling inhibition of cation glucoside to montmorillonite (*Open Access*)

Accession number: 20172803924529
Authors: Song, Shaofu (1); Liu, Jurong (1); Guo, Gang (2, 3); Huang, Lei (1); Qu, Chentun (1); Li, Bianqin (1); Chen, Gang (1)
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Corresponding author: Chen, Gang(gangchen@xsyu.edu.cn)
Source title: IOP Conference Series: Earth and Environmental Science
Abbreviated source title: IOP Conf. Ser. Earth Environ. Sci.
Volume: 69
Part number: 1 of 1
Issue: 1
Issue title: 3rd International Conference on Advances in Energy, Environment and Chemical Engineering
Issue date: June 13, 2017
Publication year: 2017
Article number: 012064
Language: English
ISSN: 17551307
E-ISSN: 17551315
Document type: Conference article (CA)
Conference name: 2017 3rd International Conference on Advances in Energy, Environment and Chemical Engineering, AEECE 2017
Conference date: May 26, 2017 - May 28, 2017
Conference location: Chengdu, China
Conference code: 128370
Publisher: IOP Publishing Ltd
Abstract: In this work, a cation glucoside (CG) was synthesized with glucose and glycidyl trimethyl ammonium chloride (GTA) and used as montmorillonite (MMT) swelling inhibiter. The inhibition of CG was investigated by MMT linear expansion test and mud ball immersing test. The results showed that the CG has a good inhibition to the hydration swelling and dispersion of MMT. Under the same condition, the linear expansion rate of MMT in CG solution is much lower that of methylglucoside and the hydration expansion degree of the mud ball in the CG solution was significantly inhibited. The characterizations of physic-chemical properties of particle, analysized by thermogravimetric analysis and scanning electron microscopy, revealed that CG play great role to prevent water from absorb and keep MMT in large particle size. © Published under licence by IOP Publishing Ltd.
Number of references: 13
Main heading: Clay minerals
Controlled terms: Scanning electron microscopy - Chlorine compounds - Hydration - Thermogravimetric analysis - Particle size - Particle size analysis - Carbohydrates - Swelling - Positive ions

Uncontrolled terms: Ammonium chloride - Hydration swelling - Large particle sizes - Linear expansions - Montmorillonite (MMT) - Physic-chemical properties - Trimethyl
Classification code: 482.2 Minerals - 801 Chemistry - 804.1 Organic Compounds - 951 Materials Science
DOI: 10.1088/1755-1315/69/1/012064
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

85. Influence of elastic element on static and dynamic characteristics of large tilting pad bearing

Accession number: 20173704153790
Authors: Xi, Wen-Kui (1); Han, Qiang-Hui (2); Huang, Tian-Hu (2); Xu, Jian-Ning (1); Jiang, Xiang-Jun (3)
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Source title: Jiaotong Yunshu Gongcheng Xuebao/Journal of Traffic and Transportation Engineering
Abbreviated source title: Jiaotong Yunshu Gongcheng Xuebao
Volume: 17
Issue: 3
Issue date: June 1, 2017
Publication year: 2017
Pages: 83-89
Language: Chinese
ISSN: 16711637
Document type: Journal article (JA)
Publisher: Chang'an University
Abstract: In order to improve the dynamic stability of warship unit and restrain vibration effectively, a new technology of pivot elasticity was applied to the tilting pad bearing structure of warship propulsion shafting system, and the butterfly spring was mounted at the pad pivot of tilting pad bearing. A large gas turbine was taken as an object, the pivot elasticity structure was introduced into the four tilting pad bearings of large scale shaft, the temperature field, pressure field, stiffness and damping of tilting pad bearing were analyzed by using the fluid-solid-heat coupled model and the multi-field analysis technology, and the effect law of pivot elasticity technology on the tribology and dynamics behavior of tilting pad bearing were investigated.Analysis result shows that when the rotating speed is 3 000 r·min-1, the maximum oil film pressure of rigid pivot bearing is 6.5 MPa, and the maximum oil film pressure of spring pivot bearing is 6.7 MPa and just increases a little compared with rigid pivot bearing. Meanwhile, the highest temperatures of two kinds of pivot structure bearings are 98.95 and 98.85, respectively, so the pivot elasticity technique has little effect on the bearings temperatures. With the increase of rotating speed, the main stiffnesses of two kinds of bearings decrease, but their cross stiffnesses change only in the range of ±0.1 MN·m-1. At the rotating speed of 3 000 r·min-1, the main stiffness and the main damping of spring pivot bearing are 3.5 GN·m-1 and 6 MN·s·m-1, respectively, which are 59% and 39% higher than the values of rigid support bearing. Obviously, the utilization of pivot elasticity technology has little effect on the bearing temperature, the maximum oil film pressure increases slightly, but the main stiffness and main damping of bearing increase obviously, which is favorable for the stability increase and vibration suppression of warship unit. 2 tabs, 13 figs, 26 refs. © 2017, Editorial Department of Journal of Traffic and Transportation Engineering. All right reserved.
Number of references: 26
Main heading: Elasticity
Controlled terms: Warships - Pressure effects - Damping - Vibration analysis - Gas turbines - Lubricating oils - Stiffness
Uncontrolled terms: Dynamic property - Elastic pad pivot - Lubrication models - Ship engineering - Tilting pad bearings
Classification code: 607.1 Lubricants - 612.3 Gas Turbines and Engines - 672.1 Combat Naval Vessels - 931.1 Mechanics - 951 Materials Science
Numerical data indexing: Pressure 6.70e+06Pa, Percentage 3.90e+01%, Percentage 5.90e+01%, Pressure 6.50e+06Pa
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

86. Molecular dynamics study of tension-compression asymmetry of nanocrystal α–Ti with stacking fault

Accession number: 20171803626092
Authors: An, Minrong (1); Deng, Qiong (1); Li, Yulong (1); Song, Haiyang (2); Su, Mengjia (1); Cai, Jun (3)
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Source title: Materials and Design
Abbreviated source title: Mater. Des.
Volume: 127
Issue date: August 5, 2017
Publication year: 2017
Pages: 204-214
Language: English
ISSN: 02641275
E-ISSN: 18734197
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Molecular dynamics simulations are performed to investigate the effect of stacking fault (SF) boundary, loading condition and temperature on the mechanical behaviour of nanocrystalline titanium. The results indicate that the yield stress and flow stress present tension-compression asymmetry. The asymmetry is due to the different deformation mechanisms: formation of basal/prismatic interface and motion of SFs in "twin" grains in tension, and the blockage of SF boundary to the fcc-Ti phase boundary in compression. At the same time, the results show that influence of SF on yield stress and flow stress is slight under tensile loading, regardless of temperature and SF spacing. In contrary, the SF boundaries enhance the yield stress and flow stress of nanocrystal Ti under compressive loading. The general conclusions derived from present work may provide a guideline for the design of high-performance nanocrystal Ti. © 2017 Elsevier Ltd
Number of references: 59
Main heading: Molecular dynamics
Controlled terms: Titanium compounds - Stress analysis - Nanocrystals - Yield stress - Plastic flow
Uncontrolled terms: Compressive loading - Deformation mechanism - Loading condition - Mechanical behaviour - Molecular dynamics simulations - Nanocrystalline titaniums - Tensile loading - Tension-compression asymmetry
Classification code: 761 Nanotechnology - 801.4 Physical Chemistry - 933.1 Crystalline Solids - 951 Materials Science
DOI: 10.1016/j.matdes.2017.04.076
Funding Details: Number: 2016KW-049, Acronym: -, Sponsor: -; Number: 11372256,11527803,11572259, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: B07050, Acronym: -, Sponsor: Higher Education Discipline Innovation Project;
Funding text: This work was supported by the National Natural Science Foundation of China (Contract nos. 11372256, 11527803 and 11572259); the 111 project (Contract no. B07050); and the Program for International Cooperation and Exchanges of Shaanxi Province (Grant no. 2016KW-049).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

87. Experimental investigation on the joining of aluminum alloy sheets using improved clinching process (*Open Access*)

Accession number: 20173204016135
Authors: Chen, Chao (1, 2); Zhao, Shengdun (1); Han, Xiaolan (3); Zhao, Xuzhe (4); Ishida, Tohru (2)
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Source title: Materials
Abbreviated source title: Mater.
Volume: 10
Issue: 8
Issue date: August 1, 2017
Publication year: 2017
Article number: 887
Language: English
E-ISSN: 19961944
Document type: Journal article (JA)
Publisher: MDPI AG
Abstract: Aluminum alloy sheets have been widely used to build the thin-walled structures by mechanical clinching technology in recent years. However, there is an exterior protrusion located on the lower sheet and a pit on the upper sheet, which may restrict the application of the clinching technology in visible areas. In the present study, an improved clinched joint used to join aluminum alloy sheets was investigated by experimental method. The improved clinching process used for joining aluminum alloy evolves through four phases: (a) localized deformation; (b) drawing; (c) backward extrusion; and (d) mechanical interlock forming. A flat surface can be produced using the improved clinching process. Shearing strength, tensile strength, material flow, main geometrical parameters, and failure mode of the improved clinched joint were investigated. The sheet material was compressed to flow radially and upward using a punch, which generated a mechanical interlock by producing severe localized plastic deformation. The neck thickness and interlock of the improved clinched joint were increased by increasing the forming force, which also contributed to increase the strength of the clinched joint. The improved clinched joint can get high shearing strength and tensile strength. Three main failure modes were observed in the failure process, which were neck fracture mode, button separation mode, and mixed failure mode. The improved clinched joint has better joining quality to join aluminum alloy sheets on the thin-walled structures. © 2017 by the authors.
Number of references: 57
Main heading: Failure modes
Controlled terms: Aluminum sheet - Fracture - Tensile strength - Joining - Aluminum alloys - Geometry - Formability - Shearing - Thin walled structures
Uncontrolled terms: Experimental investigations - Experimental methods - Geometrical parameters - Improved clinching - Localized deformations - Localized plastic deformation - Material Flow - Strength
Classification code: 408.2 Structural Members and Shapes - 535.1 Metal Rolling - 541.1 Aluminum - 541.2 Aluminum Alloys - 604.1 Metal Cutting - 921 Mathematics - 951 Materials Science
DOI: 10.3390/ma10080887
Compendex references: YES
Open Access type(s): All Open Access, Gold, Green
Database: Compendex
Data Provider: Engineering Village

88. 844-fs mode-locked fiber laser by carboxyl-functionalized graphene oxide

Accession number: 20174804477440
Authors: Duan, Lina (1); Wang, Hushan (2); Bai, Jing (2); Wang, Yonggang (3); Wei, Lianglei (3); Chen, Zhendong (3); Yu, Jia (4); Wen, Jin (1); Li, Yan (1)
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Corresponding author: Duan, Lina(linaduan2010@hotmail.com)
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Abbreviated source title: Opt Eng
Volume: 56
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Publication year: 2017
Article number: 116104
Language: English
ISSN: 00913286
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CODEN: OPEGAR
Document type: Journal article (JA)
Publisher: SPIE
Abstract: We had proved that a kind of graphene nanomaterial "carboxyl-functionalized graphene oxide (GO-COOH)" possessed nonlinear saturable absorber (SA) property. The modulation depth of a GO-COOH water solution was measured as ~8%. Moreover, a GO-COOH-based SA device was made and applied in an erbium-doped fiber laser. In this fiber laser, Q-switching pulses and mode-locked pulses were both obtained. With an increase in the pump power, the pulse width of Q-switching pulses decreased from 9.05 to 2.49 μs. The mode-locked pulse width was 844 fs, and the corresponding spectral bandwidth was 3.64 nm. Moreover, polarization adjusting or control was not needed during the whole process of mode locking. It illustrated that the proposed fiber laser incorporating GO-COOH could endure bigger intracavity birefringence. Our results indicated that the GO-COOH nanomaterial was a promising SA for generating high-performance pulse lasers. © 2017 Society of Photo-Optical Instrumentation Engineers (SPIE).
Number of references: 32
Main heading: Saturable absorbers
Controlled terms: Oxide films - Fiber lasers - Ultrafast lasers - Fibers - Optical pumping - Graphene - Locks (fasteners) - Mode-locked fiber lasers - Nanostructured materials - Q switching
Uncontrolled terms: Carboxyl functionalized graphene oxides - Erbium doped fiber laser - Mode-locked pulse - Modulation depth - Spectral bandwidth - Switching pulse - Temporal solitons - Water solutions
Classification code: 744.1 Lasers, General - 744.4 Solid State Lasers - 744.8 Laser Beam Interactions - 761 Nanotechnology - 804 Chemical Products Generally - 933.1 Crystalline Solids
Numerical data indexing: Size 3.64e-09m, Time 8.44e-13s, Time 9.05e-06s to 2.49e-06s
DOI: 10.1117/1.OE.56.11.116104
Funding Details: Number: GK201702005, Acronym: -, Sponsor: -; Number: 61505160, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work was supported by the Central University Special Fund Basic Research and Operating Expenses GK201702005 and the National Natural Science Foundation of China 61505160.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

89. Numerical investigation of a microfiberplane-grating composite optical waveguide for gas refractive index sensing

Accession number: 20172003675753
Authors: Ma, Chengju (1); Ren, Liyong (2); Guo, Wenge (1); Fu, Haiwei (1); Xu, Yiping (3); Liu, Yinggang (1); Wen, Jin (1)
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Source title: Applied Optics
Abbreviated source title: Appl. Opt.
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Publication year: 2017
Pages: 3984-3988
Language: English
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Document type: Journal article (JA)
Publisher: OSA - The Optical Society
Abstract: In this paper, we propose a microfiber-plane-grating composite optical waveguide (MPGCOW), which is formed by immobilizing a tapered microfiber on the surface of a plane grating with one defect, for gas refractive index (RI) sensing. Its optical properties and gas RI sensing properties are investigated by the finite difference time domain method. Results show that the MPGCOW has a photonic stop band and is very sensitive to the ambient gas

RI variation. The largest gas RI sensing sensitivity of 486.67 nm/RIU and detection limit of 2 × 10-6 are obtained by immersing the structure in the mixture gas of N2 and He with various mixture ratios. © 2017 Optical Society of America.
Number of references: 19
Main heading: Refractive index
Controlled terms: Surface defects - Finite difference time domain method - Optical waveguides - Mixtures - Gases
Uncontrolled terms: Composite optical waveguides - Detection limits - Gas refractive index - Mixture ratio - Numerical investigations - Photonic stop band - Plane grating - Sensing property
Classification code: 714.3 Waveguides - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 921 Mathematics - 951 Materials Science
DOI: 10.1364/AO.56.003984
Funding Details: Number: 2015BS01, Acronym: -, Sponsor: -; Number: 61275149,61505160,61605018, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2016JQ6051, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 15JK1578, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: SKLST201612, Acronym: SKLTOP, Sponsor: State Key Laboratory of Transient Optics and Photonics; Number: -, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: National Natural Science Foundation of China (NSFC) (61275149, 61505160, 61605018); Scientific Research Program Funded by Shaanxi Provincial Education Department (15JK1578); Natural Science Foundation of Shaanxi Province (2016JQ6051); Doctoral Scientific Research Startup Foundation of Xi'an Shiyou University (2015BS01); Open Research Fund of State Key Laboratory of Transient Optics and Photonics (SKLST201612); Students Research Training Program of Xi'an Shiyou University.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

90. Hybrid Long-Period Fiber Grating with Multimode Fiber Core for Refractive Index Measurement

Accession number: 20220711662706
Authors: Shao, Min (1, 4); Qiao, Xue-Guang (2); Ren, Xue-Liang (3); Yang, De-Xing (4)
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Issue date: November 2017
Publication year: 2017
Article number: 114205
Language: English
ISSN: 0256307X
E-ISSN: 17413540
Document type: Journal article (JA)
Publisher: IOP Publishing Ltd
Abstract: A refractive index (RI) sensor based on hybrid long-period fiber grating (LPFG) with multimode fiber core(MMFC) is proposed and demonstrated. The surrounding RI can be determined by monitoring the separationbetween the resonant wavelengths of the LPFG and MMFC since the resonant wavelengths of the LPFG andMMFC will shift in opposite directions when the surrounding RI changes. Experimental results show that thesensor possesses an enhanced sensitivity of 526.92 nm/RIU in the RI range of 1.3871.394 RIU. The response tothe temperature is also discussed. © 2017 Chinese Physical Society and IOP Publishing Ltd.
Number of references: 14
Main heading: Multimode fibers
Controlled terms: Refractive index - Refractometers - Diffraction gratings
Uncontrolled terms: Enhanced sensitivity - Fiber cores - Hybrid long period fiber gratings - Index range - Long-period fibre gratings - Refractive index changes - Refractive index measurement - Refractive index sensor - Resonant wavelengths

Classification code: 741.1 Light/Optics - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941.3 Optical Instruments
Numerical data indexing: Size 5.2692E-07m
DOI: 10.1088/0256-307X/34/11/114205
Funding Details: Number: OIT201601, Acronym: -, Sponsor: -; Number: 61327012,61505160, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2016JQ6021, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province;
Funding text: #Supported by the National Natural Science Foundation of China under Grant Nos 61327012 and 61505160, the Natural Science Foundation of Shaanxi Province under Grant No 2016JQ6021, and the Shaanxi Key Laboratory of Optical Information Technology under Grant No OIT201601. **Corresponding author. Email: shaomin@xsyu.edu.cn © 2017 Chinese Physical Society and IOP Publishing Ltd
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

91. Fine-Grained Recommendation Mechanism to Curb Astroturfing in Crowdsourcing Systems (*Open Access*)

Accession number: 20173604108515
Authors: Guo, Zhiwei (1); Tang, Chaowei (1); Niu, Wenjia (2); Fu, Yunqing (3); Wu, Tong (4); Xia, Haiyang (5); Tang, Hui (1)
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Source title: IEEE Access
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Publication year: 2017
Pages: 15529-15541
Article number: 7990503
Language: English
E-ISSN: 21693536
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Crowdsourcing activities, carrying out large-scale tasks via wisdoms of crowds, are widely used in practice. However, it is hard for users to find tasks that are suitable for them. Thus, many users participate in tasks, and they are not good at or not interested in, and give answers carelessly or randomly. This phenomenon causes heavy astroturfing problem in crowdsourcing systems, which not only hurts the quality of completing tasks, but also influences user experience. Therefore, recommendation mechanisms that can optimize the match between users and tasks are in demand. However, existing studies simply adopt users' expertise level or interest degree as the key rule for recommendation. They neglect the fact that interest and expertise function jointly, and that interest can sometimes exert reaction force on expertise. Besides, previous studies assume that users' interest degree is steady, yet ignoring that it is time-varying rather than static in real world. In this paper, we propose IntexCrowd, fine-grained recommendation mechanism through interest-expertise collaborative awareness for crowdsourcing systems, to curb astroturfing problem. First, the IntexCrowd assigns a topic to each task. Then, topic-specific expertise level as well as interest degree of users are estimated according to historical records of tasks. At last, suitable user lists for topic-specific tasks are suggested as recommendation results. And we present a case study and a set of experiments to confirm the validity of IntexCrowd. © 2013 IEEE.
Number of references: 41
Main heading: Crowdsourcing
Uncontrolled terms: astroturfing - Collaborative awareness - Crowdsoucing - expertise level - interest degree - ranking
Classification code: 406.2 Roads and Streets
DOI: 10.1109/ACCESS.2017.2731360
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Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

92. The first defective extended chromium atom chain complex with amine ligand containing naphthyridine and pyrazine

Accession number: 20171103442827
Authors: Wang, Wen-Zhen (1); Geng, Shu-Bo (1); Liu, Shuang (1); Zhao, Dan (1); Jia, Xin-Gang (1); Wei, Hai-Long (1); Ismayilov, Rayyat H. (2); Yeh, Chen-Yu (3); Lee, Gene-Hsiang (4); Peng, Shie-Ming (4)
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Source title: Journal of Molecular Structure
Abbreviated source title: J. Mol. Struct.
Volume: 1138
Issue date: June 15, 2017
Publication year: 2017
Pages: 222-226
Language: English
ISSN: 00222860
CODEN: JMOSB4
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Through a pyrazine and naphthyridine-containing diamino ligand, N2,N7-di(pyrazin-2-yl)-1,8-naphthyridine-2,7-diamine (H2dpznda), defective extended metal atom chain complexes with one chromium(II) metal absent in centre, [Cr5(μ5-dpznda)4Cl2] (1) and [Cr5(μ5-dpznda)4(NCS)2] (2) were obtained. An electrochemistry research showed that the pentachromium(II) complexes were quite resistant to reduction although accessible to oxidation, with two reversible redox couples at E1/2 = +0.59 and +0.30 V. © 2017 Elsevier B.V.
Number of references: 30
Main heading: Electrochemistry
Controlled terms: Atoms - Metals - Chromium compounds - Chains - Ligands
Uncontrolled terms: Amine ligand - Atomic chains - Chain complexes - Metal atoms - Naphthyridine - Pentachromium(II) complexes - Pyrazines - Reversible redox couples
Classification code: 602.1 Mechanical Drives - 801.4 Physical Chemistry - 801.4.1 Electrochemistry - 931.3 Atomic and Molecular Physics
DOI: 10.1016/j.molstruc.2017.02.090
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

93. Dynamics of spiral waves rotating around an obstacle and the existence of a minimal obstacle

Accession number: 20172303735416
Authors: Gao, Xiang (1, 2); Feng, Xia (3); Li, Teng-Chao (4); Qu, Shixian (1); Wang, Xingang (1); Zhang, Hong (4)
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Source title: Physical Review E
Abbreviated source title: Phys. Rev. E
Volume: 95
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Publication year: 2017
Article number: 052218
Language: English
ISSN: 24700045
E-ISSN: 24700053
Document type: Journal article (JA)
Publisher: American Physical Society
Abstract: Pinning of vortices by obstacles plays an important role in various systems. In the heart, anatomical reentry is created when a vortex, also known as the spiral wave, is pinned to an anatomical obstacle, leading to a class of physiologically very important arrhythmias. Previous analyses of its dynamics and instability provide fine estimates in some special circumstances, such as large obstacles or weak excitabilities. Here, to expand theoretical analyses to all circumstances, we propose a general theory whose results quantitatively agree with direct numerical simulations. In particular, when obstacles are small and pinned spiral waves are destabilized, an accurate explanation of the instability in two-dimensional media is provided by the usage of a mapping rule and dimension reduction. The implications of our results are to better understand the mechanism of arrhythmia and thus improve its early prevention. © 2017 American Physical Society.
Number of references: 53
Uncontrolled terms: Dimension reduction - General theory - Mapping rules - Spiral waves
Classification code: 631.1 Fluid Flow, General
DOI: 10.1103/PhysRevE.95.052218
Funding Details: Number: 11447026,11647055,11675141, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: -, Sponsor: Fundamental Research Funds for the Central Universities;
Funding text: This work was supported by the National Natural Science Foundation of China under Grants No. 11447026, No. 11675141, and No. 11647055 and by the Fundamental Research Funds for the Central Universities.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

94. Nano-sized NaF inspired intrinsic solvothermal growth mechanism of rare-earth nanocrystals for facile control synthesis of high-quality and small-sized hexagonal NaYbF4:Er

Accession number: 20174004235669
Authors: Shen, Ji-Wei (1); Wang, Zhiqing (1); Liu, Jiawei (1); Li, Hua (2, 3)
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Corresponding author: Shen, Ji-Wei(jiweish@nwu.edu.cn)
Source title: Journal of Materials Chemistry C
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Pages: 9579-9587
Language: English
ISSN: 20507534
E-ISSN: 20507526
CODEN: JMCCCX
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: In an effort to address the solvothermal control synthesis issues of hexagonal upconversion nanocrystals (UCNCs) without additional co-doping, especially for NaYbF4:Er, we find for the first time that the mostly used sodium sources of NaOH and sodium oleate function through a totally unexpected NaF-HF pathway rather than the commonly accepted pathway of each of them. Specifically, NaOH reacts with NH4F and converts to nano-sized NaF completely in methanol, leading to reduced NH4F decomposition/HF generation in NaOH based synthesis. By contrast, sodium oleate-oleic acid hybrid suppresses NaF generation, leading to enhanced NH4F decomposition/HF generation in

sodium oleate based synthesis. HF-flask SiO2 reaction, HF-to-NaF etching and HF tail gas were also detected for the first time. Results show the nano-sized NaF and in situ generated HF play key roles in the formation of cubic monomers and the cubic-to-hexagonal transition of UCNCs, respectively. Inspired by these results, a facile binary sodium strategy was proposed to achieve control synthesis of high-quality and small-sized hexagonal UCNCs via simultaneous regulation of nano-sized NaF and HF levels. HF was also verified as an origin of Ostwald ripening for UCNCs. The impacts of Ostwald ripening on the evolution of UCNCs were thus investigated. Our findings not only offer an advanced growth mechanism, but also present an effective control synthesis tool for UCNCs. © 2017 The Royal Society of Chemistry.
Number of references: 39
Main heading: Sodium hydroxide
Controlled terms: Rare earths - Erbium compounds - Quality control - Nanocrystals - Ostwald ripening - Sodium - Silica
Uncontrolled terms: Advanced growths - Control synthesis - Control synthesis tools - High quality - Sodium oleate - Solvothermal - Solvothermal growth - Upconversion nanocrystals
Classification code: 549.1 Alkali Metals - 761 Nanotechnology - 804.2 Inorganic Compounds - 913.3 Quality Assurance and Control - 933.1 Crystalline Solids
DOI: 10.1039/c7tc02573d
Funding Details: Number: 338020013, Acronym: -, Sponsor: -; Number: 21605122, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Database: Compendex
Data Provider: Engineering Village

95. Molecular Dynamics Simulation Study of Eucommiaulmoides GUM/AG Nanoparticle Composites

Accession number: 20210709915043
Authors: Li, Fei-Zhou (1, 2); Lu, Zhen-Lin (2); Xi, Yuntao (4); Wang, Xin-Sheng (1); Zhu, Ming-Qiang (3)
Author affiliation: (1) Baoji University of Arts and Sciences, Department of Mechanical, Baoji; Xi'an; 721007, China; (2) University of Technology, School of Material Science and Engineering, Xi'an; 710048, China; (3) College of Forestry, Northwest AF University, Yangling; 712100, China; (4) School of Material Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding authors: Li, Fei-Zhou(lfz-1010@163.com); Li, Fei-Zhou(lfz-1010@163.com)
Source title: Advanced Composites Letters
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Issue date: 2017
Publication year: 2017
Language: English
ISSN: 09636935
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Document type: Journal article (JA)
Publisher: SAGE Publications Ltd
Abstract: A study of eucommia ulmoides gum (EUG)/Ag nanoparticle (NP) composites by molecular dynamics (MD) simulations to understand their structure, polarizability, thermodynamic properties, and mechanical properties is proposed. The effects of simulation temperature and Ag NPs size on these parameters were also studied. The results revealed that the composites exhibited an isotropic amorphous structure, and the distribution uniformity of the Ag NPs was enhanced by changing the simulation temperature. Several atoms of the Ag NPs were in an amorphous state, and a polarized layer was observed on the interface between the Ag NPs and the eucommia ulmoide matrix. The interface size increased as the temperature increased and nanoparticles size decreased. The isochoric heat capacity and thermal pressure coefficient of the EUG/Ag-NP composites exhibited significant size effects and improved thermal interferences, which indicated that the presence of the Ag NPs had a positive effect on the mechanical properties of the EUG. © 2017 SAGE Publications Ltd.
Number of references: 34
Main heading: Molecular dynamics
Controlled terms: Temperature - Specific heat - Silver nanoparticles - Interface states - Silver compounds

Uncontrolled terms: Amorphous structures - Distribution uniformity - Eucommia ulmoides gums - Isochoric heat capacity - Molecular dynamics simulations - Simulation temperature - Thermal interferences - Thermal pressure coefficient
Classification code: 641.1 Thermodynamics - 761 Nanotechnology - 801.4 Physical Chemistry - 931 Classical Physics; Quantum Theory; Relativity - 932 High Energy Physics; Nuclear Physics; Plasma Physics
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Database: Compendex
Data Provider: Engineering Village

96. Low-temperature co-pyrolysis behaviours and kinetics of oily sludge: effect of agricultural biomass

Accession number: 20203209033468
Authors: Zhou, Xiehong (1, 2); Jia, Hanzhong (1); Qu, Chengtun (3); Fan, Daidi (2); Wang, Chuanyi (1)
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Corresponding author: Jia, Hanzhong(jiahz@ms.xjb.ac.cn)
Source title: Environmental Technology (United Kingdom)
Abbreviated source title: Environ. Technol.
Volume: 38
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Publication year: 2017
Pages: 361-369
Language: English
ISSN: 09593330
E-ISSN: 1479487X
CODEN: ENVTEV
Document type: Journal article (JA)
Publisher: Taylor and Francis Ltd.
Abstract: Pyrolysis is potentially an effective treatment of oily sludge for oil recovery, and its kinetics and efficiency are expected to be affected by additives. In the present study, the pyrolysis parameters, including heating rate, final pyrolysis temperature, and pyrolysis time of oily sludge in the presence of agricultural biomass, apricot shell, were systematically explored. As a result, maximum oil recovery is achieved when optimizing the pyrolysis conditionas15 K/min, 723 K, and 3 h for heating rate, final pyrolysis temperature, and pyrolysis time, respectively. Thermogravimetric experiments of oily sludge samples in the presence of various biomasses conducted with non-isothermal temperature programmes suggest that the pyrolysis process contains three stages, and the main decomposition reaction occurs in the range of 400–740 K. Taking Flynn–Wall–Ozawa analysis of the derivative thermogravimetry and thermogravimetry results, the activation energy (Ea) values for the pyrolysis of oily sludge in the presence and absence of apricot shell were derived to be 35.21 and 39.40 kJ mol-1, respectively. The present work supports that the presence of biomass promotes the pyrolysis of oily sludge, implying its great potential as addictive in the industrial pyrolysis of oily sludge. © 2016 Informa UK Limited, trading as Taylor & Francis Group.
Number of references: 52
Main heading: Pyrolysis
Controlled terms: Activation analysis - Oil well flooding - Heating rate - Agriculture - Thermogravimetric analysis - Biomass - Activation energy - Kinetics - Temperature
Uncontrolled terms: Activation energies (Ea) - Decomposition reaction - Derivative thermogravimetry - Kinetic analysis - Non-isothermal temperature - Oil recoveries - Oily sludges - Thermo-gravimetric experiments
Classification code: 511.1 Oil Field Production Operations - 631.1 Fluid Flow, General - 641.1 Thermodynamics - 641.2 Heat Transfer - 801 Chemistry - 802.2 Chemical Reactions - 821 Agricultural Equipment and Methods; Vegetation and Pest Control - 931 Classical Physics; Quantum Theory; Relativity
Numerical data indexing: Temperature 7.23e+02K, Time 1.08e+04s
DOI: 10.1080/09593330.2016.1194481

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Funding text: This work was supported by the [West Light Foundation of Chinese Academy of Sciences] under Grand [number 2015-XBQN-A-03], ["CAS-local" cooperation program of Chinese Academy of Sciences], [High-Technology Research & Development Project of Xinjiang Uyghur Autonomous Region]under Grand [number 201415110], [STS project of Chinese Academy of Sciences] under Grand [number KFJ-SW-STS-179], [CAS "Western Action Plan"] under Grand [number KGZD-EW-502], [Xinjiang Program of Introducing High-Level Talents] under Grand [number Y539031601], [National Natural Science Foundation of China] under Grand [numbers 41571446 and 41301543], and [CAS Youth Innovation Promotion Association] under Grand [number 2016380].This work was supported by the [West Light Foundation of Chinese Academy of Sciences] under Grand [number 2015-XBQN-A-03], [?CAS-local? cooperation program of Chinese Academy of Sciences], [High-Technology Research & Development Project of Xinjiang Uyghur Autonomous Region]under Grand [number 201415110], [STS project of Chinese Academy of Sciences] under Grand [number KFJ-SW-STS-179], [CAS ?Western Action Plan?] under Grand [number KGZD-EW-502], [Xinjiang Program of Introducing High-Level Talents] under Grand [number Y539031601], [National Natural Science Foundation of China] under Grand [numbers 41571446 and 41301543], and [CAS Youth Innovation Promotion Association] under Grand [number 2016380].
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

97. Mixing rules of Xanthoceras sorbifolia Bunge oil biodiesel and 0# diesel blends

Accession number: 20174104259849
Authors: Shang, Qiong (1, 2, 3); Ma, Mingguang (1, 2); Bai, Lin (2, 3); Li, Xiaochun (4); Zhao, Guohu (1, 2, 3)
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Corresponding author: Zhao, Guohu(zhaoguohu@lzcu.edu.cn)
Source title: Huagong Jinzhan/Chemical Industry and Engineering Progress
Abbreviated source title: Huagong Jinzhan/Chem. Ind. Eng. Prog.
Volume: 36
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Issue date: July 5, 2017
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Language: Chinese
ISSN: 10006613
Document type: Journal article (JA)
Publisher: Materials China
Abstract: With Xanthoceras sorbifolia Bunge oil from Gansu province as raw materials, biodiesel was prepared and blended with the 0# diesel fuels at 0, 5%, 20%, 40%, 60%, 80% and 100% on a volume basis. The key properties of blends, such as density, kinematic viscosity, cold filter plug point and flash point were measured. Additionally, the influence of volume fraction of biodiesel on the blends properties was discussed. The density of blends was linear with the volume fraction of biodiesel and its value increased with the increasing of volume fraction of biodiesel. A mixing equation 100ln(##)=X1ln(#1#1)+X2ln(#2#2) was used to predict the kinematic viscosities of the blends. For all blends, it was found that there was an excellent agreement between the measured and estimated values of the kinematic viscosities with the relative absolute error less than 1%. An empirical equation CFPP=0.7344-0.1058X +0.00187X 2-1.3875×10-5X 3 could be used to correlate the cold filter plugging point(CFPP)and the volume fraction of biodiesel(X). The experimental data of flash point(FP)was also correlated as a function of biodiesel volume fraction(X)by empirical third-degree equation, which was given by FP=57.2638+0.6836X-0.01762X2+1.8983×10-4X3. According to the results, the density, kinematic viscosities and flash point of the blends increased with the increase of volume fraction of biodiesel in the blends, whereas the CFPP of blends decreased. The physicochemical properties of blends were improved when mixing 0# diesel fuels with biodiesel, in the purpose of storage, utilization and transportation. © 2017, Chemical Industry Press. All right reserved.

Number of references: 22
Main heading: Biodiesel
Controlled terms: Digital storage - Mixing - Diesel engines - Volume fraction - Diesel fuels - Kinematics - Viscosity of liquids
Uncontrolled terms: 0^# diesel - Absolute error - Cold filter plugging point - Empirical equations - Flash points - Gansu province - Mixing rules - Xanthoceras sorblfolia Bunge oil
Classification code: 523 Liquid Fuels - 612.2 Diesel Engines - 631.1 Fluid Flow, General - 641.1 Thermodynamics - 722.1 Data Storage, Equipment and Techniques - 802.3 Chemical Operations - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Percentage 6.00e+01%, Percentage 8.00e+01%, Percentage 1.00e+00%, Percentage 1.00e+02%, Percentage 2.00e+01%, Percentage 4.00e+01%, Percentage 5.00e+00%
DOI: 10.16085/j.issn.1000-6613.2016-2304
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

98. The Intelligent Oil Extraction Auxiliary Decision Based on Evolution Model and Preference Driven Multi-objective Optimization (*Open Access*)

Accession number: 20173504096465
Authors: Gu, Xiaohua (1, 2); Wang, Kan (3); Li, Yan (4); Gao, Lun (1); Li, Taifu (1); Zhou, Wei (1)
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Abbreviated source title: Jixie Gongcheng Xuebao
Volume: 53
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Issue date: July 5, 2017
Publication year: 2017
Pages: 159-169
Language: Chinese
ISSN: 05776686
CODEN: CHHKA2
Document type: Journal article (JA)
Publisher: Chinese Mechanical Engineering Society
Abstract: Obtaining the optimal decision parameters by intelligent production systems' autonomous analysis and decision has significant meanings to deal with the low efficiency and high energy consumption in the oil extraction process. However, it is quite difficult to conduct and optimize the mechanism relationships among the operation parameters, the environment variables and the production mode settings, due to the mechanical, geological and artificial factors. Therefore, a novel autonomous decision method of oil extraction system by preference driven multi-objective optimization based on dynamic evolution models is proposed. The potential law of the pumping systems and then establish the dynamic model by unscented Kalman filter neural network (UKFNN) is found. The preference multi-objectives are constructed according to the actual production mode. The optimal decision parameters are obtained by improved non-dominated sorting genetic algorithm (NSGA2). The experimental results show that after the proposed optimization the energy consumptions of the system decrease 15.87%, as well as the system efficiency improves over 4.9%, which illustrate the feasibility and the effectiveness of the proposed method. © 2017 Journal of Mechanical Engineering.
Number of references: 25
Main heading: Multiobjective optimization
Controlled terms: Dynamics - Extraction - Energy utilization - Dynamic models - Genetic algorithms
Uncontrolled terms: Autonomous decision - Decision parameters - Evolution modeling - High energy consumption - Non- dominated sorting genetic algorithms - Oil extraction - Operation parameters - Unscented Kalman Filter
Classification code: 525.3 Energy Utilization - 802.3 Chemical Operations - 921 Mathematics - 921.5 Optimization Techniques
Numerical data indexing: Percentage 1.59e+01%, Percentage 4.90e+00%
DOI: 10.3901/JME.2017.13.159

Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

99. Acid-treated TiO2 nanobelt supported platinum nanoparticles for the catalytic oxidation of formaldehyde at ambient conditions (*Open Access*)

Accession number: 20171403515360
Authors: Cui, Weiyi (1, 2); Xue, Dan (3); Yuan, Xiaoling (2); Zheng, Bin (2); Jia, Mingjun (2); Zhang, Wenxiang (2)
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Corresponding author: Jia, Mingjun(jiamj@jlu.edu.cn)
Source title: Applied Surface Science
Abbreviated source title: Appl Surf Sci
Volume: 411
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Publication year: 2017
Pages: 105-112
Language: English
ISSN: 01694332
CODEN: ASUSEE
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: In this work, two kinds of novel Pt/TiO2 catalysts were prepared by impregnation method using hydrothermally synthesized TiO2 nanobelt (TiNB) and sulfuric acid-treated TiO2 nanoblet (TiNB-ac) as supports, and their catalytic properties were investigated in the oxidation of formaldehyde. It was found that Pt/TiNB-ac exhibits much higher catalytic activity, which can efficiently convert formaldehyde to CO2 and H2O at ambient temperature. The addition of water vapor into the feed stream can further promote the catalytic activity of Pt/TiNB-ac catalyst. A variety of characterization results showed that TiNB-ac possesses much rougher surface, and more defect sites (including abundant chemisorbed oxygen and surface hydroxyl species) due to the treatment by sulfuric acid. These features should be beneficial to achieve high dispersion of Pt nanoparticles on the rough-surface of TiNB-ac, to produce more interface active sites like Pt-O(OH)x-Ti species through the interaction between the Pt naoparticles and the surface hydroxyl species of TiNB-ac support, thus resulting in the formation of highly efficient Pt/TiNB-ac catalyst for the oxidation of formaldehyde under mild conditions. © 2017 Elsevier B.V.
Number of references: 47
Main heading: Titanium dioxide
Controlled terms: Metal nanoparticles - Formaldehyde - Nanocatalysts - Sulfuric acid - Catalyst activity - Surface defects - Catalytic oxidation - Nanobelts - Platinum
Uncontrolled terms: Acid treatments - Ambient conditions - Catalytic properties - Chemisorbed oxygen - Hydrothermally synthesized - Impregnation methods - Platinum nano-particles - Pt nanoparticles
Classification code: 451.2 Air Pollution Control - 547.1 Precious Metals - 761 Nanotechnology - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 933 Solid State Physics - 951 Materials Science
DOI: 10.1016/j.apsusc.2017.03.169
Funding Details: Number: 20973080,21173100,21473074, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

100. Transient pressure behavior of multi-stage fractured horizontal wells in stress-sensitive tight oil reservoirs

Accession number: 20173404077996
Authors: Zongxiao, Ren (1); Xiaodong, Wu (1); Guoqing, Han (1); Lingyan, Liu (2); Xiaojun, Wu (1); Guanghui, Zhang (3); Hun, Lin (2); Jiaming, Zhang (4); Xianwei, Zhang (3)
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Source title: Journal of Petroleum Science and Engineering
Abbreviated source title: J. Pet. Sci. Eng.
Volume: 157
Issue date: 2017
Publication year: 2017
Pages: 1197-1208
Language: English
ISSN: 09204105
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Due to well-developed natural fractures, tight oil reservoirs always described as stress sensitive dual media reservoir. So far, the pressure distribution model for multi-stage fractured horizontal well (MFW) in stress sensitive reservoir is almost solved by numerical method. This paper gives the semi-analytical solution to this problem. Firstly, with consideration of stress sensitivity, a transient pressure behavior model of MFW was established. Using perturbation transform, Laplace transform, image theory and superposition principle the mathematical model was solved. Finally, by applying stehfest numerical inversion and perturbation inverse transform, we get the transient pressure for MFW in the time domain. According to the result of calculation, the flow process of MFW can be identified as six regimes: linear flow, the first radial flow, double radial flow, radial flow in the natural fractures system, cross flow, radial flow in the entire reservoir. Stress-sensibility primarily influences the latter five stages. The well bore dimensionless pressure drop is several times larger comparing with the situation that don't take the stress sensitive into account, and the dimensionless pressure drop derivative curve will tilte up in the later flow process, showing the characteristic of closed boundary. Accordingly, the calculating error will be larger and can mislead the interpretation of well testing. © 2017 Elsevier B.V.
Number of references: 39
Main heading: Laplace transforms
Controlled terms: Time domain analysis - Fracture - Petroleum reservoirs - Pressure drop - Radial flow - Well testing - Drops - Oil wells - Horizontal wells - Inverse problems - Numerical methods - Petroleum reservoir engineering
Uncontrolled terms: Flow regimes - Fractured horizontal wells - Oil reservoirs - Source functions - Stress sensitive
Classification code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 921 Mathematics - 921.3 Mathematical Transformations - 921.6 Numerical Methods - 951 Materials Science
DOI: 10.1016/j.petrol.2017.07.073
Funding Details: Number: -, Acronym: -, Sponsor: CMG Reservoir Simulation Foundation; Number: 2015CB250900, Acronym: -, Sponsor: Basic Research Program of Jiangsu Province;
Funding text: We are grateful to the anonymous reviewers for their insightful and constructive comments for improving the manuscript. This work is funded by CMG Reservoir Simulation Foundation and National Basic Research 973 Program of China (2015CB250900).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

101. Molecular dynamics simulation study of eucommiaulmoides gum/ag nanoparticle composites

Accession number: 20174804466057
Authors: Li, Fei-Zhou (1, 2); Lu, Zhen-Lin (2); Xi, Yuntao (4); Wang, Xin-Sheng (2); Zhu, Ming-Qiang (3)
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Corresponding author: Li, Fei-Zhou(lfz-1010@163.com)
Source title: Advanced Composites Letters
Abbreviated source title: Adv. Compos. Lett.
Volume: 26
Issue: 4
Issue date: July-August 2017
Publication year: 2017
Pages: 109-117
Language: English
E-ISSN: 2633366X
Document type: Journal article (JA)
Publisher: Adcotec Ltd.
Abstract: A study of eucommia ulmoides gum (EUG)/Ag nanoparticle (NP) composites by molecular dynamics (MD) simulations to understand their structure, polarizability, thermodynamic properties, and mechanical properties is proposed. The effects of simulation temperature and Ag NPs size on these parameters were also studied. The results revealed that the composites exhibited an isotropic amorphous structure, and the distribution uniformity of the Ag NPs was enhanced by changing the simulation temperature. Several atoms of the Ag NPs were in an amorphous state, and a polarized layer was observed on the interface between the Ag NPs and the eucommia ulmoide matrix. The interface size increased as the temperature increased and nanoparticles size decreased. The isochoric heat capacity and thermal pressure coefficient of the EUG/Ag-NP composites exhibited significant size effects and improved thermal interferences, which indicated that the presence of the Ag NPs had a positive effect on the mechanical properties of the EUG.
Number of references: 34
Main heading: Silver nanoparticles
Controlled terms: Interface states - Silver compounds - Specific heat - Molecular dynamics - Temperature
Uncontrolled terms: Ag nanoparticle - Distribution uniformity - Eucommia ulmoides gums - Isochoric heat capacity - Molecular dynamics simulations - Simulation temperature - Thermal interferences - Thermal pressure coefficient
Classification code: 641.1 Thermodynamics - 761 Nanotechnology - 801.4 Physical Chemistry - 931 Classical Physics; Quantum Theory; Relativity - 932 High Energy Physics; Nuclear Physics; Plasma Physics
Funding Details:
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

102. Microstructural evolution and mechanical properties of electron beam welded dissimilar titanium alloy joints

Accession number: 20172003664989
Authors: Wang, S.Q. (1); Li, W.Y. (2); Jing, K. (1); Zhang, X.Y. (1); Chen, D.L. (3)
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Source title: Materials Science and Engineering: A
Abbreviated source title: Mater. Sci. Eng. A
Volume: 697
Issue date: June 14, 2017
Publication year: 2017
Pages: 224-232
Language: English
ISSN: 09215093
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: The aim of this study was to analyze the microstructural changes of two dissimilar Ti-6Al-4V/Ti17 and Ti-6Al-4V/BT9 joints welded via electron beam welding (EBW), and establish the relationship between microstructure and properties. The results showed that the occurrence of phase transformation was mainly dependent on the peak heating temperature during EBW, and despite the same welding parameters the microstructures of two dissimilar joints

were different except in the heat-affected zone (HAZ) on the Ti-6Al-4V side. Both dissimilar joints exhibited a higher strength compared with Ti-6Al-4V base metal (BM), and the strength of Ti-6Al-4V/Ti17 joint was slightly higher than that of Ti-6Al-4V/BT9 joint due to the presence of finer martensite. Fatigue life of dissimilar joints was almost the same as that of Ti-6Al-4V BM within the experimental scatter. Fatigue failure of both dissimilar joints occurred in the HAZ, and fatigue crack basically initiated from the specimen surface. © 2017 Elsevier B.V.
Number of references: 25
Main heading: Microstructure
Controlled terms: Aluminum alloys - Corrosion - Electron beam welding - Electron beams - Fatigue of materials - Heat affected zone - Tensile properties - Ternary alloys - Titanium alloys
Uncontrolled terms: Alloys joints - Base metals - Dissimilar joints - Electron-beam - Electron-beam welding - Fatigue-resistance - Heat-affected zones - Microstructural changes - Microstructure and properties - Titanium (alloys)
Classification code: 538.2 Welding - 538.2.1 Welding Processes - 541.2 Aluminum Alloys - 542.3 Titanium and Alloys - 951 Materials Science
Numerical data indexing: Voltage 6.00E+00V to 4.00E+00V
DOI: 10.1016/j.msea.2017.05.028
Funding Details: Number: 2015QNKYCXTD02, Acronym: -, Sponsor: -; Number: -, Acronym: -, Sponsor: Ryerson University; Number: -, Acronym: NSERC, Sponsor: Natural Sciences and Engineering Research Council of Canada; Number: -, Acronym: CFI, Sponsor: Canada Foundation for Innovation; Number: 51505379, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: NPU, Sponsor: Northwestern Polytechnical University; Number: 16JK1615, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: SKLSP201505, Acronym: SKLSP, Sponsor: State Key Laboratory of Solidification Processing;
Funding text: This work was supported by the National Natural Science Foundation of China (NSFC, No: 51505379), the State Key Laboratory of Solidification Processing (No: SKLSP201505) of Northwestern Polytechnical University (NWPU), and Shaanxi Provincial Department of Education (16JK1615). One of the authors (D.L. Chen) is also grateful for the financial support by the Natural Sciences and Engineering Research Council of Canada (NSERC), Premier's Research Excellence Award (PREA), NSERC-Discovery Accelerator Supplement (DAS) Award, Canada Foundation for Innovation (CFI), and Ryerson Research Chair (RRC) program. The authors would like to thank Q. Li, A. Machin, and R. Churaman for easy access to the laboratory facilities of Ryerson University and their assistance in the experiments. Special thanks are due to the Program for Young Innovative Research Team in Xi'an Shiyou University (2015QNKYCXTD02) for helpful discussion.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

103. Size-Controlled Green Synthesis of Highly Stable and Uniform Small to Ultrasmall Gold Nanoparticles by Controlling Reaction Steps and pH

Accession number: 20172303741557
Authors: Yang, Bo (1, 3); Chou, Ju (2); Dong, Xiaoqing (3); Qu, Chengtun (1); Yu, Qingsong (3); Lee, Kerry J. (4); Harvey, Natalie (2)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an, Shaanxi; 710065, China; (2) Department of Chemistry and Physics, Florida Gulf Coast University, Fort Myers; FL; 33965, United States; (3) Department of Mechanical and Aerospace Engineering, University of Missouri - Columbia, Columbia; MO; 65211, United States; (4) Department of Biology, Florida Gulf Coast University, Fort Myers; FL; 33965, United States
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Source title: Journal of Physical Chemistry C
Abbreviated source title: J. Phys. Chem. C
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Pages: 8961-8967
Language: English
ISSN: 19327447
E-ISSN: 19327455
Document type: Journal article (JA)
Publisher: American Chemical Society

Abstract: Synthesis of gold nanoparticles (AuNPs) with controllable particle size and stable dispersion through green chemistry without using toxic regents is crucial for biomedical applications. In this study, spherical AuNPs with controllable particle size in the range of 8 to 18 nm were synthesized by the reduction of HAuCl4 using only fruit juices/extract without adding any other chemicals. By controlling the chemical reaction steps and adjusting the pH of the solution at a later stage of the reaction, the sizes of the spherical AuNPs were fine tuned to 4.5 ± 2.0 nm, 5.9 ± 2.5 nm, and 6.0 ± 1.5 nm with fruit juices/extract of A. deliciosa, P. persica, and M. domestica, respectively. For the first time, spherical ultrasmall AuNPs of 2.6 ± 1.1 nm with uniform distribution were successfully achieved using M. Acuminate extract at pH 10 and 11. The ultrasmall and small AuNPs were imaged again by transmission electron microscopy (TEM) after 4 months stored at the room temperature and 72 h incubation in 1 mM NaCl, which is typically found in biological media. No aggregation was observed in the above AuNP solutions after four months and incubation for 72 h in NaCl. These results indicate that highly stable AuNPs synthesized through green chemistry can be used in cells or embryos and hold great promise in biological applications. © 2017 American Chemical Society.
Number of references: 34
Main heading: Sustainable chemistry
Controlled terms: Medical applications - Gold compounds - High resolution transmission electron microscopy - Particle size - Fruit juices - Gold nanoparticles - Fruits - Metal nanoparticles - Sodium chloride - Fiber optic sensors - Spheres - Synthesis (chemical) - pH
Uncontrolled terms: Biological applications - Biological media - Biomedical applications - Green chemistry - Highly stables - Reaction steps - Stable dispersions - Uniform distribution
Classification code: 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801.1 Chemistry, General - 802.2 Chemical Reactions - 821.4 Agricultural Products - 822.3 Food Products
Numerical data indexing: Age 3.33e-01yr, Size 8.00e-09m to 1.80e-08m, Time 2.59e+05s
DOI: 10.1021/acs.jpcc.7b00434
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

104. Investigation of melamine derived quaternary as ammonium salt potential shale inhibitor (*Open Access*)

Accession number: 20172803924530
Authors: Yu, Hongjiang (1); Hu, Weimin (1); Guo, Gang (2, 3); Huang, Lei (1); Li, Lili (1); Gu, Xuefan (1); Zhang, Zhifang (4); Zhang, Jie (1); Chen, Gang (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an; 710065, China; (2) Research Institute of Oil and Gas Technology, Changqing Oilfield Company, Xi'an; 710025, China; (3) National Engineering Laboratory of Low-permeability Oil and Gas Field Exploration and Development, Changqing Oilfield Company, Xi'an; 710025, China; (4) School of Chemistry and Chemical Engineering, Yulin University, Yulin; 719000, China
Corresponding author: Chen, Gang(gangchen@xsyu.edu.cn)
Source title: IOP Conference Series: Earth and Environmental Science
Abbreviated source title: IOP Conf. Ser. Earth Environ. Sci.
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Part number: 1 of 1
Issue: 1
Issue title: 3rd International Conference on Advances in Energy, Environment and Chemical Engineering
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Publication year: 2017
Article number: 012065
Language: English
ISSN: 17551307
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Document type: Conference article (CA)
Conference name: 2017 3rd International Conference on Advances in Energy, Environment and Chemical Engineering, AEECE 2017
Conference date: May 26, 2017 - May 28, 2017
Conference location: Chengdu, China
Conference code: 128370
Publisher: IOP Publishing Ltd

Abstract: Melamine, sodium chloroacetate and sodium hydroxide were used as raw materials to synthesize a kind of neutral quaternary ammonium salt (NQAS) as potential clay swelling inhibitor and water-based drilling fluid additive, and the reaction conditions were screened based on the linear expansion rate of bentonite. The inhibitive properties of NQASs were investigated by various methods, including montmorillonite (MMT) linear expansion test, mud ball immersing test, particle distribution measurement, thermogravimetric analysis and scanning electron microscopy etc. The results indicate that NQAS can inhibit expansion and dispersion of clay in water effectively. At the same condition, the bentonite linear expansion rate in NQAS-6 solution is much lower than those of others, and the hydration expansion degree of the mud ball in 0.5% NQAS-6 solution is appreciably weaker than the control test. The compatibility test indicates NQAS-6 could be compatible with the conventional additives in water-based drilling fluids, and the temperature resistance of modified starch was improved effectively. Meanwhile, the inhibitive mechanism was discussed through the particle distribution measurement. © Published under licence by IOP Publishing Ltd.
Number of references: 13
Main heading: Bentonite
Controlled terms: Additives - Thermogravimetric analysis - Infill drilling - Salts - Scanning electron microscopy - Drilling fluids - Swelling - Sodium hydroxide
Uncontrolled terms: Conventional additives - Inhibitive properties - Montmorillonite (MMT) - Particle distributions - Quaternary ammonium salt - Reaction conditions - Temperature resistances - Water based drilling fluids
Classification code: 482.2 Minerals - 511.1 Oil Field Production Operations - 801 Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804.2 Inorganic Compounds - 951 Materials Science
Numerical data indexing: Percentage 5.00e-01%
DOI: 10.1088/1755-1315/69/1/012065
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

105. Three coordination polymers constructed from 5-(4-(tetrazol-5-yl)phenyl)isophthalic acid: Synthesis, crystal structure and properties

Accession number: 20165103133586
Authors: Zhai, Dandan (1); Sun, Wujuan (2); Fan, Fei (3); Liao, Xuzhao (1); Chen, Sanping (1); Yang, Xuwu (1)
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Corresponding author: Yang, Xuwu(yangxuwu@nwu.edu.cn)
Source title: Journal of Molecular Structure
Abbreviated source title: J. Mol. Struct.
Volume: 1133
Issue date: April 5, 2017
Publication year: 2017
Pages: 236-243
Language: English
ISSN: 00222860
CODEN: JMOSB4
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Three new coordination polymers, namely, {[Co2(TPA)(μ3-O)3]·0.5DMA}n (1), {[Co(H2TPA)(bibp)(H2O)3]·H2O}n (2) and {[Cd3(TPA)2(phen)4]·4H2O}n (3), (H3TPA = 5-(4-(tetrazol-5-yl)phenyl)isophthalic acid, bibp = 4,4'-bis(imidazolyl)biphenyl, phen = 1,10-phenanthroline and DMA = N,N-dimethylacetamide), have been synthesized under solvothermal conditions and structurally characterized by elemental analysis, IR spectroscopy, powder X-ray diffraction (PXRD) and single-crystal X-ray diffraction analysis. Polymer 1 exhibits a three-dimensional (3D) structure constructed from 5-connected secondary building units (SBUs) [Co3(μ3-O)] and 3-connected H3TPA ligands. Polymer 2 has a 1D zigzag polymer chain connected by H3TPA and bibp ligands. Polymer 3 features an unusual 3D framework with a (3,4,2)-connected {4; 6;8}{4; 62;83} topology. Moreover, the thermal stabilities of 1–3 and photoluminescence properties of 3 have been investigated. Magnetic susceptibility measurements indicate that polymers 1–2 display antiferromagnetic exchange properties. © 2016
Number of references: 44
Main heading: Topology

Controlled terms: Crystal structure - Ligands - Magnetic susceptibility - Photoluminescence - X ray diffraction analysis - Single crystals
Uncontrolled terms: Antiferromagnetic exchange - Coordination Polymers - Isophthalic acid - Magnetic susceptibility measurements - Photoluminescence properties - Powder X-ray diffraction (pXRD) - Single crystal X-ray diffraction analysis - Three dimensional (3D) structures
Classification code: 701.2 Magnetism: Basic Concepts and Phenomena - 741.1 Light/Optics - 801.4 Physical Chemistry - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice
DOI: 10.1016/j.molstruc.2016.11.073
Funding Details: Number: 202040009, Acronym: -, Sponsor: -;
Funding text: This work was supported by the Agricultural Research Program of Shaanxi province (No. 202040009).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

106. Study on sedimentary microfacies of shahejie formation in W96 gas storage of dongpu depression

Accession number: 20174304302847
Authors: Jiaguo, Zhong (1, 2); Jun, Peng (1); jia, Cao (3); Hongguo, P. (4); Renwei, F. (4); Pengpeng, G. (5); Fanghao, H. (1); Chuanqing, Y. (6); Kaifei, L. (2)
Author affiliation: (1) National key laboratory, Southwest Petroleum University, Chengdu; Sichuan, China; (2) Exploration and Development Research Institute, Zhongyuan Oilfield Company Sinopec, Puyang, China; (3) Drilling Engineering Technology Research Institute, cnpc, Jianghan, China; (4) Exploration and Development Institute of Henan Oilfield of Sinopec, Nanyang, China; (5) ESP Research Centre, Xi'an Shiyou University, Xi'an, China; (6) Chuanqing Drilling Engineering Company Ltd, PeroChina, Chengdu, China
Corresponding author: Jiaguo, Zhong(james_jon@163.com)
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Pages: 1457-1467
Language: English
ISSN: 10916466
E-ISSN: 15322459
CODEN: PSTEFV
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: In this paper, a comprehensive analysis is carried out based on the latest core observation and grain size analytical data for cored wells as well as other information, such as well logging information and data on existing geological sedimentary facies marks; the types of sedimentary facies are made more detailed; research works are conducted on the features, types, distributions, and change rules of vertical and horizontal upward sedimentary facies of W96 gas storage. © 2017 Taylor & Francis Group, LLC.
Number of references: 6
Main heading: Well logging
Controlled terms: Digital storage - Sedimentology - Horizontal wells
Uncontrolled terms: Analytical data - Comprehensive analysis - Dongpu depression - Gas storage - Sedimentary facies - Sedimentary micro-facies - Sedimentary structure - Shahejie formation
Classification code: 481.1 Geology - 512.1.1 Oil Fields - 722.1 Data Storage, Equipment and Techniques
DOI: 10.1080/10916466.2017.1344707
Funding Details: Number: 51304029, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The financial support was received from National Natural Science Foundation of China (51304029).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

107. A facile method to produce silver nanoparticle-loaded regenerated cellulose membranes via the reduction of silver nitrate in a homogeneous system

Accession number: 20174504367009
Authors: Xu, Yongjian (1, 2); Li, Shasha (1); Chang, Ping (3)
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Corresponding author: Xu, Yongjian(xuyongjian@sust.edu.cn)
Source title: BioResources
Abbreviated source title: BioResour.
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Issue date: November 1, 2017
Publication year: 2017
Pages: 9050-9062
Language: English
E-ISSN: 19302126
Document type: Journal article (JA)
Publisher: North Carolina State University
Abstract: Regenerated cellulose (RC) membranes loaded with silver nanoparticles (AgNPs) were prepared in this study. Cellulose acted as a reducing agent, silver nitrate acted as an oxidizing agent, and N-methylmorpholine-N-oxide (NMMO) acted as a direct cellulose solvent. The AgNP-loaded RC membranes were obtained via the redox reaction between cellulose and silver nitrate. The results of scanning electron microscopy (SEM) and energy dispersive spectroscopy (EDS) analysis suggest that AgNPs were reduced on the RC membranes during the dissolution and regeneration of cellulose. Atomic force microscopy (AFM) showed that the RC membranes exhibited high surface roughness, with a value of 7.19 nm. The Fourier transform infrared spectroscopy (FT-IR) and X-ray diffraction (XRD) results demonstrated that the crystal lattice type of RC membranes changed from cellulose I to cellulose II, without any derivatization. The detection results of atomic absorption spectrometry (AAS) indicated that the silver content of the RC membranes increased with increasing silver nitrate solution concentration. Antibacterial experiments showed that the AgNP-loaded RC membranes exhibited good antibacterial properties with respect to both Escherichia coli and Staphylococcus aureus.
Number of references: 33
Main heading: Cellulose
Controlled terms: Atomic force microscopy - Absorption spectroscopy - Silver compounds - Fourier transform infrared spectroscopy - Redox reactions - Energy dispersive spectroscopy - Nanocomposites - Escherichia coli - Metal nanoparticles - Silver nanoparticles - Surface roughness - Atomic absorption spectrometry - Membranes - Nitrates - X ray diffraction - Chemical analysis - Scanning electron microscopy
Uncontrolled terms: Antibacterial materials - Antibacterial properties - Cellulose membranes - Energy dispersive spectroscopies (EDS) - Fourier transform infra red (FTIR) spectroscopy - Reduction of silver nitrates - Regenerated cellulose - Silver nanoparticles (AgNps)
Classification code: 741.3 Optical Devices and Systems - 761 Nanotechnology - 801 Chemistry - 802.2 Chemical Reactions - 804.2 Inorganic Compounds - 811.3 Cellulose, Lignin and Derivatives - 815.1.1 Organic Polymers - 931.2 Physical Properties of Gases, Liquids and Solids - 933 Solid State Physics - 941.4 Optical Variables Measurements - 951 Materials Science
Numerical data indexing: Size 7.19e-09m
DOI: 10.15376/biores.12.4.9050-9062
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

108. Study on Filtration and Damage Characteristics of Modified Dry CO2 Fracturing Fluid in Shale Gas Reservoir (*Open Access*)

Accession number: 20175104555053
Authors: Xu, Guixi (1); Wang, Shuzhong (1); Luo, Xiangrong (2); Jing, Zefeng (1)
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and Mgmt. for Low to Extra-Low Permeability Oil and Gas Reservoirs in W. China, Ministry of Education, School of Petroleum Engineering, Xi'An Shiyou University, Xi'an, Shaanxi; 710065, China
Source title: IOP Conference Series: Earth and Environmental Science
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Volume: 94
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Issue: 1
Issue title: 2017 3rd International Conference on Energy, Environment and Materials Science, EEMS 2017
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Article number: 012180
Language: English
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Document type: Conference article (CA)
Conference name: 2017 3rd International Conference on Energy, Environment and Materials Science, EEMS 2017
Conference date: July 28, 2017 - July 30, 2017
Conference location: Singapore, Singapore
Conference code: 132577
Publisher: IOP Publishing Ltd
Abstract: The filtration and damage characteristics of modified dry CO2 fracturing fluid in the shale is studied in this paper. The results show that the modified dry CO2 fracturing fluid has good leak-off characteristics. Compared with liquid CO2, supercritical CO2 has a better permeation and diffusion capacity in the porous medium. The damage rate of the modified dry CO2 fracturing fluid to shale core is only between $0.63\%\sim3.84\%$ with obvious little damage. Under liquid conditions, the increase of temperature makes the fracturing fluid more harmful to shale formation. © Published under licence by IOP Publishing Ltd.
Number of references: 5
Main heading: Carbon dioxide
Controlled terms: Hydraulic fracturing - Fracturing fluids - Diffusion in liquids - Porous materials
Uncontrolled terms: Damage rate - Porous medium - Shale formation - Shale gas reservoirs - Supercritical CO2
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 804.2 Inorganic Compounds - 951 Materials Science
DOI: 10.1088/1755-1315/94/1/012180
Funding Details: Number: -, Acronym: -, Sponsor: Key Science and Technology Program of Shaanxi Province;
Funding text: The research was supported by Project 2015KTCL01-08 of Shaanxi province science and technology program. The authors would like to acknowledge the state key laboratory of multiphase flow in power engineering in Xi#an Jiaotong University. References [1] Garbis, S.J. and Taylor, J.L., 1986. The Utility of CO2 as an Energizing Component for Fracturing Fluids. SPE Production Engineering, Sept, 351-358. [2] Fenghour, A., Wakeham, W.A., Vesovic, V., 1998. The Viscosity of Carbon Dioxide. J. Phys. Chem. Ref. Data, 27: 31-44. [3] Hong, L., Thies, M., Enick, R., 2005. Global Phase Behavior for CO2-philic solids: the CO2+ β–D-maltose octaacetate system. J. Supercritical Fluids 34: 11–16. [4] Gupta, A.P., Gupta, A., Langlinais, J., 2005. Feasibility of Supercritical Carbon Dioxide as a Drilling Fluid for Deep Underbalanced Drilling Operation. SPE-96992-MS. [5] Harris, R.P.Jr., Ammer, J., Pekot, L.J., and Arnold, D.L., 1998. Liquid Carbon Dioxide Fracturing for Increasing Gas Storage Deliverability. paper SPE 51066 presented at the 1998 Eastern Regional Meeting, Pittsburgh, November 9–11.
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

109. Equal channel angular pressing of a TWIP steel: microstructure and mechanical response (*Open Access*)

Accession number: 20170603333233
Authors: Wang, L. (1, 2); Benito, J.A. (2, 3); Calvo, J. (2); Cabrera, J.M. (2)
Author affiliation: (1) School of Materials Science and Engineering, Xian Petroleum University, Xian; 710065, China; (2) Department of Materials Science and Metallurgical Engineering, Pavelló E. ETSEIB, Universitat Politècnica de Catalunya, Av. Diagonal, 647, Barcelona; 08028, Spain; (3) Department of Materials Science and Metallurgical Engineering, EUETIB, Universitat Politècnica de Catalunya, Comte d'Urgell 187, Barcelona; 08036, Spain
Corresponding author: Wang, L.(richard0723@163.com)

Source title: Journal of Materials Science
Abbreviated source title: J Mater Sci
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Issue date: June 1, 2017
Publication year: 2017
Pages: 6291-6309
Language: English
ISSN: 00222461
E-ISSN: 15734803
CODEN: JMTSAS
Document type: Journal article (JA)
Publisher: Springer Science and Business Media, LLC
Abstract: A Fe–20.1Mn–1.23Si–1.72Al–0.5C TWIP steel with ultrafine grain structure was successfully processed through equal channel angular pressing (ECAP) at warm temperature up to four passes following the BC route. The microstructure evolution was characterized by electron backscattered diffraction to obtain the grain maps, which revealed an obvious reduction in grain size, as well as a decrease in the twin fraction, with increasing number of ECAP passes. The texture evolution during ECAP was analyzed by orientation distribution function. The results show that the annealed material presents brass (B) as dominant component. After ECAP, the one pass sample presents A1* and A2* as the strongest components, while the two passes and four passes samples change gradually toward B/ $\bar{B}$ components. TEM analysis shows that all samples present twins. The twin thickness is reduced with increasing the number of ECAP passes. Nano-twins, as a result of secondary twinning, are also observed in the one and two passes samples. In the four passes sample, the microstructure is extensively refined by the joint action of ultrafine subgrains, grains and twins. The mechanical behavior was studied by tensile samples, and it was found that the yield strength and the ultimate tensile strength are significantly enhanced at increasing number of ECAP passes. Although the ductility and strain hardening capability are reduced with ECAP process, the present TWIP steel shows significant uniform deformation periods with positive work hardening rates. © 2017, Springer Science+Business Media New York.
Number of references: 56
Main heading: Equal channel angular pressing
Controlled terms: Strain hardening - Tensile strength - Microstructure - Grain size and shape - Distribution functions - Steel
Uncontrolled terms: Electron back-scattered diffraction - Hardening capability - Mechanical response - Micro-structure evolutions - Orientation distribution function - Ultimate tensile strength - Ultrafine grain structures - Work hardening rate
Classification code: 535.2 Metal Forming - 537.1 Heat Treatment Processes - 545.3 Steel - 922.1 Probability Theory - 951 Materials Science
DOI: 10.1007/s10853-017-0862-7
Funding Details: Number: MAT2014-59419-C3-1-R, Acronym: MINECO, Sponsor: Ministerio de Economía y Competitividad; Number: -, Acronym: CSC, Sponsor: China Scholarship Council;
Funding text: The present work has been financially supported by China Scholarship Council (CSC) and the Spanish Ministry of Economy and Competitiveness through Project MAT2014-59419-C3-1-R.
Compendex references: YES
Open Access type(s): All Open Access, Green
Database: Compendex
Data Provider: Engineering Village

110. Accelerated oxidation during air flooding in a low temperature reservoir

Accession number: 20170103216596
Authors: Li, Xinghong (1, 2); Liu, Jing (3); Pu, Jingyang (4); Pu, Chunsheng (3); Li, Qi (1, 5); Gu, Xiaoyu (3)
Author affiliation: (1) College of Petroleum Engineering, China University of Petroleum (Beijing), Beijing, China; (2) Shaanxi Yanchang Petroleum (Group) Co., Ltd., Yan'an, China; (3) College of Petroleum Engineering, China University of Petroleum (East China), Qingdao, China; (4) Department of Geosciences and Geological and Petroleum Engineering, Missouri University of Science and Technology, Rolla; MO, United States; (5) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, China
Corresponding author: Li, Xinghong(393082523@qq.com)
Source title: Petroleum Science and Technology
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Issue date: January 2, 2017
Publication year: 2017
Pages: 86-91
Language: English
ISSN: 10916466
E-ISSN: 15322459
CODEN: PSTEFV
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: To ensure the safety of application of air flooding in a low temperature reservoir, the accelerated oxidization of oxygen and the crude oil is studied at low temperature. The stabilized chlorine dioxide solution can be used as a type of catalyst, which can accelerate the reaction rate of oxygen and the crude oil to decrease the concentration of remaining oxygen when the gas reaches the production well. The experimental results of oxidization show that O2concentration is greatly reduced and CO2concentration is greatly increased on condition with catalyst. In addition, the amount of heavy components can be further reduced and the amount of light components can be further increased. These can ensure the safety of application of air flooding in low temperature reservoir. The experimental results of adaptability of the accelerated oxidation under different water saturation show air flooding can be better used in the low-temperature reservoir with low water saturation on condition with catalyst but cannot be used in the low-temperature reservoir with high water saturation. The experimental results can provide theoretical basis for the application of air flooding in a low-temperature reservoir. © 2017 Taylor & Francis Group, LLC.
Number of references: 9
Main heading: Catalysts
Controlled terms: Oxygen - Crude oil - Floods - Reservoirs (water) - Temperature
Uncontrolled terms: Accelerated oxidations - High water - Low temperatures - Low-temperature reservoirs - Oxidization - Production wells - Stabilized chlorines - Water saturations
Classification code: 441.2 Reservoirs - 512.1 Petroleum Deposits - 641.1 Thermodynamics - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally
DOI: 10.1080/10916466.2016.1247170
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

111. Dry Volume Fracturing Simulation of Shale Gas Reservoir (*Open Access*)

Accession number: 20175104555052
Authors: Xu, Guixi (1); Wang, Shuzhong (1); Luo, Xiangrong (2); Jing, Zefeng (1)
Author affiliation: (1) Key Laboratory of Thermo-Fluid Science and Engineering, Ministry of Education, School of Energy and Power Engineering, Xi'An Jiaotong University, Xi'an, Shaanxi; 710049, China; (2) Eng. Res. Ctr. of Devmt. and Mgmt. for Low to Extra-Low Permeability Oil and Gas Reservoirs in W. China, Ministry of Education, School of Petroleum Engineering, Xi'An Shiyou University, Xi'an, Shaanxi; 710065, China
Source title: IOP Conference Series: Earth and Environmental Science
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Issue title: 2017 3rd International Conference on Energy, Environment and Materials Science, EEMS 2017
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Article number: 012179
Language: English
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Document type: Conference article (CA)
Conference name: 2017 3rd International Conference on Energy, Environment and Materials Science, EEMS 2017
Conference date: July 28, 2017 - July 30, 2017
Conference location: Singapore, Singapore
Conference code: 132577
Publisher: IOP Publishing Ltd
Abstract: Application of CO2 dry fracturing technology to shale gas reservoir development in China has advantages of no water consumption, little reservoir damage and promoting CH4 desorption. This paper uses Meyer simulation to

study complex fracture network extension and the distribution characteristics of shale gas reservoirs in the CO2 dry volume fracturing process. The simulation results prove the validity of the modified CO2 dry fracturing fluid used in shale volume fracturing and provides a theoretical basis for the following study on interval optimization of the shale reservoir dry volume fracturing. © Published under licence by IOP Publishing Ltd.
Number of references: 5
Main heading: Carbon dioxide
Controlled terms: Shale gas - Hydraulic fracturing - Fracturing fluids - Reservoirs (water) - Petroleum reservoirs
Uncontrolled terms: Distribution characteristics - Fracture network - Fracturing process - Fracturing simulation - Interval optimization - Reservoir damage - Shale gas reservoirs - Water consumption
Classification code: 441.2 Reservoirs - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 804.2 Inorganic Compounds
DOI: 10.1088/1755-1315/94/1/012179
Funding Details: Number: -, Acronym: -, Sponsor: Key Science and Technology Program of Shaanxi Province;
Funding text: The research was supported by Project 2015KTCL01-08 of Shaanxi province science and technology program. The authors would like to acknowledge the state key laboratory of multiphase flow in power engineering in Xi #an Jiaotong University.
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

112. Investigation of flat clinching process combined with material forming technology for aluminum alloy (*Open Access*)

Accession number: 20175104560368
Authors: Chen, Chao (1, 2, 3); Zhao, Shengdun (1); Han, Xiaolan (4); Wang, Yongfei (1); Zhao, Xuzhe (5)
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Source title: Materials
Abbreviated source title: Mater.
Volume: 10
Issue: 12
Issue date: December 15, 2017
Publication year: 2017
Article number: 1433
Language: English
E-ISSN: 19961944
Document type: Journal article (JA)
Publisher: MDPI AG
Abstract: In recent years, the use of aluminum alloy has tended to increase for building lightweight automobiles to reduce their automotive weight, which is helpful to save energy and protect the environment. In order to join aluminum alloy, a flat-clinching process combined with material forming technology was investigated to join aluminum alloy sheets using an experimental and a numerical method. Al1060 was chosen as the material of the sheet, and DEFORM-2D software was used to build the numerical model. After the numerical model was validated by the experimental results, the influences of punch diameter and holder force on the materials deforming behavior of the clinched joint were analyzed using the numerical model. Then, the material flow, joining ability, and joining quality were investigated to assess the clinched joint. The results showed that an increase in punch diameter could give rise to an increase in neck thickness and interlocking length, while an increase in blank holder force induced a decrease in interlocking length and an increase in neck thickness. The joining quality could be increased by increasing the forming force. It can be concluded that a clinched joint has better joining quality for joining light-weight sheets onto automotive structures. © 2017 by the author.
Number of references: 43
Main heading: Aluminum alloys
Controlled terms: Numerical models - Joining - Numerical methods

Uncontrolled terms: Aluminum alloy sheet - Automotive structures - Blank holder forces - Clinching process - Flat-clinching - Lightweight automobiles - Material Flow - Material forming
Classification code: 408.2 Structural Members and Shapes - 541.2 Aluminum Alloys - 921 Mathematics - 921.6 Numerical Methods
DOI: 10.3390/ma10121433
Funding Details: Number: 51335009,51675414, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Open Access type(s): All Open Access, Gold, Green
Database: Compendex
Data Provider: Engineering Village

113. The influence of flow velocity on electrochemical reaction of metal surface (*Open Access*)

Accession number: 20175304592408
Authors: Li, Zhen (1); Zhang, Jiding (1)
Author affiliation: (1) Department of Mechanical Engineering, Xian Shiyou University, Xian, China
Corresponding author: Zhang, Jiding(zjd911221@163.com)
Source title: IOP Conference Series: Materials Science and Engineering
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Issue title: 1st International Conference on Frontiers of Materials Synthesis and Processing, FMSP 2017
Issue date: December 13, 2017
Publication year: 2017
Article number: 012098
Language: English
ISSN: 17578981
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Document type: Conference article (CA)
Conference name: 1st International Conference on Frontiers of Materials Synthesis and Processing, FMSP 2017
Conference date: October 28, 2017 - October 29, 2017
Conference location: Changsha, China
Conference code: 132865
Publisher: IOP Publishing Ltd
Abstract: In order to find out the effect of fluid flow velocity on electrochemical reaction, the electrochemical parameters of super 13Cr stainless steel in 3.5% NaCl aqueous solution were measured by a jet flow system at different flow velocities. The electrochemical characters such as open-circuit potential and polarization curve were monitored online using a three-electrode electrochemical system. The results show that the increase of wall shear stress caused by the high flow velocity leads to the rupture of passive films and the exposure of fresh metal in the corrosive media, which causes the increase of corrosion rate. Meanwhile, the corrosion rate shows a significant growth when the flow velocity is less than $_{0\sim10.0}$ m/s. But it gradually decreases after reaching a maximum value. © Published under licence by IOP Publishing Ltd.
Number of references: 7
Main heading: Corrosion rate
Controlled terms: Surface reactions - Shear flow - Sodium chloride - Chromium alloys - Solutions - Shear stress - Flow velocity - Steel corrosion - Velocity
Uncontrolled terms: Corrosive media - Electrochemical parameters - Electrochemical reactions - Electrochemical systems - High flow velocity - Open circuit potential - Polarization curves - Wall shear stress
Classification code: 539.1 Metals Corrosion - 543.1 Chromium and Alloys - 545.3 Steel - 631 Fluid Flow - 631.1 Fluid Flow, General - 802.2 Chemical Reactions - 943.2 Mechanical Variables Measurements
Numerical data indexing: Percentage 3.50e+00%
DOI: 10.1088/1757-899X/274/1/012098
Funding Details: Number: 2014JM2-5047, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province;

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Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

114. Influence of stainless steel Internals on Corrosion of tower wall materials (*Open Access*)

Accession number: 20175304592409
Authors: Chen, Bing (1); Ren, Ke (1)
Author affiliation: (1) Department of Mechanical Engineering, Xian Shiyou University, Xian, China
Corresponding author: Ren, Ke(349944920@qq.com)
Source title: IOP Conference Series: Materials Science and Engineering
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Publication year: 2017
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Document type: Conference article (CA)
Conference name: 1st International Conference on Frontiers of Materials Synthesis and Processing, FMSP 2017
Conference date: October 28, 2017 - October 29, 2017
Conference location: Changsha, China
Conference code: 132865
Publisher: IOP Publishing Ltd
Abstract: In view of the galvanic corrosion of the tower wall material in the tower of a refinery atmospheric vacuum distillation unit, the electrochemical behavior of Q345R steel, stainless steel (201, 304 cold-rolled plate, 304 hot rolled plate and 316L) in 3.5%NaCl solution was studied by electrochemical method. The results show that the corrosion potential of Q345R is much lower than that of stainless steel, and the corrosion rate of Q345R is higher than that of stainless steel. As the anode is etched as the anode corrosion, the anode polarizability of stainless steel shows strong polarization ability, which is anodic polarization control, and Q345R is anode Active polarization control; Q345R/201 galvanic pair may be the most serious corrosion, and Q345R/316L galvanic couple may be relatively slight. Therefore, in the actual production of tower equipment, material design or tower to upgrade the replacement, it are recommended to use the preferred anode and cathode potential difference with the use of materials. © Published under licence by IOP Publishing Ltd.
Number of references: 10
Main heading: Towers
Controlled terms: Anodes - Atmospheric corrosion - Distillation - Cold rolling - Hot rolling - Sodium chloride - Corrosion rate - Galvanic corrosion - Steel corrosion - Metal cladding - Steel sheet
Uncontrolled terms: 3.5% nacl solutions - Cathode potential - Cold-rolled plates - Corrosion potentials - Electrochemical behaviors - ELectrochemical methods - Polarization control - Vacuum distillation
Classification code: 402.4 Towers - 443.1 Atmospheric Properties - 535.1 Metal Rolling - 535.1.2 Rolling Mill Practice - 539.1 Metals Corrosion - 545.3 Steel - 714.1 Electron Tubes - 802.3 Chemical Operations
DOI: 10.1088/1757-899X/274/1/012099
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

115. Determination of radiated emissions of an electrically large EUT: Simulation and experiment

Accession number: 20173804167224

Authors: Wang, Xiaowei (1); Vick, Ralf (1)
Author affiliation: (1) Xi'an Shiyou University, China
Source title: IEEE Electromagnetic Compatibility Magazine
Abbreviated source title: IEEE Electromagn. Compat. Mag.
Volume: 6
Issue: 2
Issue date: Second Quarter 2017
Publication year: 2017
Pages: 32-35
Article number: 7989988
Language: English
ISSN: 21622264
E-ISSN: 21622272
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: The radiated emission testing of an electrically large equipment under test (EUT) has been carried out in a mode stirred chamber and a fully anechoic room. The radiation pattern of a rectangular metallic enclosure with a rectangular slot was measured, simulated and compared. The long-term aim of the investigation is the estimation of the directivity of EUTs to correlate measurements of radiated emissions of electrically large EUTs in different test environments. By knowledge of directivity values and the measured total radiated power in an alternative test site, the maximum electric field strength of the EUT could be determined. © 2017 IEEE Electromagnetic Compatibility Magazine.
Number of references: 4
Main heading: Electric fields
Controlled terms: Equipment testing - Electromagnetic compatibility
Uncontrolled terms: Electrically large - Maximum electric field - Metallic enclosure - Mode stirred chamber - Radiated emissions - Rectangular slots - Test Environment - Total radiated power
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 711.1 Electromagnetic Waves in Different Media
DOI: 10.1109/MEMC.0.7989988
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

116. Open problems on implicative pseudo-filters and boolean filters

Accession number: 20182405294336
Authors: Guo, Yingmin (1); Zhao, Kuankuan (2); Wang, Wei (2)
Author affiliation: (1) College of Foreign Languages, Xi'an Shiyou University, Xi'an, China; (2) College of Sciences, Xi'an Shiyou University, Xi'an, China
Source title: Proceedings of the 2017 12th International Conference on Intelligent Systems and Knowledge Engineering, ISKE 2017
Abbreviated source title: Proc. Int. Conf. Intell. Syst. Knowl. Eng., ISKE
Volume: 2018-January
Part number: 1 of 1
Issue title: Proceedings of the 2017 12th International Conference on Intelligent Systems and Knowledge Engineering, ISKE 2017
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Publication year: 2017
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Language: English
ISBN-13: 9781538618295
Document type: Conference article (CA)
Conference name: 12th International Conference on Intelligent Systems and Knowledge Engineering, ISKE 2017
Conference date: November 24, 2017 - November 26, 2017
Conference location: NanJing, JiangSu, China
Conference code: 134281
Sponsor: IEEE System, Computer Society
Publisher: Institute of Electrical and Electronics Engineers Inc., United States

Abstract: We proposed the relation between implicative pseudo-filter and Boolean filter of pseudo BCK algebras with condition (pP) or bounded pseudo BCK algebras with condition (pP) and partly solved open problems that "In pseudo BCK algebra or bounded pseudo BCK algebra, is the notion of implicative pseudo-filter equivalent to the notion of Boolean filter?" and "A pseudo BCK algebra is an implicative pseudo BCK algebras if and only if every pseudo-filters of it is Boolean filter (or implicative pseudo-filters). © 2017 IEEE.
Number of references: 22
Main heading: Algebra
Controlled terms: Bandpass filters - Intelligent systems
Uncontrolled terms: BCK-algebra - Boolean filters - Normal filters
Classification code: 703.2 Electric Filters - 723.4 Artificial Intelligence - 921.1 Algebra
DOI: 10.1109/ISKE.2017.8258742
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Funding text: The authors would like to thank supports of the National Natural Science Foundation of China (Grant No. 60875034, 61175055); Youth Science and Technology Fund of Xi'an Shiyou University ([2013]QN011).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

117. Research on Improved Model for Concept Similarity Computation in Domain Ontology and Application

Accession number: 20180604699825
Authors: Xiaorong, Gao (1); Yingzhuo, Xu (2)
Author affiliation: (1) Institute of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Institute of Computer, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Proceedings - 2017 International Conference on Robots and Intelligent System, ICRIS 2017
Abbreviated source title: Proc. - Int. Conf. Robots Intell. Syst., ICRIS
Part number: 1 of 1
Issue title: Proceedings - 2017 International Conference on Robots and Intelligent System, ICRIS 2017
Issue date: November 7, 2017
Publication year: 2017
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Article number: 8101395
Language: English
ISBN-13: 9781538612279
Document type: Conference article (CA)
Conference name: 2017 International Conference on Robots and Intelligent System, ICRIS 2017
Conference date: October 15, 2017 - October 16, 2017
Conference location: Huaian, Jiangsu, China
Conference code: 132422
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: With the extensive applications of ontology in information integration, the conceptual similarity calculation based on ontology has become more and more important. Aiming at the shortcomings of the commonly used domain ontology concept similarity calculation method, an improved ontology concept similarity calculation model based on tree structure is proposed and constructed. Firstly, the XML document is transformed into a tree structure, and reconstructed by adding and recombining virtual nods; on the basis of traditional conceptual similarity calculation model of semantic distance, and considering the different proportion of different concepts in the ontology tree, the weight value is introduced and the weight calculation method is given, thus the similarity calculation model is improved. Finally, the similarity calculation experiment is carried out by constructing the drilling operation ontology tree. Experiments show that the proposed model utilizes the semantic information of the ontology concept and improves the accuracy of the concept similarity calculation effectively. © 2017 IEEE.
Number of references: 15
Main heading: Semantics
Controlled terms: Ontology - Trees (mathematics) - Forestry - Calculations
Uncontrolled terms: Concept similarity - Concept similarity calculations - Different proportions - Domain ontologies - Information integration - Semantic information - Similarity calculation - Tree structures
Classification code: 821 Agricultural Equipment and Methods; Vegetation and Pest Control - 921 Mathematics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory

DOI: 10.1109/ICRIS.2017.72
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

118. Oxidation characteristics of heavy crude oil in ignition process

Accession number: 20181705043191
Authors: Liu, Yi-Fei (1); Liu, Kai (1)
Author affiliation: (1) Xi'An Shiyou University, Xi'an,Shanxi; 710065, China
Corresponding author: Liu, Kai(jingyinghanting@hotmail.com)
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Volume: 20
Issue: 1
Issue date: January 1, 2017
Publication year: 2017
Language: English
ISSN: 12038407
E-ISSN: 23711175
Document type: Journal article (JA)
Publisher: Walter de Gruyter GmbH
Abstract: The ignition process has a significant influence on the success of in-situ combustion at heavy oil reservoirs. During this process, oxidation reactions between crude oil and injected air mainly occurred. In this paper, a series of oxidation experiments were performed at different reaction temperatures and air-oil ratios to investigate the heavy oil oxidation characteristics at different stages of the ignition process. The results revealed that heat release and production of CO and CO2were observed during the entire oxidation process, while transformation of heavy components (resins and asphaltenes) in crude oil to light components (saturates and aromatics) and production of H2S occurred at higher temperatures. The heavy oil oxidation in ignition process can be divided into three stages based on physical and chemical characteristics of the reaction, they are low-temperature oxidation, pseudo-high temperature oxidation, and high temperature oxidation, respectively. © 2017 by Walter De Gruyter GmbH 2017.
Number of references: 11
Main heading: Crude oil
Controlled terms: Petroleum reservoirs - Heavy oil production - In situ combustion - Temperature - Thermooxidation - Ignition - Petroleum reservoir engineering
Uncontrolled terms: Different stages - Heavy oil reservoirs - Low-temperature oxidation - Oxidation characteristics - Oxidation process - Oxidation reactions - Physical and chemical characteristics - Reaction temperature
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 521.1 Fuel Combustion - 641.1 Thermodynamics - 802.2 Chemical Reactions
DOI: 10.1515/jaots-2016-0180
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

119. Design of Steam Preheating and Ignition Program of in Situ Combustion

Accession number: 20173404078881
Authors: Yuan, Shibao (1); Jiang, Haiyan (1); Wang, Boyi (1); Li, Junfeng (1)
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Corresponding author: Yuan, Shibao(upcysb@126.com)
Source title: Energy and Fuels
Abbreviated source title: Energy Fuels

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Pages: 8643-8647
Language: English
ISSN: 08870624
E-ISSN: 15205029
CODEN: ENFUEM
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: The performance of ignition directly affects the success of in situ combustion. Because of the low temperature and heat loss in the formation, it takes a longer time to ignite and the success rate of ignition is relatively low. The steam injection preheating can shorten the ignition time and reduce the ignition cost greatly. However, thus far, there is relatively no complete design method for steam injection. On the basis of the heat conduction equation of formation, the paper evaluates the effect of the preheating process by laboratory experiments and derives a mathematical equation of temperature distribution of steam injection preheating. In addition, considering the ignition threshold value and oxidation characteristics of crude oil, the paper also designs preheating parameters of steam injection. With the mathematical equation and preheating parameters, the performance of ignition can be optimized to establish table combustion rapidly. Finally, on the basis of the field data, the paper presents a practical calculation case. The results and findings suggest that more amount of steam injection does not necessarily lead to better performance, and a recommended value of the amount of stream injection is given. © 2017 American Chemical Society.
Number of references: 14
Main heading: Ignition
Controlled terms: Heat conduction - Preheating - Design - Crude oil - Steam - Temperature
Uncontrolled terms: Heat conduction equations - Ignition threshold - Laboratory experiments - Mathematical equations - Oxidation characteristics - Practical calculation - Preheating process - Recommended values
Classification code: 512.1 Petroleum Deposits - 521.1 Fuel Combustion - 641.1 Thermodynamics - 641.2 Heat Transfer - 642.1 Process Heating
DOI: 10.1021/acs.energyfuels.7b00723
Funding Details: Number: 2016JM5031, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 51674198, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The authors are thankful for the financial support by the National Natural Science Foundation of China (51404199), the National Natural Science Foundation of China (51674198), and the Natural Science Foundation of Shaanxi Province (2016JM5031).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

120. A quantitative and visual experimental study: Effect of fracture roughness on proppant transport in a vertical fracture

Accession number: 20183105630910
Authors: Huang, Hai (1); Babadagli, Tayfun (2); Li, Huazhou Andy (2)
Author affiliation: (1) Xi'an Shiyou University, China; (2) University of Alberta, Canada
Source title: SPE Eastern Regional Meeting
Abbreviated source title: SPE East. Reg. Meet.
Volume: 2017-October
Part number: 1 of 1
Issue title: Society of Petroleum Engineers - SPE Eastern Regional Meeting 2017
Issue date: 2017
Publication year: 2017
Report number: SPE-187520-MS
Language: English
Document type: Conference article (CA)
Conference name: SPE Eastern Regional Meeting 2017
Conference date: October 4, 2017 - October 6, 2017
Conference location: Lexington, KY, United states

Conference code: 133016
Publisher: Society of Petroleum Engineers (SPE)
Abstract: The roughness of fractures may play an important role in affecting the migration and placement of proppants during hydraulic fracturing operations. Previous studies focused on investigating the proppant transport in smooth vertical fractures, which did not consider the effect of the fracture-surface roughness. We examine the migration of proppants in rough and vertical fractures and then quantitatively reveal the effect of roughness on the instantaneous proppant transport and final proppant placement. Two types of rock samples (marble and granite) are fractured with the Brazilian test and molded to manufacture 20 × 20 × 5 cm transparent replicas. The surface roughness of these rock samples was first characterized by fractal dimensions. Then, the dyed fracturing fluid with a given proppant loading was injected into the rough vertical fracture. In each test, the inlet pressures were continuously monitored in order to obtain the differential pressure across the fracture model while the proppants were being transported in the fracture. The process was videotaped to real-time track the proppant distribution in the rough fracture. The proppant-transport behavior in the rough and vertical fracture was observed to be totally different from that in the smooth fracture. The major experimental findings include the following: 1) The proppant in a rough vertical fracture does not progress as a regular sand bank that commonly occurs in the smooth fracture, but rather an irregular-shape sand clusters with fractal characteristics; 2) In the rough and vertical fracture, the phenomenon of proppant bridging is visually observed, and such phenomenon is more likely to occur in the location with a larger roughness height. This implies rough fracture could promote a wider spreading of the proppant in the fracture compared to smooth fractures, and; 3) The existence of roughness enhances the vertical displacement of fluid containing proppants. These effects are also favorable for obtaining a better filling of the proppants in the fracture. Our experimental study reveals the mechanisms of proppant transport and distribution in real vertical fractures under the influence of roughness effect. © 2017, Society of Petroleum Engineers.
Number of references: 20
Main heading: Proppants
Controlled terms: Video recording - Gasoline - Fractal dimension - Fracture - Fracturing fluids - Surface roughness
Uncontrolled terms: Differential pressures - Fractal characteristics - Fracture roughness - Fracturing operations - Proppant transports - Roughness effects - Vertical displacements - Vertical fracture
Classification code: 511.1 Oil Field Production Operations - 523 Liquid Fuels - 716.4 Television Systems and Equipment - 921 Mathematics - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Numerical data indexing: Size 5.00e-02m
DOI: 10.2118/187520-ms
Funding Details: Number: RES0011227,RGPIN 05394, Acronym: NSERC, Sponsor: Natural Sciences and Engineering Research Council of Canada; Number: -, Acronym: U of A, Sponsor: University of Alberta; Number: 2015GY109, Acronym: ISTK, Sponsor: Korea Research Council for Industrial Science and Technology; Number: -, Acronym: -, Sponsor: Saudi Aramco; Number: -, Acronym: XPU, Sponsor: Xi'an Polytechnic University; Number: 15JS086, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: -, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: This research was conducted under T. Babadagli's NSERC Industrial Research Chair in Unconventional Oil Recovery (industrial partners are APEX Eng., Devon, Husky Energy, Petroleum Development Oman, Saudi Aramco, SIGNa Oilfield Canada, Total E&P Recherché Développement) and NSERC Discovery Grants (No: RES0011227 and RGPIN 05394) to T. Babadagli and H. Li, respectively. H. Huang is also grateful for the financial supports provided by the Shaanxi Industrial Science and Technology Research Project (No. 2015GY109), the Key Laboratory Fund of Education Department of Shaanxi Province (No. 15JS086) as well as the Xi'an Shiyou University for supporting his stay at the University of Alberta. We gratefully acknowledge these supports.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

121. The research of the drilling pipe's small-scale mode used in acoustic telemetry while drilling (*Open Access*)

Accession number: 20171403520553
Authors: Xie, Haiming (1, 2); Zhou, Jing (2); Zhang, Feng (3)
Author affiliation: (1) Xidian university, Xian; 710065, China; (2) Xian shiyou university, Xian; 710065, China; (3) China ship scientific research center, Xian; 710000, China
Source title: Functional Materials
Abbreviated source title: Funct. Mater.
Volume: 24

Issue: 1
Issue date: 2017
Publication year: 2017
Pages: 117-121
Language: English
ISSN: 10275495
E-ISSN: 22182993
Document type: Journal article (JA)
Publisher: Scientific and Technological Corporation
Abstract: The acoustic telemetry technology while drilling has a greater advantage in the transmission rate and the application of media than the commercial mud pulse mode and electromagnetic wave mode. There are limits to the existence of the periodic drill pipe acoustic transmission transmission model, which can only calculate the acoustic transmission characteristics of two kinds of periodic structures and the acoustic transmission characteristics of the composite structures with arbitrary cross section, but the variable cross-section or various special-shaped drill strings. According to the characteristics of the small scale structure of drill string, a small scale model of the drill string in the data transmission is set up by using the theory of longitudinal vibration of structures, in which the small scale vibration transfer function of cylindrical rods with different variable cross sections is analyzed. According to certain boundary conditions, the vibration transfer characteristics of drill string are obtained, and the simulation research is completed.
Number of references: 17
Main heading: Drills
Controlled terms: Drill strings - Electromagnetic waves - Telemetering equipment - Transfer matrix method - Vibration analysis - Periodic structures
Uncontrolled terms: Acoustic transmission - Arbitrary cross section - Longitudinal vibrations - Model analysis - Small-scale modeling - Small-scale structures - Variable cross section - While drillings
Classification code: 511.2 Oil Field Equipment - 603.2 Machine Tool Accessories - 711 Electromagnetic Waves - 921 Mathematics - 931.3 Atomic and Molecular Physics
DOI: 10.15407/fm24.01.117
Compendex references: YES
Open Access type(s): All Open Access, Green
Database: Compendex
Data Provider: Engineering Village

122. Fractal study for micro-crack of mud-shale

Accession number: 20165003108069
Authors: Wang, Ping (1); Qu, Zhan (2); Cui, Ying (1)
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, No.18, 2nd East Dianzi Road, Xi'an; Shanxi; 710065, China; (2) College of Petroleum Engineering, Xi'an Shiyou University, No.18, 2nd East Dianzi Road, Xi'an; Shanxi; 710065, China
Source title: Key Engineering Materials
Abbreviated source title: Key Eng Mat
Volume: 719
Part number: 1of1
Issue title: Advanced Materials Research and Technologies
Issue date: 2017
Publication year: 2017
Pages: 28-32
Language: English
ISSN: 10139826
E-ISSN: 16629795
CODEN: KEMAEY
ISBN-13: 9783035710052
Document type: Conference article (CA)
Conference name: International Conference on Advanced Materials Research and Manufacturing Technologies, AMRMT 2016
Conference date: August 18, 2016 - August 20, 2016
Conference location: Singapore, Singapore
Conference code: 187249
Publisher: Trans Tech Publications Ltd

Abstract: The structure, distribution and evolution of micro-crack within the mud-shale are studied in this paper. The micro-fracture behavior of mud-shale has fractal characteristics. Fractal method is used to quantitative description of the damage evolution behavior of the mud-shale. The study shows that the variation of the fractal dimension in the domain of the bearing surface can reflect the internal damage evolution trend of the mud-shale. The fractal dimension has a nonlinear relationship with the applied stress. © 2017 Trans Tech Publications.
Number of references: 11
Main heading: Fractal dimension
Controlled terms: Fracture - Fracture mechanics - Shale - Cracks
Uncontrolled terms: Bearing surfaces - Damage - Damage evolution - Fractal characteristics - Internal damages - Mud shale - Non-linear relationships - Quantitative description
Classification code: 921 Mathematics - 931.1 Mechanics - 951 Materials Science
DOI: 10.4028/www.scientific.net/KEM.719.28
Funding Details: Number: 2016BS08, Acronym: -, Sponsor: -; Number: 51174162, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 15JK1561, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: Support for this research program was provided by National Natural Science Foundation of China (No. 51174162), Shaanxi province education department(15JK1561)and Xi 'an petroleum university Dr. Start-up project(2016BS08)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

123. Using 3D printing technology to develop the unmanned aerial vehicle electro-optical pod for free-space optical communication

Accession number: 20181504992194
Authors: Yang, Changqi (1)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Yang, Changqi
Source title: Progress in Electromagnetics Research Symposium
Abbreviated source title: Prog. Electromagn. Res. Symp.
Part number: 1 of 1
Issue title: 2017 Progress in Electromagnetics Research Symposium - Spring, PIERS 2017
Issue date: 2017
Publication year: 2017
Pages: 2972-2974
Language: English
ISSN: 15599450
E-ISSN: 19317360
ISBN-13: 9781509062690
Document type: Conference article (CA)
Conference name: 2017 Progress In Electromagnetics Research Symposium - Spring, PIERS 2017
Conference date: May 22, 2017 - May 25, 2017
Conference location: St. Petersburg, Russia
Conference code: 134321
Sponsor: et al.; Institute of Electrical and Electronics Engineers (IEEE); St. Petersburg State University; The Swedish Institute; Tomsk Polytechnic University; University of Gavle
Publisher: Electromagnetics Academy, United States
Abstract: An unmanned aerial vehicle electro-optical pod developed by the author is introduced in this paper. This instrument is created by using 3D printing technology. This unmanned aerial vehicle will be used in the field of free-space optical communication. At present, building up a free-space optical communication experimental link requires a huge resource. It also needs mutual cooperation. This limits the development of free-space optical communication technology. And there is almost no research on the free-space optical communication link between the ground and the unmanned aerial vehicle. Independent development of equipment in this link is of great significance. This paper is the result of originality: develop unmanned aerial vehicle electro-optical pod by the use of 3D printing technology and build up ground-to-space link. © 2018 Electromagnetics Academy. All rights reserved.
Number of references: 3
Main heading: 3D printers
Controlled terms: Optical communication - Unmanned aerial vehicles (UAV) - Antennas

Uncontrolled terms: 3-D printing - Electro-optical - Experimental link - Free Space Optical communication - Space link
Classification code: 652.1 Aircraft, General - 717.1 Optical Communication Systems - 745.1.1 Printing Equipment
DOI: 10.1109/PIERS.2017.8262264
Funding Details: Number: -, Acronym: -, Sponsor: Gulf Research Program; Number: 15JK1589, Acronym: -, Sponsor: Department of Education of Liaoning Province;
Funding text: This paper is supported by: 1. Scientific Research Program Funded by Shaanxi Provincial Education Department in 2015 (No. 15JK1589); 2. 2017 Teaching Reform Project of School of Sciences, Xi'an Shiyou University.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

124. Generation of single and multiple dissipative soliton in an erbium-doped fiber laser

Accession number: 20174204272873
Authors: Duan, Li-Na (1); Wen, Jin (1); Fan, Wei (1); Wang, Wei (1)
Author affiliation: (1) School of Science, Xi'An Shiyou University, Xi'an; 710065, China
Corresponding author: Duan, Li-Na(linaduan2010@hotmail.com)
Source title: Chinese Physics B
Abbreviated source title: Chin. Phys.
Volume: 26
Issue: 10
Issue date: October 2017
Publication year: 2017
Article number: 104205
Language: English
ISSN: 16741056
E-ISSN: 20583834
Document type: Journal article (JA)
Publisher: IOP Publishing Ltd
Abstract: We experimentally report on the generation of single and multiple dissipative soliton via nonlinear polarization rotation technique. The spectrum of the mode-locked dissipative soliton exhibits typical steep edges with a flat top; the pulse duration is 10.07 ps. It is found that with the pump power increasing from 110 mW to 161 mW, the top of the mode-locked spectrum becomes flater and the 3-dB spectral bandwidth is broadened, which indicates that the gain-dispersion effect is lowered under stronger pump. However, the full bandwidth of the spectrum is narrowed, which proves that the spectral filter effect increases and overcomes the effect of self-phase modulation induced spectral broadening. Such a phenomenon was not noticed nor reported before. Our experiment also demonstrates that the pulse interval is highly dependent on the input pump power: with pump power increasing, the pulse interval tends towards more uniform. So our observation qualitatively analyzes the relationship between mode-locked pulse characteristics and input pump power.
Number of references: 35
Main heading: Fiber lasers
Controlled terms: Erbium - Locks (fasteners) - Optical pumping - Mode-locked fiber lasers - Modulation - Bandwidth - Solitons - Laser mode locking
Uncontrolled terms: Dissipative solitons - Erbium doped fiber laser - Mode-locked pulse - Mode-locked spectra - Nonlinear polarization rotation - Optical soliton - Spectral bandwidth - Spectral broadening
Classification code: 547.2 Rare Earth Metals - 716.1 Information Theory and Signal Processing - 744.1 Lasers, General - 744.4 Solid State Lasers
Numerical data indexing: Decibel 3.00e+00dB, Power 1.10e-01W to 1.61e-01W, Time 1.01e-11s
DOI: 10.1088/1674-1056/26/10/104205
Funding Details: Number: 61505160, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: #Project supported by the National Natural Science Foundation of China (Grant No. 61505160).
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

125. Vehicle Tracking Method Using Feature Point Matching Combined With Bidirectional Optical Flow

Accession number: 20173704157948
Authors: Lu, Sheng-Nan (1); Li, Xiao-He (1)
Author affiliation: (1) School of Computer, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Lu, Sheng-Nan(lushengnan@xsyu.edu.cn)
Source title: Jiaotong Yunshu Xitong Gongcheng Yu Xinxi/Journal of Transportation Systems Engineering and Information Technology
Abbreviated source title: Jiaotong Yunshu Xitong Gongcheng Yu Xinxi J. Transp. Syst. Eng. Inf. Technol.
Volume: 17
Issue: 4
Issue date: August 1, 2017
Publication year: 2017
Pages: 76-82
Language: Chinese
ISSN: 10096744
Document type: Journal article (JA)
Publisher: Science Press
Abstract: To handle the dynamic illumination changes, scale variation and partial occlusion in complex traffic scene, a stable and reliable vehicle tracking method based on feature point is proposed. With the characteristics of large interframe motion of moving vehicle, the pyramid model of KLT algorithm is constructed and the feature points with poor stability will be deleted according to forward and backward tracking offset. Meanwhile, SURF algorithm is used as a compensation mechanism for updating and adjusting the feature point sets. Then, according to the relative location and relative angle of feature points in the first frame, the scale and rotation variation of objects in the current frame is determined. Finally, the object region is determined in the current frame. The experimental results show that the proposed method effectively solves the problems of object deformation and partial occlusion, and it is robust to scale and rotation variation. Copyright © 2017 by Science Press.
Number of references: 10
Main heading: Optical flows
Controlled terms: Tracking (position) - Vehicles
Uncontrolled terms: Compensation mechanism - Dynamic illuminations - Feature point extraction - Feature point matching - Forward-and-backward - Intelligent transportation - Klt algorithms - SURF features
Classification code: 741.1 Light/Optics
DOI: 10.16097/j.cnki.1009-6744.2017.04.012
Funding Details: Number: 61572083, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: National Natural Science Foundation of China(61572083).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

126. Research on multidimensional analysis method of drilling information based on Hadoop

Accession number: 20182905546886
Authors: Ming, Fang (1); Guannan, Sui (1); Shuaishuai, Lu (1)
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an, China
Source title: 2017 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Abbreviated source title: IEEE Int. Conf. Comput. Commun., ICCC
Volume: 2018-January
Part number: 1 of 1
Issue title: 2017 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Issue date: July 2, 2017
Publication year: 2017
Pages: 2319-2322
Language: English
ISBN-13: 9781509063505
Document type: Conference article (CA)
Conference name: 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Conference date: December 13, 2017 - December 16, 2017

Conference location: Chengdu, China
Conference code: 135473
Sponsor: IEEE; Sichuan Institute of Electronics
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Drilling data shows the features of a large number, various types and dispersing. To make drilling decisions, these features can not support the analysis of multidimensional rapidly and effectively. Based on the HADOOP architecture, this paper puts forward a method of using the Apache Kylin framework in the multidimensional analysis of drilling information. In a BIG DATA environment, the optimization of cube model precomputation and technical proposal of inquiry processing in multidimensional analysis is discussed, which provides an effective way for multidimensional analysis of oil drilling information. © 2017 IEEE.
Number of references: 7
Main heading: Big data
Controlled terms: Infill drilling
Uncontrolled terms: Apache Kylin - Data environment - Drilling data - Drilling information - hadoop - Multi-dimensional analysis - Pre-computation - Technical proposals
Classification code: 511.1 Oil Field Production Operations - 723.2 Data Processing and Image Processing
DOI: 10.1109/CompComm.2017.8322949
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

127. Dictionary matrix model and calculation algorithm in sparse representation for X-ray welding image recognition

Accession number: 20182805546028
Authors: Gao, Weixin (1); Jianan, He (1)
Author affiliation: (1) School of Electrical Engineering, Xi'An Shiyou University, Xi'an, China
Source title: 2017 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Abbreviated source title: IEEE Int. Conf. Comput. Commun., ICCC
Volume: 2018-January
Part number: 1 of 1
Issue title: 2017 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Issue date: July 2, 2017
Publication year: 2017
Pages: 1667-1671
Language: English
ISBN-13: 9781509063505
Document type: Conference article (CA)
Conference name: 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Conference date: December 13, 2017 - December 16, 2017
Conference location: Chengdu, China
Conference code: 135473
Sponsor: IEEE; Sichuan Institute of Electronics
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: The characteristics of circular defect, linear defect and noise of sub-arc x-ray images are analyzed here. In order to construct the sparse representation dictionary matrix for x-ray welding image recognition, the dimension of the dictionary matrix is determined by analyzing the correlation curve of x-ray images firstly. A new mathematical model for constructing dictionary matrix is proposed. The new mathematical model is appropriate to sub-arc x-ray images. The mathematical model is solved by using Hopfield neural network, the energy function and solving algorithm are also presented. A dictionary matrix for sparse representation is constructed by using the presented algorithm, and real x-ray images recognition test based on sparse representation shows that the constructed dictionary matrix can decrease the model images and has good robust in recognition. © 2017 IEEE.
Number of references: 16
Main heading: Defects
Controlled terms: Functions - Image analysis - Image recognition - Hopfield neural networks - Welding
Uncontrolled terms: Circular defects - Energy functions - Linear defect - Model images - New mathematical model - Solving algorithm - Sparse representation - Welding defects
Classification code: 538.2 Welding - 921 Mathematics - 951 Materials Science
DOI: 10.1109/CompComm.2017.8322823

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

128. Response time prediction of IoT service based on time similarity (*Open Access*)

Accession number: 20174104253227
Authors: Yang, Huaizhou (1); Zhang, Li (1)
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an, China
Corresponding author: Yang, Huaizhou(hzyang@xsyu.edu.cn)
Source title: Journal of Computing Science and Engineering
Abbreviated source title: J. Comput. Sci. Eng.
Volume: 11
Issue: 3
Issue date: 2017
Publication year: 2017
Pages: 100-108
Language: English
ISSN: 19764677
E-ISSN: 20938020
Document type: Journal article (JA)
Publisher: Korean Institute of Information Scientists and Engineers
Abstract: In the field of Internet of Things (IoT), smarter embedded devices offer functions via web services. The Quality-of-Service (QoS) prediction is a key measure that guarantees successful IoT service applications. In this study, a collaborative filtering method is presented for predicting response time of IoT service due to time-awareness characteristics of IoT. First, a calculation method of service response time similarity between different users is proposed. Then, to improve prediction accuracy, initial similarity values are adjusted and similar neighbors are selected by a similarity threshold. Finally, via a densified user-item matrix, service response time is predicted by collaborative filtering for current active users. The presented method is validated by experiments on a real web service QoS dataset. Experimental results indicate that better prediction accuracy can be achieved with the presented method. © 2017. The Korean Institute of Information Scientists and Engineers.
Number of references: 16
Main heading: Quality of service
Controlled terms: Internet of things - Web services - Collaborative filtering - Websites - Forecasting
Uncontrolled terms: Collaborative filtering methods - Internet of Things (IOT) - Prediction accuracy - Qos predictions - Service response time - Similar neighbors - Similarity threshold - Time predictions
Classification code: 722.3 Data Communication, Equipment and Techniques - 723 Computer Software, Data Handling and Applications - 903.1 Information Sources and Analysis
DOI: 10.5626/JCSE.2017.11.3.100
Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

129. Detail gain characteristics of dual-pump photonic crystal fiber optical parametrical amplifiers

Accession number: 20172803935096
Authors: Wen, Jin (1)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Source title: Optik
Abbreviated source title: Optik
Volume: 144
Issue date: September 2017
Publication year: 2017
Pages: 406-412
Language: English
ISSN: 00304026
Document type: Journal article (JA)

Publisher: Elsevier GmbH
Abstract: Dual-pump optical parametrical amplifiers based on photonic crystal fibers have been analytically and numerically investigated to describe gain distribution in this manuscript. Through controlling and optimizing multi-parameters, broadband and flat gain distribution can be obtained as the signal wavelength is nearby 1053 nm. The numerical results show that the regular and flat parametric gain zone just like "regular hexagon" can be formed when the pump-signal wavelength detuning is 2 nm and the pump power is 4.5 W. There are some ripples on the sideband of the central gain zone as the dispersion slope increases. And, the position of the ripples can shift and change under different dispersion slope and fourth order dispersion parameters. It is remarkable that the area of "regular hexagon" will extend to the largest corresponding to the third order dispersion coefficient β_3 = 1 × 10-41 s3 m-1. © 2017
Number of references: 18
Main heading: Nonlinear optics
Controlled terms: Photonic crystal fibers - Optical parametric amplifiers - Parametric amplifiers - Fiber amplifiers - Dispersion (waves) - Crystal whiskers
Uncontrolled terms: Dispersion slopes - Fourth order dispersion - Gain - Gain characteristic - Gain distribution - Numerical results - Signal wavelength - Third order dispersion
Classification code: 713.1 Amplifiers - 714 Electronic Components and Tubes - 741.1.1 Nonlinear Optics - 741.1.2 Fiber Optics - 744.4 Solid State Lasers - 933.1.1 Crystal Lattice - 951 Materials Science
DOI: 10.1016/j.ijleo.2017.06.119
Funding Details: Number: 61505160, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2016JQ6051, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 1362,16JK1592, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: This work was supported by the National Natural Science Foundation of China under Grant No. 61505160, the Natural Science Foundation of Shaanxi Province under Grant No. 2016JQ6051, the Scientific Research Program Funded by Shaanxi Provincial Education Department under Grant No. 16JK1592 and the Training Programs of Innovation and Entrepreneurship for Undergraduates funded by Shaanxi Provincial Educational Department under Grant No. 1362.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

130. Study on the blockage in pores due to asphaltene precipitation during different CO2 flooding schemes with NMR technique

Accession number: 20174704421453
Authors: Wang, Chen (1); Li, Tiantai (1); Gao, Hui (1); Zhao, Jinsheng (1); Zhang, Ming (1)
Author affiliation: (1) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an, China
Corresponding author: Gao, Hui(ghtopsun1@163.com)
Source title: Petroleum Science and Technology
Abbreviated source title: Petrol Sci Technol
Volume: 35
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Publication year: 2017
Pages: 1660-1666
Language: English
ISSN: 10916466
E-ISSN: 15322459
CODEN: PSTEFV
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: CO2 flooding is an effective way in the tertiary oil recovery. While asphaltene often precipitates from the crude oil during the CO2 flooding, and the mechanisms of blockage resulting from asphaltene precipitation is still unclear in different CO2 flooding schemes. In this work, pure-CO2 flooding, water-alternating-CO2 flooding (WAG), and CO2-foam flooding were applied to conduct the core-flooding experiments. Then, as for each flooding scheme, we quantitatively investigated the blockage degree in different pores due to asphaltene precipitation with nuclear magnetic resonance (NMR) technique. Tests results show that CO2-foam flooding has a relatively higher blockage degree both in the smaller pores and the larger pores than WAG and pure-CO2 flooding. Although pure-CO2 flooding has the least asphaltene precipitation and blockage degree among three flooding schemes, its oil recovery degree is far less than

the other two flooding schemes. Compared with pure-CO2 flooding and CO2-foam flooding, WAG flooding has the highest oil recovery and an acceptable asphaltene precipitation. © 2017 Taylor & Francis Group, LLC.
Number of references: 10
Main heading: Carbon dioxide
Controlled terms: Nuclear magnetic resonance - Floods - Asphaltenes - Enhanced recovery - Crude oil - Oil well flooding
Uncontrolled terms: Asphaltene precipitation - blockage degree - Core flooding - Flooding schemes - NMR techniques - Nuclear magnetic resonance techniques - Oil recoveries - Tertiary oil recovery
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 513 Petroleum Refining - 804.2 Inorganic Compounds
DOI: 10.1080/10916466.2017.1356848
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

131. Study of the anti-sand sucker rod pump (*Open Access*)

Accession number: 20172903944038
Authors: Wei, Hangxin (1); Lv, Bingxin (1); Xi, Wenkui (1); Yi, Peng (1)
Author affiliation: (1) School of Mechanical Engineering, Xi'An Shiyou University, Xi'an, China
Corresponding author: Wei, Hangxin(whx0604@163.com)
Source title: IOP Conference Series: Materials Science and Engineering
Abbreviated source title: IOP Conf. Ser. Mater. Sci. Eng.
Volume: 207
Part number: 1 of 1
Issue: 1
Issue title: 4th International Conference on Advanced Composite Materials and Manufacturing Engineering 2017
Issue date: June 15, 2017
Publication year: 2017
Article number: 012081
Language: English
ISSN: 17578981
E-ISSN: 1757899X
Document type: Conference article (CA)
Conference name: 2017 4th International Conference on Advanced Composite Materials and Manufacturing Engineering, ACMME 2017
Conference date: May 20, 2017 - May 21, 2017
Conference location: Xishuangbanna, Yunnan, China
Conference code: 128593
Publisher: IOP Publishing Ltd
Abstract: In order to solve the problem of sand stuck in the sucker rod pump, an anti-sand sucker rod pump is designed. The anti-sand sucker rod pump includes the conventional sucker rod pump and the swirl flow device. The sand particles can be separated from the oil in the swirl flow device, so the plunger of the sucker rod pump cannot be stuck. The motion equation of the sand particles in oil is deduced. The virtual model of the swirl flow device is built in GAMBIT software. And simulation of solid-liquid two phase flow is simulated in software FLUENT. The simulation results show that the swirl flow device can realize the sand particles separation from the oil completely. So the pump can have the effect of anti-sands. © Published under licence by IOP Publishing Ltd.
Number of references: 6
Main heading: Sand
Controlled terms: Computer software - Equations of motion - Pumps - Two phase flow - Manufacture
Uncontrolled terms: Sand particles - Software FLUENT - Solid-liquid two phase flows - Sucker-rod pumps - Swirl flow - Virtual modeling
Classification code: 483.1 Soils and Soil Mechanics - 537.1 Heat Treatment Processes - 618.2 Pumps - 631.1 Fluid Flow, General - 723 Computer Software, Data Handling and Applications - 913.4 Manufacturing - 921.2 Calculus
DOI: 10.1088/1757-899X/207/1/012081
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

132. Face Recognition of the Rhinopithecus Roxellana Qinlingensis Based on Improved HOG and Sparse Representation

Accession number: 20181905168760
Authors: Ying, Cuan (1); Yaojie, Shi (1)
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an, China
Source title: Proceedings - 2017 International Conference on Computer Network, Electronic and Automation, ICCNEA 2017
Abbreviated source title: Proc. - Int. Conf. Comput. Network, Electron. Autom., ICCNEA
Volume: 2017-January
Part number: 1 of 1
Issue title: Proceedings - 2017 International Conference on Computer Network, Electronic and Automation, ICCNEA 2017
Issue date: December 1, 2017
Publication year: 2017
Pages: 499-503
Language: English
ISBN-13: 9781538639818
Document type: Conference article (CA)
Conference name: 2017 International Conference on Computer Network, Electronic and Automation, ICCNEA 2017
Conference date: September 23, 2017 - September 25, 2017
Conference location: Xi'an, China
Conference code: 133624
Sponsor: Department of Electrical and Computer Engineering; Director of Security and Optimization for Networked Globe Laboratory; State and Provincial Joint Engineering Lab. of Advanced Network and Monitoring Control; West Virginia University; Xi'an Technological University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: With the researches on face recognition of Rhinopithecusroxellanaqinlingensis, this thesis comes up with some methods that refining traditional HOG and Sparse Representation in order to improve the efficiency in recognizing golden monkeys. As we know, improved HOG is an optimal way to show partial information of an image. Besides, it can also plays an crucial role in staying stability in both optical and geometric distortion, which means the changes in expressions, postures and angles of golden monkeys can also be ignored. By using these characteristics as a alternation of original images to be a part of Sparse dictionary, and make a facial recognition on golden monkey with Sparse Representation, which can be a ideal method to erase many unnecessary messages and improve the accuracy on facial recognition of golden monkeys. Compared with mainstream method in recognition, this method is more reliable and effective and has a higher efficiency in recognition. © 2017 IEEE.
Number of references: 17
Main heading: Face recognition
Controlled terms: Efficiency - Image enhancement
Uncontrolled terms: Facial recognition - Geometric distortion - Higher efficiency - Histogram of oriented gradients - Partial information - Rhinopithecus roxellana qinlingensis - Sparse dictionaries - Sparse representation
Classification code: 913.1 Production Engineering
DOI: 10.1109/ICCNEA.2017.42
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

133. Development of Y-type receiver for atmospheric optical communication

Accession number: 20181504991897
Authors: Yang, Changqi (1)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Yang, Changqi
Source title: Progress in Electromagnetics Research Symposium
Abbreviated source title: Prog. Electromagn. Res. Symp.
Part number: 1 of 1
Issue title: 2017 Progress in Electromagnetics Research Symposium - Spring, PIERS 2017
Issue date: 2017
Publication year: 2017

Pages: 2460-2463
Language: English
ISSN: 15599450
E-ISSN: 19317360
ISBN-13: 9781509062690
Document type: Conference article (CA)
Conference name: 2017 Progress In Electromagnetics Research Symposium - Spring, PIERS 2017
Conference date: May 22, 2017 - May 25, 2017
Conference location: St. Petersburg, Russia
Conference code: 134321
Sponsor: et al.; Institute of Electrical and Electronics Engineers (IEEE); St. Petersburg State University; The Swedish Institute; Tomsk Polytechnic University; University of Gavle
Publisher: Electromagnetics Academy, United States
Abstract: In the previous paper, the author puts forward a new technique called aperture averaging weight factor shifting. This technique is created against the disadvantages of the traditional receiver for atmospheric optical communication. This new type of receiver is called the Y-type receiver. A set of Y-type receiver is developed. In this paper, the author introduces the design ideas and hardware of the Y-type receiver. 3D printing technology is also employed in developing the Y-type receiver.
Number of references: 3
Main heading: 3D printers
Controlled terms: Optical communication
Uncontrolled terms: 3-D printing - Aperture averaging - Atmospheric optical communication - Design ideas - Weight factor
Classification code: 717.1 Optical Communication Systems - 745.1.1 Printing Equipment
DOI: 10.1109/PIERS.2017.8262164
Funding Details: Number: 15JK1589, Acronym: -, Sponsor: Basic Research Program of Jiangsu Education Department;
Funding text: This paper is supported by: 1. Scientific Research Program Funded by Shaanxi Provincial Education Department in 2015 (No. 15JK1589); 2. 2017 Teaching Reform Project of School of Sciences, Xi'an Shiyou University.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

134. Portable atmospheric optical communication system

Accession number: 20181504991898
Authors: Yang, Changqi (1)
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Yang, Changqi
Source title: Progress in Electromagnetics Research Symposium
Abbreviated source title: Prog. Electromagn. Res. Symp.
Part number: 1 of 1
Issue title: 2017 Progress in Electromagnetics Research Symposium - Spring, PIERS 2017
Issue date: 2017
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ISSN: 15599450
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ISBN-13: 9781509062690
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Conference name: 2017 Progress In Electromagnetics Research Symposium - Spring, PIERS 2017
Conference date: May 22, 2017 - May 25, 2017
Conference location: St. Petersburg, Russia
Conference code: 134321
Sponsor: et al.; Institute of Electrical and Electronics Engineers (IEEE); St. Petersburg State University; The Swedish Institute; Tomsk Polytechnic University; University of Gavle
Publisher: Electromagnetics Academy, United States
Abstract: A set of atmospheric optical communication system is introduced in this paper. The study of atmospheric optical communication has experienced more than 10 years of troughs. There are some problems that cannot be

solved. For example, phase fluctuations produce optical scintillation. There is still no good solution. There are some enterprise applications that optical fiber communication cannot meet the requirements. It is proposed that optical fiber communication is replaced by atmospheric optical communication. To this end, a lot of manufacturers have developed this type of atmospheric optical communication system. Because there is no market, a large number of production lines are closed. There is another type of atmospheric optical communication system. Its application is to study the nature of atmospheric optics. The main customers are research institutes, laboratories, universities and other research groups. At present, the system of this kind of application on the market is very little. The author has developed a set of such a system. It is a portable atmospheric optical communication system. In this paper, the structure of the system is introduced in detail. In the development of the interface and the array receiver, 3D printing technology is used.
Number of references: 3
Main heading: Optical fiber communication
Controlled terms: 3D printers - Commerce - Optical fibers
Uncontrolled terms: Atmospheric optical communication - Enterprise applications - ITS applications - Optical scintillation - Phase fluctuation - Production line - Research groups - Research institutes
Classification code: 717.1 Optical Communication Systems - 741.1.2 Fiber Optics - 745.1.1 Printing Equipment
Numerical data indexing: Age 1.00e+01yr
DOI: 10.1109/PIERS.2017.8262165
Funding Details: Number: -, Acronym: -, Sponsor: Gulf Research Program; Number: 15JK1589, Acronym: -, Sponsor: Department of Education of Liaoning Province;
Funding text: This paper is supported by: 1. Scientific Research Program Funded by Shaanxi Provincial Education Department in 2015 (No. 15JK1589); 2. 2017 Teaching Reform Project of School of Sciences, Xi'an Shiyou University.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

135. Multi-source dynamic attitude combination measurement for near-bit drilling tool

Accession number: 20172603813339
Authors: Gao, Yi (1, 2); Cheng, Wei-Bin (1, 2); Wang, Yue-Long (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: 25
Issue: 2
Issue date: April 1, 2017
Publication year: 2017
Pages: 146-150
Language: Chinese
ISSN: 10056734
Document type: Journal article (JA)
Publisher: Editorial Department of Journal of Chinese Inertial Technology
Abstract: In the process of the attitude measurement for steering drilling system, the measurement of the attitude parameters may be uncertainty and unpredictable due to the influence of near-bit's strong vibration. In order to eliminate the regular interference's and vibration's influences on the measurement and quickly obtain the accurate attitude parameters of steering drilling tool, a new method of multi-source dynamic attitude combination measurement is presented. By using three-axis accelerometer, three-axis magnetic flux gate and angular rate gyro measurement system, the nonlinear model based on the quaternion is established. The relationship between the steering drilling tool motion state and the vibration acceleration is studied, and according to the model and the noise characteristics, the vibration disturbance signal is eliminated by the Unscented Kalman filtering based on the Quaternary. Experimental results and comparison analysis demonstrate that the proposed multi-source dynamic attitude combination measurement method can eliminate the near-bit interference's influences on the attitude parameters measurement, and effectively improve the accuracy of the attitude dynamic measurement of steering drilling tool. The deviation angle can be controlled to about 5.2°, and the tool face angle error is less than 10°.
Number of references: 13
Main heading: Parameter estimation
Controlled terms: Bandpass filters - Uncertainty analysis - Kalman filters

Uncontrolled terms: Dynamic measurement - Multi-sensor fusion - Near-bit vibration - Three axis accelerometers - Unscented Kalman Filter - Unscented Kalman filtering - Vibration acceleration - Vibration disturbances
Classification code: 703.2 Electric Filters - 922.1 Probability Theory
DOI: 10.13695/j.cnki.12-1222/o3.2017.02.002
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

136. Study on safety of high voltage gis busbars shell

Accession number: 20174704418663
Authors: Yuan, Shuxia (1); Zhou, Sanping (1); Fan, Yuguang (1)
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Source title: American Society of Mechanical Engineers, Pressure Vessels and Piping Division (Publication) PVP
Abbreviated source title: ASME Pressure Vessels Piping Div. Publ. PVP
Volume: 1B-2017
Volume title: Codes and Standards
Part number: 2 of 11
Issue title: ASME 2017 Pressure Vessels and Piping Conference, PVP 2017
Issue date: 2017
Publication year: 2017
Report number: PVP2017-66249
Language: English
ISSN: 0277027X
CODEN: APVPDM
ISBN-13: 9780791857915
Document type: Conference article (CA)
Conference name: ASME 2017 Pressure Vessels and Piping Conference, PVP 2017
Conference date: July 16, 2017 - July 20, 2017
Conference location: Waikoloa, HI, United states
Conference code: 131595
Sponsor: Pressure Vessels and Piping Division
Publisher: American Society of Mechanical Engineers (ASME), United States
Abstract: GIS, Gas Isolation Switchgears, is the closed combination of electrical appliances, which is filled with SF6 gas as a dielectric and insulation medium. The gas pressure is up to 0.5 MPa, so the GIS busbars shells are pressure vessels, which should have high reliability. Research about horizontal busbars shell showed that crack may appeared on the connection between the saddle support and the shell, then the gas leakage taken place. In this paper, the GIS busbars system in a certain substation is studied, the reaction force of the supports under the action of interior pressure, gravity, and temperature are calculated used as Autopipe. Then the stress distributions of the busbars shells are analyzed according to the supporting reaction force. At last, the safety of high voltage GIS busbars shell was analyzed. © 2017 ASME.
Number of references: 17
Main heading: Shells (structures)
Controlled terms: Pressure vessels - Safety engineering - Busbars
Uncontrolled terms: Electrical appliances - Gas isolation - Gas leakages - Gas pressures - High reliability - High voltage - Reaction forces - SF6 gas
Classification code: 408.2 Structural Members and Shapes - 619.2 Tanks - 914 Safety Engineering
Numerical data indexing: Pressure 5.00e+05Pa
DOI: 10.1115/PVP2017-66249
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

137. A new submarine oil-water separation system (*Open Access*)

Accession number: 20175304593092
Authors: Cai, Wen-Bin (1); Liu, Bo-Hong (1)
Author affiliation: (1) Petroleum Engineering Academy, Xi'An Shiyou University, Xi'an, Shaanxi; 710065, China
Source title: IOP Conference Series: Earth and Environmental Science

Abbreviated source title: IOP Conf. Ser. Earth Environ. Sci.
Volume: 100
Part number: 1 of 1
Issue: 1
Issue title: 1st International Global on Renewable Energy and Development, IGRED 2017
Issue date: December 20, 2017
Publication year: 2017
Article number: 012115
Language: English
ISSN: 17551307
E-ISSN: 17551315
Document type: Conference article (CA)
Conference name: 1st International Global on Renewable Energy and Development, IGRED 2017
Conference date: December 22, 2017 - December 25, 2017
Conference location: Singapore, Singapore
Conference code: 132876
Publisher: IOP Publishing Ltd
Abstract: In order to solve the oil field losses of environmental problems and economic benefit caused by the separation of lifting production liquid to offshore platforms in the current offshore oil production, from the most basic separation principle, a new oil-water separation system has been processed of adsorption and desorption on related materials, achieving high efficiency and separation of oil and water phases. And the submarine oil-water separation device has been designed. The main structure of the device consists of gas-solid phase separation device, period separating device and adsorption device that completed high efficiency separation of oil, gas and water under the adsorption and desorption principle, and the processing capacity of the device is calculated. © Published under licence by IOP Publishing Ltd.
Number of references: 7
Main heading: Adsorption
Controlled terms: Offshore oil well production - Offshore oil wells - Phase separation - Efficiency - Drilling platforms - Desorption - Submarines
Uncontrolled terms: Adsorption and desorptions - Environmental problems - Off shore platforms - Offshore oil production - Oil water separation - Processing capacities - Separation devices - Separation principle
Classification code: 511.1 Oil Field Production Operations - 511.2 Oil Field Equipment - 512.1.1 Oil Fields - 641.1 Thermodynamics - 672.1 Combat Naval Vessels - 674.2 Marine Drilling Rigs and Platforms - 802.3 Chemical Operations - 913.1 Production Engineering
DOI: 10.1088/1755-1315/100/1/012115
Funding Details: Number: 2013JK0859,2016ZX05050-009, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department;
Funding text: This research was financially supported by the scientific research plan projects of Shaanxi Education Department (No.2013JK0859) and Mechanism of Hydraulic Fracturing and Fracture and Parameter Optimization in Low Permeability Tight Sandstone Gas Reservoirs, (2016ZX05050-009)
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

138. Defect-related photoluminescence emission from annealed ZnO films deposited on AlN substrates

Accession number: 20173104014709
Authors: Ding, Jijun (1); Chen, Haixia (1); Fu, Haiwei (1)
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China
Corresponding author: Ding, Jijun(dingjj303@163.com)
Source title: Materials Research Bulletin
Abbreviated source title: Mater Res Bull
Volume: 95
Issue date: November 2017
Publication year: 2017
Pages: 185-189
Language: English

ISSN: 00255408
CODEN: MRBUAC
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: ZnO film deposited on AlN shows excellent blue emission. Photoluminescence (PL) emission is further enhanced by annealed treatment. The corresponding emission mechanism is discussed. VAl-ON are the dominant form of VAl in as grown AlN samples. When the energy of the incident photons is just enough to pump the electrons up to the VAl-ON energy level, a mass of electrons can be directly trapped by the VAl-ON defect centers, which will induce effective transitions from these defect energy level to the top of the valence band, and then transitions to Zn vacancies levels in ZnO due to similar lattice constants between ZnO and AlN. The energy interval between the VAl-ON in AlN and the Zn vacancies defect states in ZnO is about 2.96 eV, which is well consistent with the energy of the blue peak at 420 nm (2.96 eV). © 2017 Elsevier Ltd
Number of references: 25
Main heading: Aluminum nitride
Controlled terms: Metallic films - Zinc oxide - Defect states - Lattice constants - II-VI semiconductors - III-V semiconductors - Zinc - Photoluminescence
Uncontrolled terms: Annealed treatment - Blue emission - Defect centers - Defect energy level - Emission mechanism - Energy interval - Photoluminescence emission - PL mechanism
Classification code: 546.3 Zinc and Alloys - 712.1 Semiconducting Materials - 741.1 Light/Optics - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 933.1.1 Crystal Lattice
DOI: 10.1016/j.materresbull.2017.07.042
Funding Details: Number: 2016BS12, Acronym: -, Sponsor: -; Number: 16JK1601, Acronym: -, Sponsor: -; Number: 11447116, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2016JQ5037, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 2014KYCXTD02, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: This work is supported by the National Natural Science Foundations of China (Grant No. 11447116), Natural Science Basic Research Plan in Shaanxi Province of China (Grant No. 2016JQ5037), Special Program for Scientific Research of Shaanxi Educational Committee (Grant No. 16JK1601), Doctoral Scientific Research Startup Foundation of Xi'an Shiyou University (Grant No. 2016BS12) and Creative Scientific Research Group of XSYU (Grant No. 2014KYCXTD02).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

139. Overlap hyper-sphere clustering-based outlier mining algorithm

Accession number: 20182805546228
Authors: Rongfang, Gao (1); Zhentao, Dong (1); Haiyang, Xia (1)
Author affiliation: (1) School of Computer Science, Xi'An ShiYou University, Shaanxi; 710065, China
Source title: 2017 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Abbreviated source title: IEEE Int. Conf. Comput. Commun., ICCC
Volume: 2018-January
Part number: 1 of 1
Issue title: 2017 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Issue date: July 2, 2017
Publication year: 2017
Pages: 2247-2251
Language: English
ISBN-13: 9781509063505
Document type: Conference article (CA)
Conference name: 3rd IEEE International Conference on Computer and Communications, ICCC 2017
Conference date: December 13, 2017 - December 16, 2017
Conference location: Chengdu, China
Conference code: 135473
Sponsor: IEEE; Sichuan Institute of Electronics
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Traditional clustering-based outlier mining algorithm only qualitatively judge whether a data point is an outlier, unable to quantitatively describe the outlier degree. It results to a low mining precision. In order to improve the performance of existing outlier mining algorithms, this paper proposes an overlap hyper-sphere clustering-based outlier

mining algorithm. The experiment shows compared with the traditional outlier mining algorithms, it has higher precision and recall rate. © 2017 IEEE.
Number of references: 15
Main heading: Spheres
Controlled terms: Statistics - Clustering algorithms - Data mining
Uncontrolled terms: Clustering - Hyper-spheres - Outlier degree - Outlier Mining - Quantitative description
Classification code: 723.2 Data Processing and Image Processing - 903.1 Information Sources and Analysis - 922.2 Mathematical Statistics
DOI: 10.1109/CompComm.2017.8322935
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

140. A new method for 2D NMR log data inversion in tight sandstone reservoir

Accession number: 20174604386408
Authors: Meng, X.N. (1); Xie, R. (2); Jia, H. (1); Guo, J.F. (2)
Author affiliation: (1) Xi'an Shiyou University, China; (2) China University of Petroleum, Beijing, China
Corresponding author: Guo, J.F.
Source title: 79th EAGE Conference and Exhibition 2017
Abbreviated source title: EAGE Conf. Exhib.
Part number: 1 of 1
Issue title: 79th EAGE Conference and Exhibition 2017
Issue date: 2017
Publication year: 2017
Language: English
ISBN-13: 9789462822177
Document type: Conference article (CA)
Conference name: 79th EAGE Conference and Exhibition 2017: Energy, Technology, Sustainability - Time to Open a New Chapter
Conference date: June 12, 2017 - June 15, 2017
Conference location: Paris, France
Conference code: 129040
Sponsor: Saudi Aramco; Shell; Total
Publisher: European Association of Geoscientists and Engineers, EAGE
Abstract: To improve the inversion effects of 2D NMR log data of the tight sandstone reservoir, this paper applies the two parameters regularization inversion method to the data. The principle of the method is elaborated in detail. The results of applying the method to the simulated 2D NMR log echo data indicate that two parameters regularization inversion method, which can overcome ill-posed nature of 2D NMR log data inversion and obtain a high inversion precision, is much suitable for inversing 2D NMR log data. The inversion results of the 2D NMR log data of tight sandstone reservoir using the two parameters regularization algorithm can be uesed to identify reservoir fluids.
Number of references: 11
Main heading: Nuclear magnetic logging
Controlled terms: Nuclear magnetic resonance spectroscopy - Sandstone - Tight gas
Uncontrolled terms: Ill-posed natures - Inversion effects - Inversion methods - Inversion results - Regularization algorithms - Reservoir fluid - Tight sandstone reservoirs - Two parameter
Classification code: 482.2 Minerals - 512.1.2 Petroleum Deposits : Development Operations - 522 Gas Fuels
DOI: 10.3997/2214-4609.201700479
Funding Details: Number: U1262114, Acronym: -, Sponsor: -; Number: 2016BS37, Acronym: -, Sponsor: -; Number: 41272163, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work is supported by the Youth Science and Technology Innovation Fund Project of Xi'an Petroleum University (2016BS37), the National Natural Science Foundation of China—China National Petroleum Corporation Petrochemical Engineering United Fund (U1262114) and the National Natural Science Foundation of China (41272163).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

141. Main devices design of submarine oil-water separation system (*Open Access*)

Accession number: 20175104555127
Authors: Cai, Wen-Bin (1); Liu, Bo-Hong (1)
Author affiliation: (1) Petroleum Engineering Academy, Xi'An Shiyou University, Xi'an, Shaanxi; 710065, China
Source title: IOP Conference Series: Earth and Environmental Science
Abbreviated source title: IOP Conf. Ser. Earth Environ. Sci.
Volume: 94
Part number: 1 of 1
Issue: 1
Issue title: 2017 3rd International Conference on Energy, Environment and Materials Science, EEMS 2017
Issue date: November 28, 2017
Publication year: 2017
Article number: 012104
Language: English
ISSN: 17551307
E-ISSN: 17551315
Document type: Conference article (CA)
Conference name: 2017 3rd International Conference on Energy, Environment and Materials Science, EEMS 2017
Conference date: July 28, 2017 - July 30, 2017
Conference location: Singapore, Singapore
Conference code: 132577
Publisher: IOP Publishing Ltd
Abstract: In the process of offshore oil production, in order to thoroughly separate oil from produced fluid, solve the environment problem caused by oily sewage, and improve the economic benefit of offshore drilling, from the perspective of new oil-water separation, a set of submarine oil-water separation devices were designed through adsorption and desorption mechanism of the polymer materials for crude oil in this paper. The paper introduces the basic structure of gas-solid separation device, periodic separation device and adsorption device, and proves the rationality and feasibility of this device. © Published under licence by IOP Publishing Ltd.
Number of references: 5
Main heading: Submarines
Controlled terms: Oil spills - Manufacture - Offshore oil well production - Sewage - Separation - Offshore drilling - Offshore oil wells
Uncontrolled terms: Adsorption and desorptions - Economic benefits - Gas-solid separation - Offshore oil production - Oil water separation - Polymer materials - Produced fluids - Separation devices
Classification code: 452.1 Sewage - 453.1 Water Pollution Sources - 511.1 Oil Field Production Operations - 512.1.1 Oil Fields - 537.1 Heat Treatment Processes - 672.1 Combat Naval Vessels - 802.3 Chemical Operations - 913.4 Manufacturing
DOI: 10.1088/1755-1315/94/1/012104
Funding Details: Number: 2013JK0859,2016ZX05050-009, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department;
Funding text: This research was financially supported by the scientific research plan projects of Shaanxi Education Department (No.2013JK0859) and Mechanism of Hydraulic Fracturing and Fracture and Parameter Optimization in Low Permeability Tight Sandstone Gas Reservoirs, (2016ZX05050-009)
Compendex references: YES
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

142. Experimental study on pressure fluctuation characteristics of slug flow in horizontal curved tubes

Accession number: 20172003666752
Authors: Deng, Zhian (1); Xiao, Xue (1)
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Xiao, Xue(422941780@qq.com)
Source title: High Technology Letters
Abbreviated source title: High Technol Letters
Volume: 23
Issue: 1

Issue date: March 1, 2017
Publication year: 2017
Pages: 23-29
Language: English
ISSN: 10066748
CODEN: HTLEFC
Document type: Journal article (JA)
Publisher: Inst. of Scientific and Technical Information of China
Abstract: In order to study the pressure characteristics of slug flow in horizontal curved tubes, two kinds of curved tubes with central angle 45° and 90° respectively are studied, of which are with 0.5m circumference and 26mm inner diameter are used. When the superficial liquid velocity or the superficial gas velocity is constant, the pressure fluctuations and the probability distribution of the average velocity of slug flow are clear for all of the five experimental conditions. The results of experiment show that the pressure characteristics of slug flow in curved tubes have periodic fluctuations. With the rise of central angle, the period of pressure fluctuation is more obvious. The system pressure of the slug flow increases with the increasing of superficial liquid/gas velocity.Meanwhile,the probability distribution of pressure signal shows regularity, such as unimodal, bimodal or multimodal. Copyright © by HIGH TECHNOLOGY LETTERS PRESS.
Number of references: 18
Main heading: Probability distributions
Controlled terms: Velocity - Tubes (components)
Uncontrolled terms: Central angle - Curved tube - Experimental conditions - Pressure characteristics - Pressure fluctuation - Slug flow - Superficial gas velocities - Superficial liquid velocity
Classification code: 619.1 Pipe, Piping and Pipelines - 922.1 Probability Theory
Numerical data indexing: Size 2.60e-02m, Size 5.00e-01m
DOI: 10.3772/j.issn.1006-6748.2017.01.004
Funding Details: Number: 5130416, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: Supported by the National Natural Science Foundation of China (No. 5130416)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

143. Defect modification to improve field emission of ZnO NRs by coating ultrathin Pt films

Accession number: 20171703607823
Authors: Ding, Jijun (1); Chen, Haixia (1); Feng, Dequan (1); Fu, Haiwei (1)
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China
Corresponding author: Ding, Jijun
Source title: Journal of Alloys and Compounds
Abbreviated source title: J Alloys Compd
Volume: 714
Issue date: 2017
Publication year: 2017
Pages: 198-203
Language: English
ISSN: 09258388
CODEN: JALCEU
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Ultrathin platinum (Pt) films are coated on the surface of ZnO NRs grown on Fe alloy substrates and display excellent field emission performance with the turn-on field Eto as low as 0.40 V/μm and the threshold field Ethr down to 2.62 V/μm. By coating ultrathin Pt films on the surface of the ZnO NRs, this not only helps to modify the linear defects on the outer surface of ZnO NRs, but also suppresses random electron emission along the defect directions. At an external electric field, a large amount of electrons are transported to the top of ZnO NRs where a highly localized electric field is caused, which results in enhanced field emission. Besides, ZnO NRs grown on Fe alloy substrates have a low interfacial contact resistance and intend to reduce the barrier between the substrate and the ZnO. Meanwhile, metal Pt films can help to obtain emitting centers that ensure highly conductive paths for the electrons from the ZnO NRs towards the vacuum, which effectively decrease the barrier between the ZnO and the vacuum. Finally, a schottky contact of Fe-ZnO and matched Fermi levels of ZnO-Pt contribute to the enhanced current emission efficiency. This work may help the development of the practical electron sources and advanced devices based on ZnO field emitters. © 2017 Elsevier B.V.

Number of references: 25
Main heading: Zinc oxide
Controlled terms: Conductive films - II-VI semiconductors - Metallic films - Field emission - Iron alloys - Electron transport properties - Substrates - Surface defects - Ultrathin films - Coatings - Platinum
Uncontrolled terms: Defect modification - Electron transport - Emission performance - Enhanced field emission - External electric field - Field emission mechanism - Interfacial contact resistance - Pt films
Classification code: 545.2 Iron Alloys - 547.1 Precious Metals - 708.2 Conducting Materials - 712.1 Semiconducting Materials - 804.2 Inorganic Compounds - 813.2 Coating Materials - 951 Materials Science
DOI: 10.1016/j.jallcom.2017.04.226
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

144. Nuclear quadrupole resonance signal detectability enhancement methods-An overview

Accession number: 20182005207294
Authors: Zhu, Kairan (1); Zhao, Zhifeng (1); Jia, Huiqin (1)
Author affiliation: (1) College of Electronic Engineering, Xi'An Shiyou University, XSYU, Xi'an, China
Source title: International Conference on Information and Communication Technology Convergence: ICT Convergence Technologies Leading the Fourth Industrial Revolution, ICTC 2017
Abbreviated source title: Int. Conf. Inf. Commun. Technol. Converg.: ICT Converg. Technolo. Lead. Fourth Ind. Revolut., ICTC
Volume: 2017-December
Part number: 1 of 1
Issue title: International Conference on Information and Communication Technology Convergence: ICT Convergence Technologies Leading the Fourth Industrial Revolution, ICTC 2017
Issue date: December 12, 2017
Publication year: 2017
Pages: 278-281
Language: English
ISBN-13: 9781509040315
Document type: Conference article (CA)
Conference name: 8th International Conference on Information and Communication Technology Convergence, ICTC 2017
Conference date: October 18, 2017 - October 20, 2017
Conference location: Jeju Island, Korea, Republic of
Conference code: 133827
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Abandoned landmines and terrorist bomb attacks are severe issues threatening public security. Nuclear quadrupole resonance (NQR) detection technology has proven to be a highly effective solution for detecting explosives unambiguously. Unfortunately, the practical use of NQR is restricted by the low signal to noise ratio (SNR) and the radio frequency interference (RFI). The interference mitigation and detection of weak NQR signals are the core and the key of the NQR technique. From the perspective of signal processing, the noise and interference mitigation methods are summarized in this paper. © 2017 IEEE.
Number of references: 23
Main heading: Remote sensing
Controlled terms: Signal to noise ratio - Explosives - Partial discharges - Nuclear quadrupole resonance - Radio interference - Landmine detection - Explosives detection - Radio waves - Signal detection
Uncontrolled terms: Detection technology - Effective solution - Interference mitigation - Low signal-to-noise ratio - Public security - Radio frequencies - Radio frequency interference - Terrorist bomb attacks
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 711 Electromagnetic Waves - 716.1 Information Theory and Signal Processing - 716.3 Radio Systems and Equipment - 801 Chemistry - 932.2 Nuclear Physics - 943.3 Special Purpose Instruments
DOI: 10.1109/ICTC.2017.8190986
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

145. Enhanced blue emission of ZnO films deposited on AlN substrates

Accession number: 20171303494357
Authors: Ding, Jijun (1); Chen, Haixia (1); Fu, Haiwei (1)
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China
Corresponding author: Ding, Jijun(dingjj303@163.com)
Source title: Physica E: Low-Dimensional Systems and Nanostructures
Abbreviated source title: Phys E
Volume: 90
Issue date: June 1, 2017
Publication year: 2017
Pages: 61-66
Language: English
ISSN: 13869477
CODEN: PELNFM
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Taking into account the individual excellent optical properties of ZnO and AlN, the combination of ZnO with AlN may give the enhanced performances. Based on similar lattice constants between ZnO and AlN, considering that AlN is a promising high power integrated circuit substrate material, ZnO films are deposited on AlN substrates using magnetron sputtering. We find that AlN substrate shows an excellent transparency with an average transmittance of about 80%. As ZnO films are deposited on AlN substrate, average transmittance still maintain above 80% except for the UV absorption edge shifted to the longer wavelength. In addition, AlN substrate shows two emission peaks at 420 and 468 nm ascribed to Al vacancies with different charge states. As ZnO films are deposited on AlN substrates in pure Ar gas, the intensity of both peaks attain the maximum. After introducing O2 gas, they conversely decreases and attains the minimum. PL emissions increase again as the sample is annealed in vacuum. Excellent blue emissions are obtained due to the synergistic effect between ZnO and AlN. This work may help the development of the practical optoelectronic devices based on ZnO and AlN materials. © 2017 Elsevier B.V.
Number of references: 29
Main heading: Aluminum nitride
Controlled terms: Lattice constants - II-VI semiconductors - Optical properties - Optoelectronic devices - Substrates - III-V semiconductors - Magnetron sputtering - Metallic films - Zinc oxide
Uncontrolled terms: AlN substrates - Blue emission - Emission peaks - High-power integrated circuits - PL mechanism - Substrate material - Synergistic effect - UV absorption
Classification code: 712.1 Semiconducting Materials - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 933.1.1 Crystal Lattice
Numerical data indexing: Percentage 8.00e+01%, Size 4.20e-07m, Size 4.68e-07m
DOI: 10.1016/j.physe.2017.03.011
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

146. Influence of heat input on toughness in coarse grain zone of QT900 coiled tubing butt welding

Accession number: 20173704160732
Authors: Hou, Chunfeng (1); Shi, Kai (1); Li, Xiao (1); Liang, Wei (1)
Author affiliation: (1) Material Science and Engineering Institute, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Shi, Kai(kshi@xsyu.edu.cn)
Source title: Hanjie Xuebao/Transactions of the China Welding Institution
Abbreviated source title: Hanjie Xuebao
Volume: 38
Issue: 5
Issue date: May 25, 2017
Publication year: 2017
Pages: 120-124
Language: Chinese
ISSN: 0253360X
CODEN: HHPAD2
Document type: Journal article (JA)

Publisher: Harbin Research Institute of Welding
Abstract: In this paper, thermal simulation technology, microscope analysis and fracture surface topography analysis techniques are used to study the influence of heat input on the impact toughness and embrittlement mechanism of coarse grain zone in butt weld of QT900 coiled tubing.The result shows that fine needle lathe bainite can be obtained under 5 kJ/cm heat input, it improves impact energy and provides good impact toughness to coarse grain zone; with the heat input increaseed from 5 kJ/cm to 10 kJ/cm, grain size increases in coarse grain zone, bainitic ferrite laths become widen, and the grain boundary allotriomorphs will nucleate and grow along the original austenite grain boundaries, which decrease toughness in coarse grain zone. © 2017, Editorial Board of Transactions of the China Welding Institution, Magazine Agency Welding. All right reserved.
Number of references: 13
Main heading: Fracture toughness
Controlled terms: Grain boundaries - Butt welding - Coiled tubing - Surface topography
Uncontrolled terms: Austenite grain boundaries - CGHAZ - Coarse grain zone - Embrittlement mechanisms - Fracture surface topography analysis - Grain boundary allotriomorphs - Thermal simulations - Welding heat input
Classification code: 538.2.1 Welding Processes - 619.1 Pipe, Piping and Pipelines - 931.2 Physical Properties of Gases, Liquids and Solids
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

147. Rock images classification by using deep convolution neural network (*Open Access*)

Accession number: 20174104250560
Authors: Cheng, Guojian (1); Guo, Wenhui (1)
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an Shanxi; 710065, China
Source title: Journal of Physics: Conference Series
Abbreviated source title: J. Phys. Conf. Ser.
Volume: 887
Part number: 1 of 1
Issue: 1
Issue title: 2nd Annual International Conference on Information System and Artificial Intelligence, ISAI 2017
Issue date: September 8, 2017
Publication year: 2017
Article number: 012089
Language: English
ISSN: 17426588
E-ISSN: 17426596
Document type: Conference article (CA)
Conference name: 2nd Annual International Conference on Information System and Artificial Intelligence, ISAI 2017
Conference date: July 14, 2017 - July 16, 2017
Conference location: Tianjin, China
Conference code: 130791
Publisher: IOP Publishing Ltd
Abstract: Granularity analysis is one of the most essential issues in authenticate under microscope. To improve the efficiency and accuracy of traditional manual work, an convolutional neural network based method is proposed for granularity analysis from thin section image, which chooses and extracts features from image samples while build classifier to recognize granularity of input image samples. 4800 samples from Ordos basin are used for experiments under colour spaces of HSV, YCbCr and RGB respectively. On the test dataset, the correct rate in RGB colour space is 98.5%, and it is believable in HSV and YCbCr colour space. The results show that the convolution neural network can classify the rock images with high reliability. © Published under licence by IOP Publishing Ltd.
Number of references: 10
Main heading: Image classification
Controlled terms: Convolutional neural networks - Statistical tests - Image enhancement - Color - Deep neural networks - Convolution
Uncontrolled terms: Colour spaces - Convolution neural network - High reliability - Images classification - Ordos Basin - RGB colours - Thin section
Classification code: 461.4 Ergonomics and Human Factors Engineering - 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 741.1 Light/Optics - 922.2 Mathematical Statistics
Numerical data indexing: Percentage 9.85e+01%
DOI: 10.1088/1742-6596/887/1/012089

Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

148. Design of a self-adaptive pipe robot based on multi - Axis differential system

Accession number: 20182005184866
Authors: Zheng, Jie (1); Liu, Man (1); Jiang, Hai-Long (1); Dou, Yi-Hua (1)
Author affiliation: (1) School of Mechanical Engineering, Xi'An Shiyou University, Xi'an, Shaanxi; 710065, China
Source title: Proceedings of the 2017 IEEE 2nd Information Technology, Networking, Electronic and Automation Control Conference, ITNEC 2017
Abbreviated source title: Proc. IEEE Inf. Technol., Netwo., Electron. Autom. Control Conf., ITNEC
Volume: 2018-January
Part number: 1 of 1
Issue title: Proceedings of the 2017 IEEE 2nd Information Technology, Networking, Electronic and Automation Control Conference, ITNEC 2017
Issue date: July 2, 2017
Publication year: 2017
Pages: 1461-1471
Language: English
ISBN-13: 9781509064137
Document type: Conference article (CA)
Conference name: 2nd IEEE Information Technology, Networking, Electronic and Automation Control Conference, ITNEC 2017
Conference date: December 15, 2017 - December 17, 2017
Conference location: Chengdu, China
Conference code: 134593
Sponsor: Chongqing Global Union Academy of Science and Technology; Global Union Academy of Science and Technology; IEEE Beijing Section
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: In order to solve the problem of motion interference when the wheeled pipe robot passes through the elbow and the dimension of the pipe diameter when the robot is running in the geometric irregular pipe, a kind of pipeline robot with autonomous differential characteristic and adaptive variable characteristic is designed. The robot is mainly composed of multi-axis differential mechanism, travel drive mechanism, pre-tightening mechanism and auxiliary support mechanism, and modular design of each part. According to the technical requirements and the force of the robot through the elbow, the structural design of the main transmission parts is carried out. The three-dimensional solid modeling and the dynamic analysis of the pipeline robot are carried out to verify that the mechanism can meet the requirements of the pipe robot. The results show that the pipeline robot can pass through the elbow without interference, and have a certain diameter of the adaptability and obstacle barrier capability. © 2017 IEEE.
Number of references: 15
Main heading: 3D modeling
Controlled terms: Robots - Machine design - Pipelines - Structural design
Uncontrolled terms: Differential characteristic - Differential systems - Differential velocity - Pipe robot - Self-adaptive - Technical requirement - Three-Dimensional Solid Modeling - Transmission parts
Classification code: 408.1 Structural Design, General - 601 Mechanical Design - 619.1 Pipe, Piping and Pipelines - 723.2 Data Processing and Image Processing - 731.5 Robotics
DOI: 10.1109/ITNEC.2017.8285039
Funding Details: Number: 2017JQ5114, Acronym: -, Sponsor: -; Number: 16JK1611, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Provincial Department of Education; Number: 5167041385, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: The authors would like to acknowledge the support of China Shaanxi Provincial Department of Education Special Research Projects"Title: Research of Flow Characteristics and Heat Transfer Performances of Turbine Blade with Different Micro-scale Typical Cooling Structures. No. 16JK1611" , "Natural Science Basic Research Plan in Shaanxi Province of China (Program No.2017JQ5114)" and the National Natural Science Foundation of China under Grant No. 5167041385.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

149. Design of detection robot of fault oil well

Accession number: 20180304647474
Authors: Wei, Hangxin (1); Wu, Wei (1); Xi, Wenkui (1)
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shanxi; 710065, China
Corresponding author: Wei, Hangxin
Source title: Acta Technica CSAV (Ceskoslovensk Akademie Ved)
Abbreviated source title: Acta Tech CSAV
Volume: 62
Issue: 2
Issue date: 2017
Publication year: 2017
Pages: 307-317
Language: English
ISSN: 00017043
CODEN: ATCVA4
Document type: Journal article (JA)
Publisher: Academy of Sciences of the Czech Republic, Dolejskova 5, Praha 8, 182 00, Czech Republic
Abstract: The exploration instrument is very important for the breakdown maintenance of the production of oil wells, and it can help to understand the internal conditions of the oil wells. However, the traditional detection robot can not adapt to the complicated channel environment and realize the function of detection in the well. The combination of traditional pipeline robot was used for the design of a new detection robot of fault oil well, and virtual simulation technology was used to design the structure of key parts, and the robot hydraulic system and the state of force in different states were calculated respectively. Finally, through the test, the force test of the pipeline robot's performance was carried out. It is proved that the robot can satisfy the demand of the movement and the force, which provides some reference for the design of detection robots of fault oil well in our country. © 2017 Institute of Thermomechanics CAS, v.v.i.
Number of references: 12
Main heading: Robots
Controlled terms: Machine design - Pipelines - Hydraulic equipment - Fault detection - Petroleum prospecting - Oil wells
Uncontrolled terms: Breakdown maintenance - Detection robots - Force test - Hydraulic system - Key parts - Pipeline detection - Pipeline robot - Virtual simulations
Classification code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 601 Mechanical Design - 619.1 Pipe, Piping and Pipelines - 632.2 Hydraulic Equipment and Machinery - 731.5 Robotics
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

150. Molecular dynamics of methane adsorption in shale

Accession number: 20174804478392
Authors: Yin, Shuai (1)
Author affiliation: (1) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an, China
Corresponding author: Yin, Shuai(speedysys@163.com)
Source title: Petroleum Science and Technology
Abbreviated source title: Petrol Sci Technol
Volume: 35
Issue: 21
Issue date: November 2, 2017
Publication year: 2017
Pages: 2080-2086
Language: English
ISSN: 10916466
E-ISSN: 15322459
CODEN: PSTEFV
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.

Abstract: In this paper, the supercritical gas molecule adsorption characteristics of methane in shale are quantitatively described by using the lattice theory. The results show that the methane adsorption capacity predicted by this theory is high, with the average absolute error 0.003 3 mmol·g-1. There is a near-linear positive relationship between the adsorption potential between methane and the solid surface (s) and the experimental temperature. The value of the average potential between the adsorbate molecules (a) is distributed in -0.841–1.791 kJ·mol-1, and the absolute value of a is significantly smaller than the absolute value of s, indicats that the potential energy between the adsorbate molecules is significantly smaller than that between the adsorbate molecules and the pore surface of shale. When the temperature is relatively low (T = 308.55 K), the value of s/a is 7.5 times; with the increases of the temperature, the magnification will gradually decrease and keep stabilize (3.37 times). © 2017 Taylor & Francis Group, LLC.
Number of references: 13
Main heading: Adsorption
Controlled terms: Potential energy - Molecular dynamics - Adsorbates - Molecules - Lattice theory - Methane
Uncontrolled terms: Absolute values - Adsorbate molecules - Adsorption potential - Average absolute error - Average potential - Methane adsorption - Methane adsorption capacity - Supercritical gas
Classification code: 801.4 Physical Chemistry - 802.3 Chemical Operations - 804.1 Organic Compounds - 922.2 Mathematical Statistics - 931.3 Atomic and Molecular Physics
Numerical data indexing: Temperature 3.09e+02K
DOI: 10.1080/10916466.2017.1381711
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

151. Optimization design of pre-reinforcement scheme for large cross section shallow buried tunnel in Xi'an Metro (*Open Access*)

Accession number: 20174604404951
Authors: Xiao-Mei, Gao (1); Jian-Bo, Dai (1)
Author affiliation: (1) Department of Civil Engineering, Xi'An Shiyou University, Xi'an, Shaan Xi, China
Source title: IOP Conference Series: Materials Science and Engineering
Abbreviated source title: IOP Conf. Ser. Mater. Sci. Eng.
Volume: 231
Part number: 1 of 1
Issue: 1
Issue title: 2017 2nd International Seminar on Advances in Materials Science and Engineering
Issue date: September 19, 2017
Publication year: 2017
Article number: 012101
Language: English
ISSN: 17578981
E-ISSN: 1757899X
Document type: Conference article (CA)
Conference name: 2017 2nd International Seminar on Advances in Materials Science and Engineering, ISAMSE 2017
Conference date: July 28, 2017 - July 30, 2017
Conference location: Singapore, Singapore
Conference code: 131341
Publisher: IOP Publishing Ltd
Abstract: In order to control the deformation of the surrounding rock of the large section of the tunnel, the author analyzes the stratum displacement law caused by the tunnel excavation by means of on-site monitoring. And the optimized design of the existing tunnel pre-reinforcement scheme is carried out. The FLAC3D numerical simulation method is used to verify the feasibility of the pre-reinforcement optimization scheme. Field test showed that the tunnel surrounding rock deformation in the allowable range, and the deformation control measures of the surrounding rock are reasonable and effective. The research results have important guiding significance for future similar project. © Published under licence by IOP Publishing Ltd.
Number of references: 6
Main heading: Reinforcement
Controlled terms: Deformation - Tunnels - Numerical methods
Uncontrolled terms: Deformation control - Guiding significances - Large cross-sections - Numerical simulation method - Reinforcement optimizations - Shallow-buried tunnel - Stratum displacement - Tunnel surrounding rock
Classification code: 401.2 Tunnels and Tunneling - 921.6 Numerical Methods - 951 Materials Science

DOI: 10.1088/1757-899X/231/1/012101
Funding Details: Number: 2010QN012, Acronym: -, Sponsor: -; Number: 15JK1562, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Provincial Department of Education;
Funding text: (1) Xi'an University of Petroleum Youth Science and Technology Innovation Fund project(2010QN012) (2) Special research project of Shaanxi Provincial Department of Education(15JK1562)
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

152. The new mode of modern education and the reform of physical education reform in colleges and universities

Accession number: 20172503804556
Authors: Dong, Shouwei (1)
Author affiliation: (1) Department of Physical Education, Xi'an Shiyou University, Shaanxi Xi'an; 710065, China
Corresponding author: Dong, Shouwei
Source title: Agro Food Industry Hi-Tech
Abbreviated source title: Agro Food Ind. Hi-Tech
Volume: 28
Issue: 3
Issue date: May-June 2017
Publication year: 2017
Pages: 367-371
Language: English
ISSN: 17226996
E-ISSN: 20354606
Document type: Journal article (JA)
Publisher: TeknoScienze, Viale Brianza,22, Milano, 20127, Italy
Abstract: Under the trend of the modern educational reform, there are few researches on the reform of physical education in colleges and universities. Therefore, combined with the new mode of modern education, the reform of physical education in colleges and universities was studied. In this paper, firstly, the related theories and knowledge of college physical education and modern education in the new model were described in detail; then, by the way of the questionnaire survey, through the statistical analysis of the structure of the teaching content, the teaching mode, students' cognitive abilities, teachers' abilities, the conclusion that the reform of physical education in China is basically qualified but the reform is not enough was obtained; for the direction of the reform, some suggestions were made.
Number of references: 15
Main heading: Students
Controlled terms: Surveys - Teaching - Education computing
Uncontrolled terms: Cognitive ability - College physical educations - Colleges and universities - Educational reforms - Modern educations - Physical education - Questionnaire surveys - Reform
Classification code: 901.1.1 Societies and Institutions
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

153. Study on Calculation Model of Culvert Soil Pressure (*Open Access*)

Accession number: 20174604404956
Authors: Liu, Jing (1); Tian, Xiao-Yan (1); Gao, Xiao-Mei (1)
Author affiliation: (1) Department of Civil Engineering, Xi'An Shiyou University, Xi'an, Shaan Xi, China
Source title: IOP Conference Series: Materials Science and Engineering
Abbreviated source title: IOP Conf. Ser. Mater. Sci. Eng.
Volume: 231
Part number: 1 of 1
Issue: 1
Issue title: 2017 2nd International Seminar on Advances in Materials Science and Engineering
Issue date: September 19, 2017
Publication year: 2017

Article number: 012106
Language: English
ISSN: 17578981
E-ISSN: 1757899X
Document type: Conference article (CA)
Conference name: 2017 2nd International Seminar on Advances in Materials Science and Engineering, ISAMSE 2017
Conference date: July 28, 2017 - July 30, 2017
Conference location: Singapore, Singapore
Conference code: 131341
Publisher: IOP Publishing Ltd
Abstract: Culvert diseases are prevalent in highway engineering. There are many factors involved in the occurrence of the disease, and the problem is complex. However, the design cannot accurately determine the role of the soil pressure on the culvert is the main reason to the disease. Based on the theoretical analysis and field test, this paper studies the characteristics of the stress and deformation of the culvert-soil structure. According to the theory of soil mechanics, the calculation model of vertical soil pressure at the top of culvert is determined, and the formula of vertical soil pressure at the top of culvert is deduced. Through the field test of the vertical soil pressure at the top of culvert of several engineering examples, the calculation formula of this paper is verified, which can provide reference for future practical engineering. © Published under licence by IOP Publishing Ltd.
Number of references: 12
Main heading: Soils
Controlled terms: Highway engineering - Culverts - Soil mechanics
Uncontrolled terms: Calculation formula - Calculation models - Field test - Practical engineering - Soil pressure - Soil structure - Stress and deformation
Classification code: 483.1 Soils and Soil Mechanics
DOI: 10.1088/1757-899X/231/1/012106
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

154. Combination of array dielectric measurements and nuclear magnetic resonance data for better fluid identification in the urho tight conglomerate oil Reservoir, Junggar Basin

Accession number: 20183005604113
Authors: Sun, Youguo (1); Liang, Cheng (1); Liu, Hanlin (2); Meng, Xin (1); Wang, Qing (3); Wu, Jinlong (3); Zhao, Xianran (3); Ghos, Krishnendu (3)
Author affiliation: (1) PetroChina, Xinjiang Oilfield Company, China; (2) Xi'an Shiyou University, China; (3) Schlumberger, United States
Source title: SPE Middle East Oil and Gas Show and Conference, MEOS, Proceedings
Abbreviated source title: SPE Middle East Oil Gas Show Conf.
Volume: 2017-March
Part number: 1 of 1
Issue title: Society of Petroleum Engineers - SPE Middle East Oil and Gas Show and Conference 2017
Issue date: 2017
Publication year: 2017
Report number: SPE-183656-MS
Pages: 318-329
Language: English
ISBN-13: 9781510838871
Document type: Conference article (CA)
Conference name: SPE Middle East Oil and Gas Show and Conference 2017
Conference date: March 6, 2017 - March 9, 2017
Conference location: Manama, Bahrain
Conference code: 133021
Publisher: Society of Petroleum Engineers (SPE)
Abstract: The Upper Urho Sandy Conglomerate Reservoir in Xinjiang oilfield features complex lithology, low porosity and low permeability, and a majority of secondary pores with poor connectivity. Due to those characteristics, the log responses are complicated and it is difficult to determine the oil saturation with conventional resistivity method. In this paper, the reservoir heterogeneity was studied based on image logs and nuclear magnetic data, and oil saturation

was calculated using array dielectric data. An integrated reservoir evaluation and fluid identification approach was established and applied in five wells located in different fault blocks. The testing results from four of them have proved the effectiveness of the proposed method. This is the first time to use array dielectric tool to identify fluid type in conglomerate reservoir with volcanic matters, and it has been introduced to similar oil reservoirs in other oilfields, which also obtained good application effect. Copyright © 2017 Society of Petroleum Engineers.
Number of references: 9
Main heading: Lithology
Controlled terms: Mechanical permeability - Oil well logging - Nuclear magnetic resonance - Low permeability reservoirs - Nuclear magnetic logging - Petroleum reservoir engineering
Uncontrolled terms: Application effect - Complex lithology - Dielectric measurements - Fluid identification - Integrated reservoir evaluations - Nuclear magnetic resonance data - Reservoir heterogeneity - Resistivity methods
Classification code: 481.1 Geology - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

155. Model predictive particle filtering algorithm and its application in SINS/SAR integrated navigation system

Accession number: 20183005602742
Authors: Yi, Gao (1); Ya, Gao (2)
Author affiliation: (1) School of Electronic Engineering, Xian ShiYou University, Xi'an; 710065, China; (2) Electronic Information Engineering College, Xi'an Technological University, Xi'an; 710021, China
Source title: Proceedings - 2017 Chinese Automation Congress, CAC 2017
Abbreviated source title: Proc. - Chin. Autom. Congr., CAC
Volume: 2017-January
Part number: 1 of 1
Issue title: Proceedings - 2017 Chinese Automation Congress, CAC 2017
Issue date: December 29, 2017
Publication year: 2017
Pages: 136-140
Language: English
ISBN-13: 9781538635247
Document type: Conference article (CA)
Conference name: 2017 Chinese Automation Congress, CAC 2017
Conference date: October 20, 2017 - October 22, 2017
Conference location: Jinan, China
Conference code: 130206
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Aiming at the integrated navigation system with model errors, the model errors is assumed as a process noise for Gaussian white noise to process in Kalman filtering, thus causing larger state estimation error of nonlinear filtering system and even divergent. This paper presents a nonlinear model predictive particle filtering method considers the model error of real-time estimation, and then corrects the nonlinear and non-Gaussian system model with model error. Compared and simulated the new method with the predictive filtering and the particle filtering in Strap-down Inertial Navigation System/Synthetic Aperture Radar integrated navigation system. Experiment and comparison results demonstrate that the proposed method can improve the filter performance and integrated navigation calculation accuracy significantly. © 2017 IEEE.
Number of references: 11
Main heading: Errors
Controlled terms: Inertial navigation systems - Kalman filters - White noise - Gaussian noise (electronic) - Nonlinear filtering - Air navigation - Monte Carlo methods - Nonlinear analysis
Uncontrolled terms: Integrated navigation - Model errors - nonlinear filterin - Particle Filtering - Predictive filtering
Classification code: 431.5 Air Navigation and Traffic Control - 716.1 Information Theory and Signal Processing - 922.2 Mathematical Statistics
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Compendex references: YES
Database: Compendex
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156. One-pot synthesis of highly efficient MgO for the removal of Congo red in aqueous solution

Accession number: 20171503555457
Authors: Bai, Zongquan (1); Zheng, Yajun (1); Zhang, Zhiping (1)
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Corresponding author: Zhang, Z.(zhangzp0304@gmail.com)
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CODEN: JMCAET
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: Magnesium oxide (MgO) has been demonstrated to be a promising candidate for the treatment of toxic dyes in wastewater due to its unique characteristics (e.g., high isoelectric point, nontoxicity and cost-effectiveness). However, it is still a great challenge to fabricate highly efficient MgO for toxic dyes through facile synthetic strategies. Herein, a porous rod-like MgO with extremely high adsorption capacity for Congo red dye (3236 mg g-1) has been presented through a facile precipitation reaction between Mg2+ and CO32- in the presence of a trace amount of sodium silicate. After systematically investigating the experimental parameters, the results exhibited that the performance of the resulting MgO was very sensitive to the amount of sodium silicate in the reaction, stirring time and calcination temperature, and its adsorption capacity was closely related to the surface base properties rather than the specific surface areas of MgO. The adsorption process of Congo red on the as-synthesized product obeyed the pseudo-second-order rate equation and the Langmuir adsorption model. It is expected that the developed method will provide a facile route to gram level production of highly efficient MgO for handling toxic dyes in industrial wastewater. © The Royal Society of Chemistry.
Number of references: 45
Main heading: Magnesia
Controlled terms: Cost effectiveness - Sodium compounds - Silicates - Wastewater treatment - Azo dyes - Solutions - Adsorption
Uncontrolled terms: Adsorption capacities - Calcination temperature - Experimental parameters - High adsorption capacity - Industrial wastewaters - Langmuir adsorption model - Precipitation reaction - Pseudo-second-order rate equation
Classification code: 452.4 Industrial Wastes Treatment and Disposal - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 911.2 Industrial Economics
DOI: 10.1039/c6ta11087h
Funding Details: Number: 2014K13-16,2016GY-231, Acronym: -, Sponsor: -; Number: 21575112, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
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157. Electrochemical Behavior of NiAl Composite Coating by Supersonic Arc Spraying

Accession number: 20231413828255
Authors: Wang, Nan (1); Zhou, Yong (1)
Author affiliation: (1) School of Material Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Zhou, Yong
Source title: Surface Technology
Abbreviated source title: Surf. Technol.
Volume: 46
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Issue date: 2017
Publication year: 2017
Pages: 184-188
Language: Chinese
E-ISSN: 10013660
Document type: Journal article (JA)
Publisher: Chongqing Wujiu Periodicals Press
Abstract: The work aims to provide a theoretical basis for practical application to engineering by studying the corrosion behavior and failure mechanism of NiAl composite coating in corrosive environment. NiAl composite coating was prepared on 20# steel substrate by virtue of supersonic arc spraying technology. On this basis, organizational structure of the coating was characterized, and comparative study was performed to explore polarization behavior and EIS behavior of coating and 20 steel substrate in 3.5% NaCl solution. The surface layer of NiAl composite coating was mainly composed of Ni solid solution, NiAl intermetallic compound and few Al diffusing into the surface of the composition through pores. The coating was a typical dense layered structure, of which the porosity of surface layer (Ni) was 5.3% while that of base layer (Al) was 4.4%. The self-corrosion potential of NiAl composite coating was lower than that of the substrate, hence it could play favorable cathodic protection. During early test, corrosive medium pored entered the internal coating through microcracks and pores in the coating since thickness of the composite coating was up to 380 μm. The coating was consumed quickly and few insoluble corrosion products were produced. Coating impedance was lower and corrosion rate was smaller. With the extension of corrosion time, insoluble corrosion products gradually accumulated in the pores and the polarization resistance increased rapidly, playing a role in delaying corrosion. NiAl composite coating exhibits better corrosion resistance after combining the corrosion effect of Ni and the passivation effect of Al. The increase of coating impedance is mainly due to self-sealing effect of the coating. © 2017, Chongqing Wujiu Periodicals Press. All rights reserved.
Number of references: 15
Main heading: Polarization
Controlled terms: Aluminum alloys - Aluminum coatings - Aluminum corrosion - Binary alloys - Composite coatings - Corrosion rate - Corrosion resistance - Corrosion resistant coatings - Corrosive effects - Electrochemical corrosion - Failure (mechanical) - Microcracks - Sodium chloride
Uncontrolled terms: Arc spraying - Corrosion failures - Corrosion products - Electrochemical behaviors - Electrochemical impedance - Ni-al composite coatings - Steel substrate - Supersonic speed - Supersonic speed arc spraying - Surface layers
Classification code: 539.1 Metals Corrosion - 539.2 Corrosion Protection - 541.1 Aluminum - 541.2 Aluminum Alloys - 801.4.1 Electrochemistry - 802.2 Chemical Reactions - 813.2 Coating Materials
Numerical data indexing: Percentage 3.50E+00%, Percentage 4.40E+00%, Percentage 5.30E+00%, Size 3.80E-04m
DOI: 10.16490/j.cnki.issn.1001-3660.2017.02.030
Funding Details: Number: ys37020203, Acronym: -, Sponsor: -; Number: 2015yp140512, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: 2016-09-122016-10-31 Received2016-09-12Revised2016-10-31 ys37020203)2015yp140512 FundSupported by Special Funded Projects of Shanxi Province Key Disciplines (ys37020203); Xi'an Shiyou University Papers Project Funding Cultivate(2015yp140512) 1991— BiographyWANG Nan(1991—), Female, Master, Research focus: welding materials and surface engineering technology. 1963— Corresponding authorZHOU Yong(1963—), Male, Doctor, Professors, Research focus: petroleum engineering materials surface engineering technology.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

158. Three-dimensional numerical investigation and modeling of binary alumina droplet collisions

Accession number: 20172303740107
Authors: Hu, Chunbo (1); Xia, Shengyong (2); Li, Chao (1); Wu, Guanjie (1)
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Language: English
ISSN: 00179310
CODEN: IJHMAK
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: The off-center collision of binary equal-sized alumina droplets has been investigated by employing a three-dimensional direct numerical simulation method which involves the volume of fluid (VOF) and adaptive mesh refinement method. The simulations of tetradecane droplet collision are carried out to validate the numerical method. The results show good agreement with experiments. The off-center collisions of alumina droplet with diameter 10 μm are numerically investigated at various Weber numbers (30–400) and impact numbers (0.1–0.7). The Ohnesorge number is 0.1151. Four collision outcomes are obtained, coalescence after substantial deformation, reflexive separation, coalescence after long extension, and stretching separation, respectively. Bouncing is achieved by employing the double VOF functions method. In addition, as to the collision at various impact parameters, the critical Weber number of separation is obtained. And the collision regimes of alumina droplet are mapped out. Furthermore, alumina droplet collisions are modeled with the consideration of viscous dissipation, including the model of coalescence after minor deformation, bouncing model, reflexive separation model, stretching separation model, as well as the model for calculating the droplet parameters after separation. Bouncing model, reflexive separation model and stretching separation model are in good agreement with the present numerical results. © 2017 Elsevier Ltd
Number of references: 40
Main heading: Alumina
Controlled terms: Deformation - Drop breakup - Numerical models - Separation - Numerical methods - Rocket engines - Aluminum oxide
Uncontrolled terms: Adaptive mesh refinement methods - Critical weber numbers - Droplet collision - Droplet collision models - Numerical investigations - Numerical results - Solid rocket motors - Viscous dissipation
Classification code: 654.2 Rocket Engines - 802.3 Chemical Operations - 804.2 Inorganic Compounds - 921 Mathematics - 921.6 Numerical Methods - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.1016/j.ijheatmasstransfer.2017.05.094
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

159. Numerical simulation of arc in sheet slanting electrode tungsten insert gas welding

Accession number: 20172603860788
Authors: Li, Yuanbo (1); Li, Xiao (1); Wang, Shiqing (1); Dong, Hui (1)
Author affiliation: (1) College of Materials Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China
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Abbreviated source title: Hanjie Xuebao
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Publication year: 2017
Pages: 7-12

Language: Chinese
ISSN: 0253360X
CODEN: HHPAD2
Document type: Journal article (JA)
Publisher: Harbin Research Institute of Welding
Abstract: The three-dimensional quasi-steady state mathematical model of arc in sheet slanting electrode tungsten insert gas welding is presented based on the fluid dynamic equations and Maxwell equations. The distributions of temperature field, velocity field, electrical field and current density about arc in sheet slanting tungsten electrode are obtained. The results show that the temperature field, velocity field, electric field and current density of arc are symmetric in the thickness direction of sheet slanting tungsten electrode. The maximum temperature, velocity and current density of arc in sheet slanting tungsten electrode are lower than those of arc in cylinder tungsten electrode under the similar parameters. The sheet slanting tungsten electrode can change the gap width of arc discharge to lead the current density concentrate on the location with smaller gap width, whereas the current density would also flow backward along the hypotenuse of sheet slanting tungsten electrode due to that the arc lags behind sheet slanting tungsten electrode's motion, consequently the distribution range of current density and temperature field expand in width direction of sheet slanting tungsten electrode. The local extensive distribution of current density would occur with variation of tilt angle of hypotenuse of sheet slanting tungsten electrode, and this causes the shift of cathode jet and region with higher temperature near cathode.
Number of references: 10
Main heading: Current density
Controlled terms: Cathodes - Electric discharges - Velocity - Maxwell equations - Gas metal arc welding - Gas welding - Temperature - Numerical models - Tungsten
Uncontrolled terms: Electrical field - Fluid dynamic equations - Maximum temperature - Quasi-steady state - Thickness direction - Three dimension modeling - Tungsten electrodes - Welding arc
Classification code: 538.2.1 Welding Processes - 543.5 Tungsten and Alloys - 641.1 Thermodynamics - 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena - 921 Mathematics - 921.2 Calculus
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

160. Molecular dynamics study of effect of hydrogen atoms on mechanical properties of α–Fe nanowires

Accession number: 20202208737454
Authors: Xu, T.H. (1); Zhu, Z.Q. (1); Geng, S.F. (1); Song, H.Y. (1)
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Abbreviated source title: Phys Lett Sect A Gen At Solid State Phys
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Issue date: October 3, 2017
Publication year: 2017
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Language: English
ISSN: 03759601
CODEN: PYLAAG
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The effect of hydrogen atoms and temperature on the mechanical properties of $\langle 100 \rangle$ α–Fe nanowires with different cross section sizes is investigated by molecular dynamics simulation method. The results show that the difference of peak stress of samples with and without hydrogen increases with the increase of cross section size at 300 K, while there is no distinct regularity at 10 K. The deformation behavior in $\langle 100 \rangle$ α–Fe nanowires is governed by the nucleation and growth of twins. The studies also indicate that hydrogen atoms decrease peak stress and don't affect the deformation mechanism of nanowires.
Number of references: 49
Main heading: Nanowires

Controlled terms: Deformation - Atoms - Hydrogen - Molecular dynamics
Uncontrolled terms: Deformation behavior - Deformation mechanism - Effect of hydrogen - Hydrogen atoms - Molecular dynamics simulation methods - Molecular dynamics simulations - Nucleation and growth - Section size
Classification code: 761 Nanotechnology - 801.4 Physical Chemistry - 804 Chemical Products Generally - 931.3 Atomic and Molecular Physics - 933 Solid State Physics
Numerical data indexing: Temperature 1.00e+01K, Temperature 3.00e+02K
DOI: 10.1016/j.physleta.2017.08.012
Funding Details: Number: 20160221, Acronym: -, Sponsor: -; Number: 2012KJXX-39, Acronym: -, Sponsor: -; Number: 11572259, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

161. An experimental study to determine optimal injection strategies for water-alternating-solvent process in green and brownfields

Accession number: 20181104913292
Authors: Cao, N. (1); Babadagli, T. (2)
Author affiliation: (1) University of Alberta, Canada; (2) Xi'an Shiyou University and University of Alberta, China
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Issue title: Society of Petroleum Engineers - SPE/IATMI Asia Pacific Oil and Gas Conference and Exhibition 2017
Issue date: 2017
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Language: English
Document type: Conference article (CA)
Conference name: SPE/IATMI Asia Pacific Oil and Gas Conference and Exhibition 2017
Conference date: October 17, 2017 - October 19, 2017
Conference location: Jakarta, Indonesia
Conference code: 133333
Publisher: Society of Petroleum Engineers
Abstract: Considering more than 50% of oil is left on average after primary and secondary methods in conventional reservoirs, techniques to recover the remaining oil from these proven and mature reserves is critically important to meet the future energy demand. Miscible solvent (usually gas) injection is performed in the form of water-alternating gas rather than continuous injection of expensive injectant. In this case, the process should be optimally designed for slug sizes and proper sequences of the solvent considering several controlling parameters including past history of waterflooding (water content) and wettability. We performed a set of experiments on vertically situated sand pack models saturated with 14cp oil. Heptane was selected as the solvent phase due to high miscibility conditions. Tests were started with waterflooding or solvent injection. Different slug sizes of solvent and water were tested on fully oil-saturated water, oil-wet samples, and samples with connate water (10 and 30%). The amounts of oil and solvent retrieved were monitored using refractometer. Using the collected data, the recovery rates and ultimate recoveries were comparatively analyzed. In addition to the technical feasibility, an economic analysis was performed considering the amount of solvent injected, oil and solvent recovered, and time for recovery. Starting the process with heptane was technically and economically feasible (pay-out time is shorter) in the short run for both the oil- and water-wet cases. This was true especially if the rock was oil-wet, which yielded faster recovery and higher ultimate recovery. Excessive water injection (up to the plateau level) preceding the solvent injection in the oil-wet case resulted in lower recovery factor whereas this design was very effective in the water-wet case. Therefore, the time to switch to solvent injection was critical in the oil-wet case and a short initial cycle of solvent injection followed by short waterflooding cycle is suggested. In the oil-wet case, initial waterflooding resulted in an inefficient process; while it yielded high ultimate recoveries, the process time was longer than other injection options. In the water- wet case, a greater amount of solvent was needed in the first cycle. © 2017, Society of Petroleum Engineers.
Number of references: 35
Main heading: Solvents
Controlled terms: Economic analysis - Heptane - Proven reserves - Wetting - Recovery

Uncontrolled terms: Continuous injections - Controlling parameters - Injection sequence - Miscible solvent - Optimal injection - Slug size - Solvent injection - Water alternating gas
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 911.2 Industrial Economics
Numerical data indexing: Percentage 1.00e+01%, Percentage 3.00e+01%, Percentage 5.00e+01%
Funding Details: Number: -, Acronym: -, Sponsor: Devon Energy Corporation; Number: -, Acronym: NSERC, Sponsor: Natural Sciences and Engineering Research Council of Canada; Number: -, Acronym: CSIR, Sponsor: Council of Scientific and Industrial Research; Number: RES0011227, Acronym: OERD, Sponsor: Office of Energy Research and Development; Number: -, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: This paper was written while the first author (TB) was residing at Xi'an Shiyou University (China) as a guest professor sponsored by the "1000 Talent Program" at the national level. The financial support for the experiments was obtained through Tayfun Babadagli's Natural Sciences and Engineering Research Council of Canada (NSERC) Industrial Research Chair in Unconventional Oil Recovery (the industrial partners Apex Engineering Incorporated, Husky Energy, SiGNa Oilfield Canada, Total Canada, Petroleum Development Oman, Aramco, and Devon Energy) and an NSERC Discovery Grant (RES0011227). The authors gratefully acknowledge these supports.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

162. Synthesis of MCM-41/MOR composite molecular sieves and its catalytic properties for isomerization of alkane

Accession number: 20174204277832
Authors: Zhang, Jun-Tao (1); Song, Jing (1); Zhen, Xing (1); Shen, Zhi-Bing (1); Liang, Sheng-Rong (1)
Author affiliation: (1) Research Center of Petroleum Processing & Petrochemicals, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Zhang, Jun-Tao(zhangjt@xsyu.edu.cn)
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Abbreviated source title: Ranliao Huaxue Xuebao J. Fuel Chem. Technol.
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Pages: 675-681
Language: Chinese
ISSN: 2097213X
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CODEN: RHXUD8
Document type: Journal article (JA)
Publisher: Science Press
Abstract: The MCM-41/MOR composite molecular sieves with multiple micro-mesoporous structure were hydrothermally synthesized by using the alkali-treated MOR seriflux as partial silica-alumina source and cetyltrimethylammonium bromide(CTAB) as the template in self-assembly process. The synthesized samples of molecular sieves were characterized by XRD, HRTEM, BET and Py-FTIR, respectively. The results showed that the samples exhibit a hierarchical micro-mesoporous structure, large specific surface area and good hydrothermal stability as well. The isomerization performance of the composite zeolite catalyst was evaluated in a fixed bed microreactor. The results showed that the appropriate B and L acid coordinated with each other to act as the active center of alkane isomerization, while Ni species were not only active site for this reaction, but also played a good role in the modification of acidity. Compared with Ni-MOR, Ni-MCM-41 and HMCM-41/MOR, the Ni-MCM-41/MOR catalyst had better catalytic performance for isomerization reaction, the conversion of n-hexane is 34.40%, and the selectivity of i-C60 is 40.38%. © 2017, Science Press. All right reserved.
Number of references: 20
Main heading: Hydrothermal synthesis
Controlled terms: Alumina - Aluminum oxide - Catalyst selectivity - Coordination reactions - Hexane - Isomerization - Isomers - Mesoporous materials - Molecular sieves - Paraffins - Self assembly - Sieves - Silica - Zeolites
Uncontrolled terms: Catalytic properties - Cetyltrimethylammonium bromide - Composite molecular sieves - Hydrothermally synthesized - Isomerisation - MCM-41 - Mesoporous structures - MOR - Self assembly process - Silica-alumina

Classification code: 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 951 Materials Science
Numerical data indexing: Percentage 3.44e+01%, Percentage 4.04e+01%
Funding Details: Number: 2015yp140709, Acronym: -, Sponsor: -; Number: 21606177, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

163. Nano KF/Al2O3 particles as an efficient catalyst for no-glycerol biodiesel production by coupling transesterification (*Open Access*)

Accession number: 20170503294519
Authors: Tang, Ying (1); Ren, Haomiao (1); Chang, Feiqin (1); Gu, Xuefan (1); Zhang, Jie (1)
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Corresponding author: Tang, Ying(tangying78@xsyu.edu.cn)
Source title: RSC Advances
Abbreviated source title: RSC Adv.
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Publication year: 2017
Pages: 5694-5700
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: In this study, an efficient solid base catalyst, nano KF/Al2O3, for no-glycerol biodiesel production was prepared using nano γ-Al2O3 particles as support, and was used in the tri-component coupling transesterification of canola oil, dimethyl carbonate and methanol. The preparation optimum conditions (blending temperature, blending time, calcination temperature and calcination time) as well as the loading amount of KF were screened in detail. A yield of biodiesel, 98.8%, was obtained under the conditions of KF loading of 10.0 wt%, calcination temperature of 400 °C, 2 h of reaction time at 338 K, 5.0 wt% catalysts and molar ratio of methanol/oil/DMC of 8:1:1. This high conversion of vegetable oil to biodiesel is considered to be associated with the high surface to volume ratio and basicity of the catalyst surface. © 2017 The Royal Society of Chemistry.
Number of references: 25
Main heading: Biodiesel
Controlled terms: Alumina - Calcination - Glycerol - Methanol - Nanocatalysts - Blending - Transesterification - Aluminum oxide
Uncontrolled terms: Biodiesel production - Blending temperature - Calcination temperature - Dimethyl carbonate - Efficient catalysts - High surface-to-volume ratio - Optimum conditions - Solid base catalysts
Classification code: 523 Liquid Fuels - 761 Nanotechnology - 802.3 Chemical Operations - 804.1 Organic Compounds - 804.2 Inorganic Compounds
Numerical data indexing: Percentage 9.88e+01%, Temperature 3.38e+02K, Temperature 6.73e+02K, Time 7.20e+03s
DOI: 10.1039/c6ra25782h
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Compendex references: YES
Open Access type(s): All Open Access, Gold
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164. Uncertainty measure in rough logic: A probabilistic approach

Accession number: 20170403277181
Authors: Liu, Zhouzhou (1); She, Yanhong (2)
Author affiliation: (1) Xi'an Aeronautical University, Xi'an; 710077, China; (2) College of Science, Xi'an Shiyou University, Xi'an, China
Corresponding author: Liu, Zhouzhou(liuzhouzhou8192@126.com)
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Abbreviated source title: J. Intelligent Fuzzy Syst.
Volume: 32
Issue: 1
Issue date: 2017
Publication year: 2017
Pages: 945-953
Language: English
ISSN: 10641246
E-ISSN: 18758967
Document type: Journal article (JA)
Publisher: IOS Press BV
Abstract: Uncertainty measure is one of the key issues in the study of rough set theory, however, the existing studies on uncertainty measure are restricted to set-theoretic rough set model(crisp or fuzzy). This paper extends the uncertainty measure of formulae in rough logic to probabilistic environments. By employing the probability measure theory, a new notion of probabilistic rough truth degree (P-rough truth degree for short) is proposed. This notion is demonstrated to be adequate for measuring the extent to which any formula is roughly true in probabilistic environments. Then based upon the fundamental notion, the notions of P-rough similarity degree, P-accuracy degree and P-roughness degree of formulae in rough logic are also proposed. The properties of these concepts are investigated in detail. Moreover, the notion of P-rough similarity degree can also induce, in a natural way, three kinds of pseudo-metrics on the set of rough formulae, which can be used to develop a kind of approximate reasoning in rough logic. © 2017 - IOS Press and the authors.
Number of references: 15
Main heading: Rough set theory
Controlled terms: Uncertainty analysis - Probabilistic logics - Approximation theory - Computer circuits
Uncontrolled terms: Accuracy degree - Approximate reasoning - Probabilistic approaches - Probability measures - Rough set models - Rough similarity degrees - Truth degree - Uncertainty measures
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 721.3 Computer Circuits - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.6 Numerical Methods - 922.1 Probability Theory
DOI: 10.3233/JIFS-161439
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

165. The complex vector Maxwell equations and an applied research

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Authors: Zhang, Miaoyu (1, 2); Guo, Baolong (1); Wu, Jie (2)
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Volume: 535
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Issue title: Intelligent Data Analysis and Applications - Proceedings of the 3rd Euro-China Conference on Intelligent Data Analysis and Applications, ECC 2016
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Document type: Conference article (CA)
Conference name: 3rd Euro-China Conference on Intelligent Data Analysis and Applications, ECC 2016
Conference date: November 7, 2016 - November 9, 2016
Conference location: Fuzhou, China
Conference code: 185889
Sponsor: Fujian Provincial Key Laboratory of Big Data Mining and Applications, China; Fujian University of Technology, China; Taiwan Association for Web Intelligence Consortium and Immersion Co., Ltd
Publisher: Springer Verlag
Abstract: Different forms of Maxwell equations can clearly describe macroscopic electromagnetic laws of different problems. The complex vector Maxwell equations are deduced on the basis of the plural form equations. They visually show a process and a rule that a time-varying electromagnetic field is stimulated by a harmonic current source. Firstly, with reference to the complex vector Maxwell equations, the author analyzes basic rules and characteristics of the electromagnetic field that current source excites in the infinite conductive medium. It reveals an interdependent mechanism among the current, magnetic and electric field. Secondly, they are applied to the analysis of electromagnetic and current characteristics that a coil current source generates in induction logging around the borehole. The results show that the complex vector Maxwell equations not only clearly describe a physical relationship of mutual dependence and mutual excitation among the real vector and imaginary vector of the electric-field intensity, magnetic field intensity, induced current, displacement current and excitation current, but also deeply appears a relationship between the receiving voltage and the formation parameters in induction logging. The numerical calculation and drawing graphics display a law of the real vector and imaginary vector of the electric field intensity, magnetic field intensity, induced current, displacement current and excitation current. © Springer International Publishing AG 2017.
Number of references: 10
Main heading: Magnetic fields
Controlled terms: Electric excitation - Maxwell equations - Electric fields - Vectors - Electromagnetic fields
Uncontrolled terms: Complex vectors - Current characteristic - Displacement currents - Electric field intensities - Harmonic-current sources - Magnetic and electric fields - Magnetic-field intensity - Time-varying electromagnetic fields
Classification code: 701 Electricity and Magnetism - 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena - 921.1 Algebra - 921.2 Calculus
DOI: 10.1007/978-3-319-48499-0_1
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

166. Study on the influence of the electrode model on discharge characteristics in High-voltage Pulsed Deplugging Technology (*Open Access*)

Accession number: 20172203717230
Authors: Yan, Bingnan (1); Jing, Zhou (1); Liang, Zhao (2)
Author affiliation: (1) School of Electronic Engineering, Xi'An Shiyou University, Xi'an, China; (2) Xi'An Thermal Power Research Institute Co.Ltd, Xi'an, China
Source title: IOP Conference Series: Earth and Environmental Science
Abbreviated source title: IOP Conf. Ser. Earth Environ. Sci.
Volume: 64
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Issue: 1
Issue title: International Symposium on Resource Exploration and Environmental Science
Issue date: May 19, 2017
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Article number: 012001
Language: English
ISSN: 17551307
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Document type: Conference article (CA)
Conference name: 2017 International Symposium on Resource Exploration and Environmental Science, REES 2017

Conference date: April 14, 2017 - April 16, 2017
Conference location: Ordos, China
Conference code: 127864
Publisher: IOP Publishing Ltd
Abstract: In the oil-field development, blocking caused by impurities leads to a decline in oil production. The high-voltage pulsed deplugging technology can be applied successfully in oil deplugging. One of the key problems in this technology is the influence of the electrode model on discharge characteristics. In this paper, the electrode structure was studied. Firstly, the influence of the electrode gap on electric-field intensity was studied by using ANSYS simulation. Secondly, a high-voltage pulsed discharge experiment system was built and the discharge characteristics were studied under different static pressure when the electrode gap varied. The results show that the larger the electrode gap, the lower the electric strength and the longer the time delay. Short breakdown time delay would make greater energy of impact waves and better blockage relieving effect. © Published under licence by IOP Publishing Ltd.
Number of references: 9
Main heading: Time delay
Controlled terms: Electric discharges - Electrodes - HVDC power transmission - Oil field development - Planning
Uncontrolled terms: Discharge characteristics - Electric field intensities - Electric strength - Electrode models - Electrode structure - Energy of impact - Experiment system - Pulsed discharge
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 701.1 Electricity: Basic Concepts and Phenomena - 706.1.1 Electric Power Transmission - 713 Electronic Circuits - 912.2 Management
DOI: 10.1088/1755-1315/64/1/012001
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

167. Risk assessment for groundwater contamination from hydraulic fractured shale to aquifers

Accession number: 20181304941269
Authors: Li, Weirong (1); Dong, Zhenzhen (2); Wang, Cai (3)
Author affiliation: (1) BIC-ESAT, College of Engineering, Peking University, China; (2) Xi'an Shiyou University, China; (3) College of Engineering, Peking University, China
Source title: Society of Petroleum Engineers - SPE Abu Dhabi International Petroleum Exhibition and Conference 2017
Abbreviated source title: Soc. Pet. Eng. - SPE Abu Dhabi Int. Pet. Exhib. Conf.
Volume: 2017-January
Part number: 1 of 1
Issue title: Society of Petroleum Engineers - SPE Abu Dhabi International Petroleum Exhibition and Conference 2017
Issue date: 2017
Publication year: 2017
Language: English
Document type: Conference article (CA)
Conference name: SPE Abu Dhabi International Petroleum Exhibition and Conference 2017
Conference date: November 13, 2017 - November 16, 2017
Conference location: Abu Dhabi, United arab emirates
Conference code: 133061
Publisher: Society of Petroleum Engineers
Abstract: Using hydraulic fracturing in shale gas and oil reservoirs to develop natural oil and gas has caused concern regarding the risk of groundwater contamination. Failed well casing, bulk media and fractures are three potential pathways that allow the transport of contaminants from the fractured shale to aquifers. Models built and simulated by CMG are used to investigate the potential risk of water contamination from hydraulic fractured shale to aquifers. This study focuses on the role of vertical fractures permeability/ failing casing, aquifer permeability, reservoir permeability, distance between reservoir and aquifer, distance between fracture and water well in aquifer in controlling the contamination risk at environmentally sensitive locations. The results show that risk strongly depends on well casing quality, initial water saturation, and fracture parameters. Furthermore, the measured risk value is more sensitive to leakage depth and leakage rate through well casing/permeable fracture when compared to the hydrogeological properties. The study shows that transport could require up to tens of thousands of years to move contaminants to the surface when well casing is integrity and without fractures/fault in the overburden layers, but also that fracking the shale could reduce that transport time to tens or hundreds of years. Conductive faults or fracture zones could reduce

the travel time further. Well casing failure would reduce the travel time to months. The study identifies the important of well integrity for minimal risk to water contamination in fracturing, also the finding requires that monitoring systems be employed to track the movement of contaminants when fractures and faults appear in the overburden layers. © 2017, Society of Petroleum Engineers.
Number of references: 19
Main heading: Aquifers
Controlled terms: Groundwater resources - Groundwater pollution - Contamination - Hydraulic fracturing - Hydrogeology - Fracture - Petroleum reservoir engineering - Travel time
Uncontrolled terms: Contamination risks - Environmentally sensitive - Fractures and faults - Groundwater contamination - Hydrogeological properties - Initial water saturation - Reservoir permeability - Water contamination
Classification code: 431 Air Transportation - 432 Highway Transportation - 433 Railroad Transportation - 434 Waterway Transportation - 444.2 Groundwater - 453.1 Water Pollution Sources - 481.1 Geology - 512.1.2 Petroleum Deposits : Development Operations - 951 Materials Science
DOI: 10.2118/188585-ms
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

168. Big data paradox and modeling strategies in geological modeling based on horizontal wells data

Accession number: 20182105222844
Authors: Huang, Wensong (1); Wang, Jiahua (2); Chen, Heping (1); Xu, Fang (1); Meng, Zheng (1); Li, Yonghao (1)
Author affiliation: (1) PetroChina Research Institute of Petroleum Exploration & Development, Beijing; 100083, China; (2) Xi'an Shiyou University, Xi'an; 710065, China
Source title: Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development
Abbreviated source title: Shiyou Kantan Yu Kaifa
Volume: 44
Issue: 6
Issue date: December 23, 2017
Publication year: 2017
Pages: 939-947
Language: Chinese
ISSN: 10000747
CODEN: SKYKEG
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Based on analysis of horizontal well data characteristics, the differences of data distribution and variogram between vertical and horizontal wells in MPE3 oil field of Orinoco heavy oil belt were compared, and modeling strategies were proposed to cope with the big data paradox when data of horizontal wells was used directly into geologic modeling. The study shows the horizontal wells in the study area contain a large quantity of information, strong directionality of well trajectories and high drilling ratio of sandstone, causing variogram analysis result unconformable to the geologic understanding, and in turn making errors in the modeling of sedimentary microfacies and reservoir physical properties and prediction of probabilistic reserves. Firstly, the distributary channel distribution variogram was analyzed with data of vertical wells, and then the lithofacies framework was established under the control of the sedimentary facies and seismic data. After that, the horizontal wells data revealing high heterogeneity accuracy of reservoir, was combined with the vertical wells data to analyze argillaceous interlayer variograms and the corresponding reservoir lithofacies models were constructed. Finally, reservoir physical property models were generated and the geological reserves were calculated by wellblocks. This reservoir modeling method does not only reflect the geologic features underground, but also improve the accuracy of inter-well sand body prediction, and enhance the reliability of reservoir geologic model ultimately. © 2017, The Editorial Board of Petroleum Exploration and Development. All right reserved.
Number of references: 25
Main heading: Horizontal wells
Controlled terms: Heavy oil production - Seismology - Big data - Crude oil - Physical properties - Sedimentology
Uncontrolled terms: Distributary channels - Geological modeling - Orinoco heavy-oil belts - Probabilistic reserves - Reservoir physical property - Sedimentary micro-facies - Variograms - Vertical and horizontal wells

Classification code: 481.1 Geology - 484.1 Earthquake Measurements and Analysis - 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 723.2 Data Processing and Image Processing - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.11698/PED.2017.06.11
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

169. A compromise operator-based approach for multigranulation space 1

Accession number: 20173604113790
Authors: He, Xiaoli (1, 2); Wei, Ling (1); She, Yanhong (2)
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Corresponding author: Wei, Ling(wl@nwu.edu.cn)
Source title: Journal of Intelligent and Fuzzy Systems
Abbreviated source title: J. Intelligent Fuzzy Syst.
Volume: 33
Issue: 3
Issue date: 2017
Publication year: 2017
Pages: 1453-1466
Language: English
ISSN: 10641246
E-ISSN: 18758967
Document type: Journal article (JA)
Publisher: IOS Press BV
Abstract: The notion of compromise operators was systematically explored for multi-attribute decision making problems, which include widely used averaging operators, uninorms and nullnorms as the special cases. In this paper, we employ compromise operators to examine the issue of information fusion in multigranulation spaces. For this purpose, we firstly show that the optimistic multigranuation rough set model can be interpreted from the viewpoint of uninorm operators and the pessimistic multigranulation rough set model can be interpreted from the viewpoint of averaging operators or nullnorm operators. Then, by considering rough membership degrees in each Pawlak space and using the generalized compromise operator, we present a novel approach to information fusion in multigranulation space. Lastly, an illustrative example of information fusion in multigranulation spaces is presented. © 2017 - IOS Press and the authors. All rights reserved.
Number of references: 25
Main heading: Information fusion
Controlled terms: Decision making - Mathematical operators - Rough set theory
Uncontrolled terms: Averaging operators - compromise operator - Multi-granulation rough sets - Multi-granulations - Uninorms
Classification code: 903.1 Information Sources and Analysis - 912.2 Management - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI: 10.3233/JIFS-17158
Funding Details: Number: 61103133, Acronym: -, Sponsor: -;
Funding text: 1Project supported by the National Nature Science Fundation of China under Grant 11371014, 61472471 and 61103133.
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

170. Moderate collapse in a shale cap of a nearly depleted reservoir (*Open Access*)

Accession number: 20181304961685
Authors: Zhao, Kai (1, 2); Han, Jiyong (1); Dou, Liangbin (1); Feng, Yongcun (3)
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Source title: Energies
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Volume: 10
Issue: 11
Issue date: November 2017
Publication year: 2017
Article number: 1820
Language: English
E-ISSN: 19961073
Document type: Journal article (JA)
Publisher: MDPI AG
Abstract: Reservoir depletion will cause the safe equivalent circulation density (ECD) operating window of drilling fluids to narrow, or even disappear. Previous studies have proposed a set of two specific casings at the top and bottom of the depleted reservoir, respectively, or conducted wellbore strengthening to increase fracture pressure, but these will cause a waste of time and costs, or differential pressure sticking. Aiming at resolving this problem, a novel concept and evaluation method of moderate collapse in the shale cap was developed and case calculations were performed. The results show that the degree of collapse is different for wells drilled in different types of fault regimes, and it can be controlled by optimizing the well trajectory. The collapse pressure within the shale cap was decreased due to reservoir depletion, and when a certain degree of collapse was acceptable, the collapse pressure can be even lower and a safe operating window will appear which can be beneficial to optimizing the casing program and drilling design. The research results provide a theoretical basis and new design idea for successfully and economically drilling into new untapped reservoirs in deeper horizons through depleted zones in the future. © 2017 by the authors. Licensee MDPI, Basel, Switzerland.
Number of references: 42
Main heading: Shale
Controlled terms: Drilling fluids
Uncontrolled terms: Collapse pressure - Depleted reservoirs - Differential pressures - Equivalent circulation density - Fracture pressures - Moderate collapse - Operating windows - Reservoir depletion
Classification code: 511.1 Oil Field Production Operations
DOI: 10.3390/en10111820
Compendex references: YES
Open Access type(s): All Open Access, Gold, Green
Database: Compendex
Data Provider: Engineering Village

171. Ultrasonic imaging of seismic physical models using fiber Bragg grating Fabry-Perot probe

Accession number: 20172003666444
Authors: Zhou, Ruixiang (1); Yin, Xunli (2); Qiao, Xueguang (1)
Author affiliation: (1) Department of Physics, Northwest University, Xi'an; 710069, China; (2) Faculty of Science, Xi'An Shiyou University, Xi'an; 710065, China
Corresponding author: Yin, Xunli(lixunyin@126.com)
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 10323
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Issue title: 25th International Conference on Optical Fiber Sensors
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Article number: 103235S
Language: English
ISSN: 0277786X
E-ISSN: 1996756X
CODEN: PSISDG
ISBN-13: 9781510610910
Document type: Conference article (CA)
Conference name: 25th International Conference on Optical Fiber Sensors, OFS 2017

Conference date: April 24, 2017 - April 28, 2017
Conference location: Jeju, Korea, Republic of
Conference code: 127522
Publisher: SPIE
Abstract: A fiber-optic sensor has been proposed and demonstrated for the ultrasonic wave (UW) imaging of seismic physical models. The sensor probe comprises a fiber Bragg grating Fabry-Perot (FBG-FP) mounted inside the tip of an aluminum cone focusing the UW into the fiber. The FBG-FP probe possesses an excellent UW sensitivity because of the narrowband notches on the top of the reflection spectrum caused by the Fabry-Perot (FP) interference. Because of the symmetrical structure of the sensor, it provides a directional UW detection with a high signal-to-noise ratio. As expected, the two-dimensional (2D) images of two physical models are reconstructed. © 2017 SPIE.
Number of references: 8
Main heading: Ultrasonic waves
Controlled terms: Fiber optic sensors - Signal to noise ratio - Fiber Bragg gratings - Fabry-Perot interferometers - Probes - Ultrasonic imaging - Seismology
Uncontrolled terms: Fiber Sensor - High signal-to-noise ratio - Narrow bands - Physical model - Reflection spectra - Sensor probes - Symmetrical structure - Two dimensional (2D) image
Classification code: 484.1 Earthquake Measurements and Analysis - 716.1 Information Theory and Signal Processing - 741.1.2 Fiber Optics - 753.1 Ultrasonic Waves - 941.3 Optical Instruments
DOI: 10.1117/12.2262283
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

172. Virtual cell association and multi cell scheduling in ultra-dense networks

Accession number: 20182705399239
Authors: Sun, Changyin (1); Li, Li (1); Jiang, Fan (1); Yuan, Ying (2)
Author affiliation: (1) Communication and Information Engineering, University of xi'An Posts and Telecommunications, Xi'an, China; (2) Information Engineering, Xi'An Shiyou University, Xi'an, China
Source title: 2017 IEEE International Conference on Signal Processing, Communications and Computing, ICSPCC 2017
Abbreviated source title: IEEE Int. Conf. Signal Process., Commun. Comput., ICSPCC
Volume: 2017-January
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Issue title: 2017 IEEE International Conference on Signal Processing, Communications and Computing, ICSPCC 2017
Issue date: December 29, 2017
Publication year: 2017
Pages: 1-6
Language: English
ISBN-13: 9781538631409
Document type: Conference article (CA)
Conference name: 7th IEEE International Conference on Signal Processing, Communications and Computing, ICSPCC 2017
Conference date: October 22, 2017 - October 25, 2017
Conference location: Xiamen, Fujian, China
Conference code: 132162
Sponsor: et al.; Hong Kong Section CAS/COM Joint Chapter; IEEE Xi'an Section; Northwestern Polytechnical University; Xiamen University; Xidian University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: This paper considers the virtual cell(VC) association and multi cell scheduling in Ultra-Dense Network for sum-rate maximization where multi dimensional resources allocation strategy is coupled and interference environment is complex. For virtual cells association, a metric is proposed which is transformed from the non-convex problem via a series of decouples and captures the gain of multi user diversity and balanced cooperation strategy. For multi-cell scheduling, a graph-based framework is proposed, where users are firstly partitioned across different groups according to an edge weight which is proportional to the inter-cluster interference price, then greedy scheduling are carried out within each group to cope with the residual inter-VCs and intra-VCs interference. Simulation results confirm that the proposed association algorithm outperforms the reference algorithm. The results also show that the proposed user clustering with balanced strategy will prevents the complex interference from overwhelming the cell-splitting gains in Ultra-Dense Network. © 2017 IEEE.

Number of references: 17
Main heading: Beamforming
Controlled terms: Scheduling - Graphic methods - Complex networks - Cells - Cytology
Uncontrolled terms: Association algorithms - Cell associations - Co-operation strategy - Dense network - Interference environments - Interference graphs - Sum-rate maximizations - Virtual cells
Classification code: 461.2 Biological Materials and Tissue Engineering - 461.9 Biology - 711.2 Electromagnetic Waves in Relation to Various Structures - 722 Computer Systems and Equipment - 912.2 Management
DOI: 10.1109/ICSPCC.2017.8242593
Funding Details: Number: 61501371, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2015HK-012, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Provincial Department of Education; Number: 2016ZX03001016, Acronym: -, Sponsor: National Major Science and Technology Projects of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

173. The improvement of cache replacement algorithm in P2P streaming media system

Accession number: 20181905179572
Authors: Xie, Wenhao (1, 2); Wang, Xiaoyan (1)
Author affiliation: (1) Department of Science, Xi'An Shiyou University, Xi'an, China; (2) Department of Management Science and Engineering, Northwest Polytechnical University, Xi'an, China
Source title: 2017 4th International Conference on Systems and Informatics, ICSAI 2017
Abbreviated source title: Int. Conf. Syst. Inform., ICSAI
Volume: 2018-January
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Issue title: 2017 4th International Conference on Systems and Informatics, ICSAI 2017
Issue date: June 28, 2017
Publication year: 2017
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Language: English
ISBN-13: 9781538611074
Document type: Conference article (CA)
Conference name: 4th International Conference on Systems and Informatics, ICSAI 2017
Conference date: November 11, 2017 - November 13, 2017
Conference location: Hangzhou, China
Conference code: 134111
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: This paper has put forward the new cache replacement algorithm considering the popularity of the program, byte cache efficiency, file use frequency and other factors for P2P streaming media on demand system. The new algorithm can meet the high load requirements of the network. On this basis, it has completed the experiments of simulation in order to verify the new cache replacement algorithm. At the same time, it has compared the results with the traditional cache replacement algorithms and analyzed the advantages and disadvantages of the new algorithm. © 2017 IEEE.
Number of references: 15
Main heading: Peer to peer networks
Controlled terms: Cache memory - Media streaming
Uncontrolled terms: Cache efficiency - Cache management - Cache replacement algorithm - High load - P2P streaming - Streaming media systems
Classification code: 722 Computer Systems and Equipment - 722.1 Data Storage, Equipment and Techniques - 723.5 Computer Applications
DOI: 10.1109/ICSAI.2017.8248422
Funding Details: Number: 115030108, Acronym: -, Sponsor: -; Number: 15JK1587, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: ACKNOWLEDGMENT This research was financially supported by the Shaanxi Province Education Department Foundation (Grant NO.15JK1587 and NO.16JK1596) and Youth Innovation Foundation of Xi'an Shiyou University (YS28032111, NO.115030108).

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

174. Integrating EDFM and dual porosity method to simulate fluid flow in shale oil reservoir

Accession number: 20181104913813
Authors: Li, Weirong (1); Dong, Zhenzhen (2); Lei, Gang (3)
Author affiliation: (1) State Key Laboratory of Enhanced Oil Recovery, RIPED, Petrochina, China; (2) Xi'an Shiyou University, China; (3) BIC-ESAT, Peking University, China
Source title: Society of Petroleum Engineers - SPE/IATMI Asia Pacific Oil and Gas Conference and Exhibition 2017
Abbreviated source title: Soc. Pet. Eng. - SPE/IATMI Asia Pac. Oil Gas Conf. Exhib.
Volume: 2017-January
Part number: 1 of 1
Issue title: Society of Petroleum Engineers - SPE/IATMI Asia Pacific Oil and Gas Conference and Exhibition 2017
Issue date: 2017
Publication year: 2017
Report number: SPE-186293-MS
Language: English
Document type: Conference article (CA)
Conference name: SPE/IATMI Asia Pacific Oil and Gas Conference and Exhibition 2017
Conference date: October 17, 2017 - October 19, 2017
Conference location: Jakarta, Indonesia
Conference code: 133333
Publisher: Society of Petroleum Engineers
Abstract: Oil recovery factor from shale oil remains low, which is about five to seven percent of the oil in place. How to increase oil recovery from shale oil reservoir has attracted more and more attention. CO2 huff and puff was considered as one of best approach to improve oil rate. Most of previous simulation studies were based on dual porosity, while simulation results from dual porosity model were not as accurate as discrete fracture model in composition modeling. This study proposed a new model, which integrates embedded discrete fracture model (EDFM) and dual porosity dual permeability (DPDP) model. The new method developed could explicitly describe the large-scale fractures as flow conduits by EDFM and model the flow in small and medium length fractures by DPDP model. In this paper, we first introduced four different non-neighboring connections and the way to calculate transmissibility between different mediums in the new model. Then the paper compared performance among new method, DFM, DPDP and EDFM for production in oil reservoirs. After that, the paper carried out a series of simulations to analyze the effects of hydraulic fracture stages, hydraulic fracture permeability, and natural fracture permeability on the CO2 huff and puff process based on new method. In addition, inject cycle and soaking time were investigated to optimize CO2 huff and puff performance. This study is the first to apply integrated EDFM and DPDP model to simulate CO2 huff and puff process in shale oil reservoir with nature fractures. Besides, this paper provides detailed discussions and comparisons among integrated EDFM and DPDP, EDFM, DFN model and DPDP in the context of fracture simulation with compositional model. And most importantly, this study answers the question regarding how fractures affect CO2 huff and puff and how to optimize CO2 huff and puff process in a reservoir with nature fractures. © 2017, Society of Petroleum Engineers.
Number of references: 17
Main heading: Carbon dioxide
Controlled terms: Hydraulic fracturing - Natural fractures - Flow of fluids - Porosity - Mechanical permeability - Petroleum reservoir engineering - Petroleum reservoirs
Uncontrolled terms: CO2 Huff_n_Puff - Compositional modeling - Discrete-fracture models - DPDP - Dual porosity model - Fracture permeability - Fracture simulations - Natural fracture
Classification code: 421 Strength of Building Materials; Mechanical Properties - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.2118/186293-ms
Funding Details: Number: -, Acronym: -, Sponsor: Guangzhou Science and Technology Program key projects; Number: 2016ZX05014-004,2016ZX05025-003-007,2016ZX05034-001-007, Acronym: -, Sponsor: National Major Science and Technology Projects of China;
Funding text: The authors are grateful for financial support from the State Major Science and Technology Special Project of China during the 13th Five-Year Plan (Grant Nos. 2016ZX05014-004, 2016ZX05025-003-007 and 2016ZX05034-001-007).
Compendex references: YES

Database: Compendex
Data Provider: Engineering Village

175. Research on dynamic change of reservoir permeability based on coupled pore fluid flow and stress analysis

Accession number: 20181004882491
Authors: Han, Jiyong (1); Ma, Dudu (1); Ju, Yafeng (2); Zhao, Kai (1); Xu, Yonghua (1); Gao, Shihui (1)
Author affiliation: (1) College of Petroleum Engineering, Xi'an ShiYou University, Xi'an, China; (2) Oil and Gas Technology Institute, PetroChina ChangQing Oilfield Company, Xi'an, China
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Source title: Special Topics and Reviews in Porous Media
Abbreviated source title: Spec. Top. Rev. Porous Media
Volume: 8
Issue: 4
Issue date: 2017
Publication year: 2017
Pages: 287-293
Language: English
ISSN: 21514798
E-ISSN: 2151562X
Document type: Conference article (CA)
Publisher: Begell House Inc.
Abstract: Due to the challenge of complex problems in the petroleum engineering field, coupled pore fluid flow and stress analysis of reservoirs has become a focus of study. Based on rock mechanics and seepage mechanics theory, governing equations of the coupled pore fluid flow and stress were given for the injection and production of a tight sandstone reservoir. We considered the effect of reservoir temperature and pore pressure changes on the bulk strain of the sandstone skeleton; these further affect permeability. A mathematical model has been established for injection and production of a tight sandstone reservoir, which describes the dynamic changing of permeability as the variations of reservoir temperature, pore pressure, and bulk strain. The numerical simulation results of coupled pore fluid flow and stress in the injection and production of the reservoir better reflects the actual production situation by using Abaqus software, which has a significant impact on the oilfield development. © 2017 by Begell House, Inc.
Number of references: 15
Main heading: Rock mechanics
Controlled terms: Sandstone - Pore fluids - Tight gas - Pore pressure - Seepage - ABAQUS - Petroleum reservoir engineering - Stress analysis
Uncontrolled terms: Bulk strain - Complex problems - Governing equations - Pore fluid flow - Reservoir permeability - Reservoir temperatures - Seepage mechanics - Tight sandstone reservoirs
Classification code: 482.2 Minerals - 483.1 Soils and Soil Mechanics - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 631.3 Flow of Fluid-Like Materials - 723.5 Computer Applications - 921 Mathematics - 951 Materials Science
DOI: 10.1615/SpecialTopicsRevPorousMedia.2018021224
Funding Details: Number: 51604225, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 14JK1583, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

176. Semi-supervised matrixized least squares support vector machine

Accession number: 20174104265896
Authors: Pei, Huimin (1); Wang, Kuaini (2); Zhong, Ping (1)
Author affiliation: (1) College of Science, China Agricultural University, Beijing; 100083, China; (2) College of Science, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Zhong, Ping(zping@cau.edu.cn)
Source title: Applied Soft Computing Journal
Abbreviated source title: Appl. Soft Comput. J.

Volume: 61
Issue date: December 2017
Publication year: 2017
Pages: 72-87
Language: English
ISSN: 15684946
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: The matrix learning, which studies how to design algorithms based on matrix patterns, is proven to have some significant advantages over the vector learning such as the improved classification performance and the low computational complexity. However, most of the traditional matrix learning algorithms are supervised ones which require labels of all patterns. In practice, the difficult acquisition of labeled patterns is a major challenge for supervised algorithms. An effective approach to handle this problem is the manifold regularization, which is known as one of the most elegant frameworks for the semi-supervised learning (SSL). The Laplacian regularized least squares (LapRLS) is a classical vector learning algorithm following this framework. Inspired by the advantages of the matrix learning and the SSL, in this paper, we propose a novel semi-supervised matrix learning algorithm by incorporating the manifold regularization into the matrixized least squares support vector machine (MatLSSVM), termed as Laplacian matrixized LSSVM, or LapMatLSSVM for short. MatLSSVM, which has been built by combining the merits of the matrix learning and LSSVM, is a promising supervised algorithm. As an extension of MatLSSVM to the SSL, LapMatLSSVM can not only directly operate on matrix patterns, but also effectively exploit the geometric information embedded in unlabeled matrix patterns. Moreover, its generalization risk bound is tighter than that of LapRLS in terms of the Rademacher complexity. For the implementation, LapMatLSSVM learns in an iterative manner, and solves a least squares optimization problem at each iteration. Extensive experiments have been conducted across two kinds of datasets: image datasets and UCI datasets. Experimental results confirm the benefits of the proposed algorithm. © 2017 Elsevier B.V.
Number of references: 46
Main heading: Learning algorithms
Controlled terms: Iterative methods - Vectors - Laplace transforms - Support vector machines
Uncontrolled terms: Classification performance - LapRLS - Least squares support vector machines - Least-squares optimization - Low computational complexity - Manifold regularizations - MatLSSVM - Semi-supervised learning (SSL)
Classification code: 723 Computer Software, Data Handling and Applications - 723.4.2 Machine Learning - 921.1 Algebra - 921.3 Mathematical Transformations - 921.6 Numerical Methods
DOI: 10.1016/j.asoc.2017.07.040
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

177. Creep Fatigue Crack Initiation Behavior of 10%Cr Heat Resistant Steel Under Thermomechanical Loading

Accession number: 20174404325645
Authors: Cui, Lu (1); Shi, Hong-Mei (1); Zhang, Tao (1); Wang, Peng (2); Li, Zhen (1)
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) BorgWarner Turbo Systems GmbH, Kirchheimbolanden; Rhineland-Palatinate; 67292, Germany
Corresponding author: Cui, Lu(cuiluxa@hotmail.com)
Source title: Cailiao Gongcheng/Journal of Materials Engineering
Abbreviated source title: Cailiao Gongcheng
Volume: 45
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Publication year: 2017
Pages: 143-148
Language: Chinese

ISSN: 10014381
CODEN: CAGOEW
Document type: Journal article (JA)
Publisher: Beijing Institute of Aeronautical Materials (BIAM)
Abstract: To adjust the oscillation of renewable energy sources in the discontinuous generation of electricity, power plants will be used to stabilize the fluctuations. Fatigue creep damage on power plant components will be increased, during the frequent start-up and shut-down processes of the units. A pre-loading experiment plan was introduced through the analysis on the insufficient stress-strain behavior of gas turbine rotor under thermomechanical loading described by an existed lifetime estimation model. Based on the data of the pre-loading experiments, the current life prediction model was optimized. By comparison of the simulated stress-strain behavior and estimated fatigue creep life near working condition test at alternating temperatures, the optimized life prediction model was evaluated. © 2017, Journal of Materials Engineering. All right reserved.
Number of references: 12
Main heading: Creep
Controlled terms: Fossil fuel power plants - Renewable energy resources - Gas turbines - Plant shutdowns - Stress analysis
Uncontrolled terms: Fatigue creep - Lifetime estimation - Preloading - Thermo mechanical fatigues (TMF) - Thermo-mechanical loading
Classification code: 525.1 Energy Resources and Renewable Energy Issues - 612.3 Gas Turbines and Engines - 951 Materials Science
DOI: 10.11868/j.issn.1001-4381.2015.001208
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

178. Tensile stress close to a wellbore in the high pressure gas well considering of shear stress

Accession number: 20182305275364
Authors: Jiang, Hailong (1); Chen, Mian (2); Jin, Yan (2); Dou, Yihua (1)
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an, China; (2) College of Petroleum Engineering, China University of Petroleum, Beijing, China
Source title: 51st US Rock Mechanics / Geomechanics Symposium 2017
Abbreviated source title: US Rock Mech. / Geomech. Symp.
Volume: 4
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Publication year: 2017
Report number: ARMA 17-775
Pages: 2861-2865
Language: English
ISBN-13: 9781510857582
Document type: Conference article (CA)
Conference name: 51st US Rock Mechanics / Geomechanics Symposium 2017
Conference date: June 25, 2017 - June 28, 2017
Conference location: San Francisco, CA, United states
Conference code: 135035
Publisher: American Rock Mechanics Association (ARMA)
Abstract: Although there have been relatively successful modifications to Darcy's law to account for inertial effects, for example, the Forchheimer equation, none of these relationships are valid when the flow is compressible. The importance of gas acceleration which is a part of inertial effects is quantified in terms of a dimensionless parameter. When the gas acceleration is important, the tensile stress including of effective radial stress and shear stress is examined. It is shown that the magnitude of the effective tensile stress for the accelerating Darcy-Forchheimer flow is higher than that for the Darcy and Darcy-Forchheimer flows for the same wellbore pressure. For the same mass flux, the shear stress for the accelerating Darcy-Forchheimer flow is the largest tensile stress. For the same wellbore pressure, the shear stress for the accelerating Darcy-Forchheimer flow is the smallest tensile stress. The results about the tensile stress, together with compressive strength of rock, can be used to predict sand production of sandstone reservoir in the high pressure gas well. Copyright 2017 ARMA, American Rock Mechanics Association.

Number of references: 17
Main heading: Rock mechanics
Controlled terms: Compressive strength - Flow of fluids - Oil field equipment - Shear flow - Tensile stress - Shear stress
Uncontrolled terms: Dimensionless parameters - Forchheimer equation - High pressure gas wells - Inertial effect - Radial stress - Sand production - Sandstone reservoirs - Wellbore pressure
Classification code: 483.1 Soils and Soil Mechanics - 511.2 Oil Field Equipment - 631.1 Fluid Flow, General
Funding Details: Number: 51374171,51404198,51674199, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

179. Numerical analysis on nonuniform heat transfer of supercritical pressure water in horizontal circular tube

Accession number: 20171403526265
Authors: Gao, Zhigang (1); Bai, Junhua (2)
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Source title: Applied Thermal Engineering
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Issue date: 2017
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Language: English
ISSN: 13594311
CODEN: ATENFT
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: A numerical simulation is conducted in this paper aiming to further reveal the nonuniform heat transfer mechanism of supercritical pressure water in horizontal circular tube. The governing equations are solved by finite volume method, and the renormalization group k-$_{E}$ turbulence model (RNG k-$_{E}$ model) with enhanced wall treatment is utilized to predict the coupled wall-to-fluid heat transfer. A good agreement between the numerical results and experimental data indicates high accuracy and reliability of the numerical method. On this basis, the nonuniform heat transfer characteristics of supercritical water and corresponding mechanism are analyzed, and the lateral secondary flow and the criteria for onset of buoyancy effect on heat transfer are also discussed. The numerical results exhibit that: (1) the RNG k-$_{E}$ turbulence model with enhanced wall treatment is recommended; (2) the strong circumferential nonuniformity in heat transfer exists in horizontal tube due to the flow asymmetry, and the variation of heat flux and pressure can bring on a remarkable change in heat transfer; (3) the lateral secondary flow results from the buoyancy and thermal acceleration, and the interactive influence between secondary flow and thermophysical properties of supercritical water exerts significant effects on heat transfer; and (4) the criterion of Jackson–Hall Gr/Re2.7 accurately evaluates the onset of buoyancy effect and predicts heat transfer deterioration for horizontal flow of supercritical water.

Number of references: 22
Main heading: Buoyancy
Controlled terms: Finite volume method - Heat flux - Numerical methods - Numerical models - Thermodynamic properties - Heat transfer - Secondary flow - Statistical mechanics - Turbulence models
Uncontrolled terms: Governing equations - Heat transfer characteristics - Heat transfer deterioration - Heat transfer mechanism - K-epsilon turbulence model - Renormalization group - Supercritical pressure waters - Thermal accelerations
Classification code: 631.1 Fluid Flow, General - 641.1 Thermodynamics - 641.2 Heat Transfer - 921 Mathematics - 921.6 Numerical Methods - 922.2 Mathematical Statistics - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.1016/j.applthermaleng.2017.03.109

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

180. Petroleum accumulation: from the continuous to discontinuous (*Open Access*)

Accession number: 20231213760415
Authors: Zhao, Jingzhou (1); Cao, Qing (1); Bai, Yubin (1); Er, Chuang (1); Li, Jun (1); Wu, Weitao (1); Shen, Wuxian (1)
Author affiliation: (1) School of Earth Sciences and Engineering, Shaanxi Key Laboratory of Petroleum Accumulation Geology, Xi'an Shiyou University, Shaanxi; 710065, China
Corresponding author: Zhao, Jingzhou(jzzhao@xsyu.edu.cn)
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Abbreviated source title: Pet. Res.
Volume: 2
Issue: 2
Issue date: June 2017
Publication year: 2017
Pages: 131-145
Language: English
ISSN: 20962495
E-ISSN: 25241729
Document type: Journal article (JA)
Publisher: KeAi Publishing Communications Ltd.
Abstract: Based on the extensive studies of conventional and unconventional hydrocarbon accumulations, the concept, classification and formation as well as distribution of petroleum reservoirs are discussed. The revised concept defined the petroleum reservoir as a continuous hydrocarbon accumulation in a single or a set of reservoirs with an independent or uniform pressure system. In terms of the pattern of hydrocarbon accumulation and distribution, the hydrocarbon accumulations are classified into three basic types, i.e., the continuous accumulation, the quasi-continuous accumulation and the discontinuous accumulation. The hydrocarbon accumulation was demonstrated as a process from continuous accumulation to discontinuous accumulation, and therefore these three basic types of hydrocarbon accumulations were identified. The continuous hydrocarbon accumulation is principally formed in source rocks, and typical examples are shale hydrocarbon reservoirs and coal-bed methane reservoirs; it is mainly characterized by tight-ultra tight reservoirs with permeability of nanodarcy to millidarcy; the hydrocarbons occurred in free, adsorbed or dissolved state; a continuous accumulation comprises actually only a single reservoir, and hydrocarbons are extensively and continuously distributed within the scope of effective source rocks; the accumulation has neither defined boundaries nor bottom or edge water; oil and gas mainly accumulate in situ or near the generation of hydrocarbons with no prominent migration; this hydrocarbon accumulation process is basically not controlled by traps. The quasi-continuous hydrocarbon accumulation mostly occurs in the tight reservoirs adjacent to source rocks, and typical examples are most of tight hydrocarbon reservoirs; the hydrocarbons are distributed quasi-continuously in large areas, and each quasi-continuous hydrocarbon accumulation includes numerous adjacent small- to medium-size reservoirs; reservoirs of this kind of hydrocarbon accumulation have no defined boundaries, no or only local edge and bottom water distribution, and no regional oil-gas-water inversion; hydrocarbons are pervasively charged in large areas, and oil and gas accumulation is caused by primary migration and short-distance secondary migration; the hydrocarbon migration and accumulation is principally driven by non-buoyant forces in non-Darcy flow; and the hydrocarbon accumulation is basically not controlled by anticline traps, but largely by non-anticline traps, especially lithological traps. The discontinuous hydrocarbon accumulation is also named as the hydrocarbon accumulation of the conventional-trap type, and typically occurs in conventional reservoirs, but some tight hydrocarbon reservoirs, coalbed methane reservoirs and even possible shale hydrocarbon reservoirs also belong to this kind of hydrocarbon accumulation; the hydrocarbon reservoirs are distributed discontinuously, and have clear boundaries and complete edge water or bottom water; the hydrocarbon migration and accumulation is mainly driven by buoyancy and secondary migration is usually indispensable; the hydrocarbon accumulation is strictly controlled by various traps, especially structural traps. In a petroliferous basin, above three types of hydrocarbon accumulation may coexist,

andhydrocarbons are often derived from a common source kitchen(s). Therefore, these three types of hydrocarbon accumulation should be considered and studied as a whole to maximize hydrocarbon exploration efficiencvy. © 2017 Chinese Petroleum Society
Number of references: 50
Main heading: Methane
Controlled terms: Coal bed methane - Coal deposits - Lithology - Petroleum reservoir engineering - Petroleum reservoirs - Process control - Shale - Water supply systems
Uncontrolled terms: Bottom water - Continuous hydrocarbon accumulation - Discontinuous accumulation - Hydrocarbon accumulation - Hydrocarbon migration - Hydrocarbon reservoir - Migration and accumulation - Quasi-continuous accumulations - Source rocks - Tight reservoir
Classification code: 446.1 Water Supply Systems - 481.1 Geology - 503 Mines and Mining, Coal - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 804.1 Organic Compounds
DOI: 10.1016/j.ptlrs.2017.02.001
Funding Details: Number: 41402121,41502132, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2013JM5007, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 2013JQ503, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Provincial Department of Education; Number: 2011ZX05007-004,2011ZX05018001-004, Acronym: -, Sponsor: National Major Science and Technology Projects of China;
Funding text: This work was supported by National Science and Technology Major Project of China (Grant No. 2011ZX05007-004 and Grant No. 2011ZX05018001-004), National Natural Science Foundation of China (Grant No. 41402121 and Grant No. 41502132), Natural Science Basic Research Plan in Shaanxi Province of China (Grant No. 2013JM5007) and Shaanxi Provincial Natural Science Foundation of China (Grant No. 2013JQ503).This work was supported by National Science and Technology Major Project of China (Grant No. 2011ZX05007-004 and Grant No. 2011ZX05018001-004), National Natural Science Foundation of China (Grant No. 41402121 and Grant No. 41502132), Natural Science Basic Research Plan in Shaanxi Province of China (Grant No. 2013JM5007) and Shaanxi Provincial Natural Science Foundation of China (Grant No. 2013JQ503).
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

181. Humidity Sensor Based on Hybrid Fiber Bragg Grating/Abrupt Fiber Taper

Accession number: 20171103440060
Authors: Shao, Min (1, 2); Zang, Yixiong (1); Qiao, Xueguang (3); Fu, Haiwei (1); Jia, Zhen-An (1)
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Article number: 7752874
Language: English
ISSN: 1530437X
E-ISSN: 15581748
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: A novel fiber humidity sensor based on fiber Bragg grating (FBG) cascaded with an abrupt fiber taper is proposed and demonstrated. The evanescent wave around the abrupt fiber taper varies with humidity around the sensor, so that the power of the FBG core reflection is affected by the ambient humidity. Experimental results show that the sensor has a linear response to humidity with sensitivity of 0.10-dB/%RH in the humidity range of 50%-90% RH. Such a cost-effective, compact, and reflection power detection-based humidity sensor could be a good candidate in applications. © 2016 IEEE.
Number of references: 14
Main heading: Humidity sensors
Controlled terms: Cost effectiveness - Fiber Bragg gratings

Uncontrolled terms: Ambient humidity - Cost effective - Evanescent wave - Fiber taper - Linear response - Power detection
Classification code: 443.2 Meteorological Instrumentation - 911.2 Industrial Economics
DOI: 10.1109/JSEN.2016.2631536
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

182. Advances in the origin of overpressures in sedimentary basins

Accession number: 20175104547696
Authors: Zhao, Jingzhou (1); Li, Jun (1); Xu, Zeyang (1)
Author affiliation: (1) Shaanxi Key Laboratory of Petroleum Accumulation Geology, School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China
Corresponding author: Zhao, Jingzhou(jzzhao@xsyu.edu.cn)
Source title: Shiyou Xuebao/Acta Petrolei Sinica
Abbreviated source title: Shiyou Xuebao
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Publication year: 2017
Pages: 973-998
Language: Chinese
ISSN: 02532697
CODEN: SYHPD9
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Much progress in the studies on the causes of overpressuring has been made during the past decades, which is summarized and discussed in this article. (1) In terms of the causes, overpressuring is categorized into 5 types, i.e., disequilibrium compaction, fluid expansion, diagenesis, tectonic compression, and pressure transfer. The fluid expansion includes hydrocarbon generation, oil cracking to gas, and hydrothermal expansion, while smectite-illite transformation is the most significant overpressuring mechanism in diagenesis. (2) Six methods for identifying overpressuring causes are proposed, namely, the analysis of multi-logging combination, the Bowers method (loading-unloading diagram), velocity-density crossplotting, correlation of porosities, reverse reasoning from pressure calculation and correlation, and comprehensive analyses. (3) With more and more widespread application of the empirical methods in the investigation of overpressuring causes, almost all of the overpressure cases traditionally claimed and widely accepted as the result of disequilibrium compaction have been denied totally or in part, whereas hydrocarbon generation is demonstrated to be the most common cause for overpressuring, and the importance of clay diagenesis especially smectite-illite transformation to overpressuring has been recognized. In addition, the contribution of tectonic compression and pressure transfer to overpressuring is also confirmed. Moreover, overpressures in many basins are believed to be the outcome of combined action of two or more overpressuring mechanisms. (4) The causes of overpressuring differ with the lithology of rocks where overpressure may develop. Generally speaking, the causes of overpressuing are different between source rocks and non-source rocks. In source rocks, overpressures, if any, are frequently related to hydrocarbon generation and sometimes to diagenesis, while in non-source rocks overpressures are commonly caused by disequilibrium compaction, diagenesis and pressure transfer. (5) As far as the analysis of overpressuring causes for source rocks is concerned, we suggest that the content of organic matter should be corrected appropriately because it affects the logging responses including those of density and acoustic velocity. It has been revealed that the cause of overpressuring based on the corrected logging data can be quite different from that without correction.
Number of references: 92
Main heading: Compaction
Controlled terms: Tectonics - Rocks - Unloading - Acoustic wave velocity - Lithology - Well logging - Hydrocarbons - Sedimentology
Uncontrolled terms: Diagenesis - Fluid expansion - Overpressure - Pressure transfer - Progress - Tectonic compressions
Classification code: 481.1 Geology - 691.2 Materials Handling Methods - 751.1 Acoustic Waves - 804.1 Organic Compounds
DOI: 10.7623/syxb201709001
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

183. Evaluation of Ordovician source rocks and natural gas accumulation patterns in west flank of a paleo-uplift, Ordos basin

Accession number: 20181204929870
Authors: Xiao, Hui (1, 2); Zhao, Jingzhou (1, 2); Xiong, Tao (3); Wu, Weitao (1, 2); Mi, Jingkui (4); Liu, Sutong (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 Shannxi Province, Xi'an Shiyou University, Xi'an; Shaanxi; 710065, China; (3) No. 5 Oil Production Plant, PetroChina Changqing Oilfield Company, Xi'an; Shaanxi; 710200, China; (4) PetroChina Research Institute of Petroleum Exploration & Development, Beijing; 100083, China
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Abbreviated source title: Oil Gas Geol.
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Issue date: December 28, 2017
Publication year: 2017
Pages: 1087-1097
Language: Chinese
ISSN: 02539985
Document type: Journal article (JA)
Publisher: Editorial Department of Oil and Gas Geology
Abstract: The existence of a new gas accumulation type sourced from the source rocks within the Ordovician was confirmed at the lower slope in the west flank of a paleo-uplift in Ordos Basin based on effective source rock assessment results. Analyses of 347 samples taken from the source rock intervals in 11 wells revealed high-quality source rocks developed in marginal slopes of the middle and upper Ordovician platform in the Basin. Measurements showed that the source rocks in the Wulalike and Kelimoli Formations had relative higher TOC values, with marlite TOC averaged at 0.33% and 0.39%, and mudstone TOC averaged at 0.51% and 0.65%, respectively. The accumulative effective thicknesses of source rocks of the two formations were 12 to 40 m and 7 to 14 m, respectively. Areas with thick source rocks were assessed to have a gas generation capacity of 14.0×108 to 15.5×108 m3/km2. Gas accumulations in the Kelimoli Formation experienced two charging stages: the early stage in the Middle Jurassic, during which paleo-oil reservoirs were formed; and the late stage in the Late Jurassic to Early Cretaceous, during which the paleo-oil reservoirs were cracked into petroliferous gas reservoirs. Carbon isotopes of gas-bearing inclusions from the later stage were measured to be -38.84‰ in average, indicating late petroliferous gas charging characteristics. Coal-derived gas reservoirs were distributed widely in the upper slope in the west flank of the paleo-uplift. The fact that the massive detrital calcareous berccias formed in the Kelimoli Formation at the lower slope had a close contact with the overlying effective source rocks of the Middle and Upper Ordovician and that they stretched away laterally from the top Ordovician weathering crust, made it possible for the formation of self-sourced gas accumulations, like Yutan1 gas reservoir in the area. Fractured-vuggy karst reservoirs developed in the lower slope of the platform margin were considered to be potential exploration targets for such kind of gas reservoirs. © 2017, Editorial Office of Oil and Gas Geology. All right reserved.
Number of references: 31
Main heading: Gases
Controlled terms: Petroleum reservoir engineering - Geochronology - Petroleum prospecting - Petroleum reservoirs - Metamorphic rocks - Weathering
Uncontrolled terms: Accumulation pattern - Lower Paleozoic - Ordos Basin - Ordovician - Source rocks
Classification code: 481.1 Geology - 481.3 Geophysics - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations
Numerical data indexing: Percentage 3.30e-01%, Percentage 3.90e-01%, Percentage 5.10e-01%, Percentage 6.50e-01%, Size 1.20e+01m to 4.00e+01m, Size 7.00e+00m to 1.40e+01m
DOI: 10.11743/ogg20170609
Compendex references: YES
Database: Compendex
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184. Application on crude oil output forecasting based on gray neural network

Accession number: 20172903962073
Authors: Hu, Hongtao (1); Fan, Lin (1); Guan, Xin (2)

Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an, China; (2) Research Institute of Petroleum Exploration and Development-LangFang, Langfang, Hebei, China
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Abbreviated source title: IEEE Int. Conf. Cloud Comput. Big Data Anal., ICCCBDA
Part number: 1 of 1
Issue title: 2017 2nd IEEE International Conference on Cloud Computing and Big Data Analysis, ICCCBDA 2017
Issue date: June 16, 2017
Publication year: 2017
Pages: 533-537
Article number: 7951971
Language: English
ISBN-13: 9781509044986
Document type: Conference article (CA)
Conference name: 2nd IEEE International Conference on Cloud Computing and Big Data Analysis, ICCCBDA 2017
Conference date: April 28, 2017 - April 30, 2017
Conference location: Chengdu, China
Conference code: 128377
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Crude oil output prediction is an important basis for oil field development plan. How to accurately predict crude oil output based on sample data is a problem to be tackled. In order to improve prediction accuracy of crude oil output, a crude of oil forecasting method based on combining gray model and neural network is proposed in this paper. The method firstly uses the gray model to predict the crude oil output, which is taken as one of the influencing factors. Then together with other production parameters which are taken as the input of BP neural network. Finally, crude oil output is predicted by training neural network with the test data. The results shows that the combination forecasting method has the advantages of both neural network and gray model prediction, and the forecasting accuracy of crude oil output under the condition of sample data is high. Compared with single model, our model overcomes the problems of slow convergence and noise. Therefore, it provides a significance guiding for short-term forecast crude oil output, and provides a reliable basis for oil field development plan. © 2017 IEEE.
Number of references: 12
Main heading: Forecasting
Controlled terms: Neural networks - Oil field development - Crude oil
Uncontrolled terms: Combination forecasting - Field development plans - Forecasting accuracy - Gray Model - Gray neural networks - Oil output - Production parameters - Short-term forecasts
Classification code: 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations
DOI: 10.1109/ICCCBDA.2017.7951971
Compendex references: YES
Database: Compendex
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185. AUV antagonistic tactics study for naval battle based on dynamic game

Accession number: 20182905568785
Authors: Wei, Na (1, 2); Liu, Mingyong (1)
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Abbreviated source title: IEEE Int. Conf. Robot. Biomimetics, ROBIO
Volume: 2018-January
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Conference name: 2017 IEEE International Conference on Robotics and Biomimetics, ROBIO 2017
Conference date: December 5, 2017 - December 8, 2017
Conference location: Macau, China
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Sponsor: Beijing Institute of Technology; City University of Hong Kong; IEEE Robotics and Automation Society; Shenzhen Academy of Robotics; University of Hong Kong; University of Macau
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: According to the cooperative antagonism game problem of multi autonomous underwater vehicles(AUVs), multi AUVs cooperative attack dynamic countermeasures are researched. A multi-combat steps dynamic target assignment optimization model is built based on the game theory for multi-strategy autonomous underwater vehicles cooperative attack. Particle swarm optimization (PSO) algorithm is applied to solve the Nash equilibrium point for obtaining optimal antagonistic tactics. It is confirmed that the feasibility and validity of the proposed model and method. © 2017 IEEE.
Number of references: 17
Main heading: Autonomous underwater vehicles
Controlled terms: Autonomous vehicles - Military vehicles - Particle swarm optimization (PSO) - Game theory
Uncontrolled terms: Autonomous underwater vehicles (AUVs) - Cooperative attacks - Game problem - Nash equilibrium point - ON dynamics - Optimization modeling - Particle swarm optimization algorithm - Steps dynamics
Classification code: 404.1 Military Engineering - 432 Highway Transportation - 674.1 Small Marine Craft - 723 Computer Software, Data Handling and Applications - 731.6 Robot Applications - 921.5 Optimization Techniques - 922.1 Probability Theory
DOI: 10.1109/ROBIO.2017.8324616
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

186. Forecasting method of crude oil output based on Adaboost-BP

Accession number: 20173404078258
Authors: Hu, Hongtao (1); Hui, Rong (1); Guan, Xin (2)
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an, China; (2) Research Institute of Petroleum Exploration and Development-LangFang, Langfang, Hebei, China
Corresponding author: Hu, Hongtao(huhongtao@xsyu.edu.cn)
Source title: 2017 7th International Workshop on Computer Science and Engineering, WCSE 2017
Abbreviated source title: Int. Workshop Comput. Sci. Eng., WCSE
Part number: 1 of 1
Issue title: 2017 7th International Workshop on Computer Science and Engineering, WCSE 2017
Issue date: 2017
Publication year: 2017
Pages: 1192-1196
Language: English
ISBN-13: 9789811136719
Document type: Conference article (CA)
Conference name: 2017 7th International Workshop on Computer Science and Engineering, WCSE 2017
Conference date: June 25, 2017 - June 27, 2017
Conference location: No. 38 A, Xueqing Road, Haidian District, Beijing, China
Conference code: 129214
Sponsor: Bauman Moscow State Technical University; China Agricultural University; Science and Engineering Institute (SCIEI); Tokyo University of Science
Publisher: International Workshop on Computer Science and Engineering (WCSE)
Abstract: In order to improve the prediction accuracy of BP neural network, Adaboost algorithm and BP neural network are combined to propose the AdaboostBP prediction model. The prediction model firstly preprocesses the training data set, which selects different parameters of BP neural network to construct several BP neural networks. Then, the test data set and its distribution weight are initialized. According to the Adaboost algorithm, the prediction error of each BP weak predictor is calculated and the distribution weight of the test data set is adjusted according to the error, and the weight of the predictor is obtained. Finally, all weak predictors are combined to generate a strong predictor. Based on the original data of oilfield block from 1994 to 2016, the results show that the prediction of AdaboostBP prediction model is more accurate than the single BP neural network model, and achieves good predictive result, which validates the effectiveness of the proposed model.
Number of references: 9

Main heading: Crude oil
Controlled terms: Forecasting - Oil fields - Statistical tests - Adaptive boosting - Neural networks
Uncontrolled terms: AdaBoost algorithm - BP neural network model - BP neural networks - Forecasting methods - Oil output - Prediction accuracy - Strong predictor - Training data sets
Classification code: 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 723 Computer Software, Data Handling and Applications - 922.2 Mathematical Statistics
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

187. Unusual enhanced photoluminescence from highly lattice mismatched ZnO/Cu3N multilayer films

Accession number: 20170203235046
Authors: Ding, Jijun (1); Chen, Haixia (1); Wang, Xiaomeng (2); Fu, Haiwei (1); Ma, Li (2)
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Publisher: Elsevier Ltd
Abstract: ZnO/Cu3N multilayer films with different oxygen partial pressures are deposited by radio frequency magnetron sputtering method. The crystal structures and optical properties are analyzed by using X-ray diffraction (XRD) patterns, reflectance spectra, absorbance spectra and PL spectra. Both Cu3N (111) and ZnO (002) diffraction phases are observed in the XRD patterns of all the ZnO/Cu3N multilayer films. In addition, XRD results also indicate that the lattice mismatch fm is 38.28% for ZnO/Cu3N multilayer film with 5:25 sccm and reaches the maximum value among all samples. Generally, highly lattice mismatched multilayer films always undergo serious residual strain, which cause PL quenching. However, in this work, the intensity of three emission peaks ranging from violet to blue-green wavelength in ZnO/Cu3N multilayer films attain to strongest at a low oxygen partial pressure of 5:25 sccm. Based on experimental results, we propose unusual enhanced photoluminescence (PL) mechanism from highly lattice mismatched ZnO/Cu3N multilayer films. © 2016 Elsevier Ltd
Number of references: 37
Main heading: Zinc oxide
Controlled terms: Optical properties - II-VI semiconductors - Oxygen - Magnetron sputtering - X ray diffraction - Lattice mismatch - Multilayers - Photoluminescence - Multilayer films - Partial pressure
Uncontrolled terms: Absorbance spectrum - Enhanced PL - Lattice-mismatched - Low oxygen partial pressure - Oxygen partial pressure - Radio frequency magnetron sputtering method - Reflectance spectrum - Residual strains
Classification code: 712.1 Semiconducting Materials - 741.1 Light/Optics - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 933.1.1 Crystal Lattice
Numerical data indexing: Percentage 3.83e+01%
DOI: 10.1016/j.materresbull.2016.12.040
Funding Details: Number: 2016BS12, Acronym: -, Sponsor: -; Number: 11447116, Acronym: -, Sponsor: -; Number: 2016JQ5037, Acronym: -, Sponsor: -; Number: 16JK1601, Acronym: -, Sponsor: -; Number: 2014KYCXTD02, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
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Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

188. Higher-order partial least squares for predicting gene expression levels from chromatin states (*Open Access*)

Accession number: 20181805114545
Authors: Sun, Shiquan (1); Sun, Xifang (2); Zheng, Yan (1)
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Source title: Proceedings - 2017 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2017
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Volume: 2017-January
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Issue title: Proceedings - 2017 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2017
Issue date: December 15, 2017
Publication year: 2017
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Language: English
ISBN-13: 9781509030491
Document type: Conference article (CA)
Conference name: 2017 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2017
Conference date: November 13, 2017 - November 16, 2017
Conference location: Kansas City, MO, United states
Conference code: 133962
Sponsor: IEEE; IEEE Computer Society; IEEE Technical Committee on Computational Life Science (TCCLS)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Multiple publications have indicated that gene expression levels are strongly affected by chromatin mark combinations via at least two mechanisms, i.e., activation or repression. But their combinatorial patterns remain unresolved. To further understand the relationship between histone modifications and gene expression levels, here in this paper, we introduce a purely geometric higher-order representation, tensor (also called multidimensional array), which might contain more hidden information from chromatin states to predicting gene expression levels. The prediction models were learned from regions around upstream 10k base pairs and downstream 10k base pairs of the transcriptional start sites (TSSs) over three species (i.e., Human, Rhesus Macaque, and Chimpanzee) with five histone modifications (i.e., H3K4me1, H3K4me3, H3K27ac, H3K27me3, and Pol II). Experimental results demonstrate that the proposed method is more powerful for predicting gene expression levels than several commonly used methods. Specifically, our method improves the performance on both criteria, R and RMSE as high as 1.7% and 11%, respectively. © 2017 IEEE.
Number of references: 28
Main heading: Tensors
Controlled terms: Gene expression - Principal component analysis - Forecasting - Least squares approximations
Uncontrolled terms: chromatin states - Gene expression levels - Hidden information - Histone modification - Multidimensional arrays - Partial least square (PLS) - Prediction model - Tensor decomposition
Classification code: 461.9 Biology - 921.1 Algebra - 921.6 Numerical Methods - 922.2 Mathematical Statistics
Numerical data indexing: Percentage 1.10e+01%, Percentage 1.70e+00%
DOI: 10.1109/BIBM.2017.8217912
Funding Details: Number: 3102017OQD098, Acronym: -, Sponsor: Fundamental Research Funds for the Central Universities;
Funding text: We would like to acknowledge Dr. Xiang Zhou at University of Michigan, Ann Arbor for very helpful guide to pre-process the data set. This work is supported by the Fundamental Research Funds for the Central Universities (Grant No. 3102017OQD098).
Compendex references: YES
Open Access type(s): All Open Access, Green
Database: Compendex
Data Provider: Engineering Village

189. An ICP algorithm based on block path closest point search (*Open Access*)

Accession number: 20174104250534
Authors: Wang, Kuisheng (1); Li, Xing (1); Lei, Hongwei (2); Zhang, Xiaorui (1)

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Source title: Journal of Physics: Conference Series
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Issue: 1
Issue title: 2nd Annual International Conference on Information System and Artificial Intelligence, ISAI 2017
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Publication year: 2017
Article number: 012063
Language: English
ISSN: 17426588
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Conference name: 2nd Annual International Conference on Information System and Artificial Intelligence, ISAI 2017
Conference date: July 14, 2017 - July 16, 2017
Conference location: Tianjin, China
Conference code: 130791
Publisher: IOP Publishing Ltd
Abstract: At present, the traditional ICP algorithm has the problems of low efficiency and low precision. To solve these two problems, an ICP algorithm based on block path closest point search is proposed in this paper. The idea of the algorithm is as follows: firstly, the point cloud data is divided into blocks, and the nearest point block corresponding to the target point cloud is searched by the path method. Secondly, according to the global method, the nearest point can be determined only by finding the nearest point block, and complete all the closest match. The experimental results show that the improved ICP algorithm has faster speed and higher precision than the traditional ICP algorithm, for a large number of point cloud data advantage is more obvious. © Published under licence by IOP Publishing Ltd.
Number of references: 11
Uncontrolled terms: Closest point search - Global methods - ICP algorithms - Nearest point - Path method - Point cloud data - Target point
Classification code: 723.4 Artificial Intelligence - 903.3 Information Retrieval and Use
DOI: 10.1088/1742-6596/887/1/012063
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

190. Low Temperature Cross-Sensitivity Humidity Sensor Based on a U-Shaped Microfiber Interferometer

Accession number: 20173404059253
Authors: Fu, Haiwei (1); Jiang, Youhua (1); Ding, Jijun (1); Zhang, Jingle (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
Source title: IEEE Sensors Journal
Abbreviated source title: IEEE Sensors J.
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Publication year: 2017
Pages: 644-649
Language: English
ISSN: 1530437X
E-ISSN: 15581748
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: A simple and sensitive optical fiber relative humidity (RH) sensor is proposed and demonstrated in this paper. The optical microfiber inter-mode interferometer is fabricated by tapering PM-elliptical core fiber down to micrometer scale in diameter, the coupling mainly occurs between the LP01 and LP11 modes. The microfiber

interferometer (MFI) is fixed as U-shape, making it conveniently to measure. The RH changes are determined from the wavelength shift of the interference pattern induced by the evanescent-field interaction. Experimental results show that MFI with a thinner diameter of 4.7μm offers the best RH sensitivity of 114.7 pm/RHU (per relative humidity unit) ranging from 30% to 90% and good linearity between wavelength and RH. The temperature response has also been experimentally studied, and the temperature sensitivity is 7.6 pm/°C from 30 °C to 90 °C, which indicates that this microfiber device possesses a low temperature cross sensitivity. The proposed RH sensor does not need any functional coating, with advantages of compact size and simple fabrication procedure, which make it attractive for several applications. © 2016 IEEE.
Number of references: 27
Main heading: Interferometers
Controlled terms: Evanescent fields - Mechanics - Optical fibers - Optical fiber fabrication - Protective coatings - Temperature
Uncontrolled terms: Fabrication procedure - Field interactions - Interference patterns - Micro-fiber - Microfiber devices - Temperature cross-sensitivity - Temperature response - Temperature sensitivity
Classification code: 641.1 Thermodynamics - 701 Electricity and Magnetism - 741.1.2 Fiber Optics - 931.1 Mechanics - 941.3 Optical Instruments
Numerical data indexing: Percentage 3.00e+01% to 9.00e+01%, Size 4.70e-06m, Temperature 3.03e+02K to 3.63e+02K
DOI: 10.1109/JSEN.2016.2615059
Funding Details: Number: 2015cx140837, Acronym: -, Sponsor: -; Number: 14JS073, Acronym: -, Sponsor: -; Number: 61275088,61327012, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

191. Field emission of graphene oxide decorated ZnO nanorods grown on Fe alloy substrates

Accession number: 20173904210962
Authors: Ding, Jijun (1, 2); Chen, Haixia (1); Ma, Li (2); Fu, Haiwei (1); Wang, Xiaojun (2)
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Pages: 538-544
Language: English
ISSN: 09258388
CODEN: JALCEU
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: Graphene oxides (GO) are decorated on the top surface of ZnO nanorods (NRs) grown on Fe alloy substrates for efficient field emission. The GO decorated ZnO NRs acting as cold electron emitters exhibit excellent field emission performance with the turn-on field Eto as low as 1.63 V/μm and the threshold field Ethr down to 3.12 V/μm. ZnO NRs grown on the alloy substrates have a low interfacial resistance and intend to enhance electrical conduction. A schottky contact of Fe-ZnO and matched Fermi levels of ZnO-GO interface contribute to the enhanced current emission efficiency. Besides, some nanometer-scaled sharp protrusions have been formed in the GO sheets, and GO itself owns abundant C-O-C oxygen functional groups that also help to improve the field emission current. A straight line Fowler-Nordheim plot of the field emission current from the emitter is obtained and the effective work function for the decorated GO sheets is calculated from the slope with a value below 1.5 eV. Finally, field emission mechanism of the GO decorated ZnO NRs has been proposed. This work may help the development of the practical electron sources and advanced optronic devices based on GO field emitters. © 2017 Elsevier B.V.

Number of references: 39
Main heading: Field emission
Controlled terms: Iron alloys - Zinc oxide - Nanorods - Graphene - II-VI semiconductors
Uncontrolled terms: Cold electron emitters - Effective work function - Emission mechanism - Field emission currents - Field emission mechanism - Interfacial resistances - Oxygen functional groups - ZnO nanorod
Classification code: 545.2 Iron Alloys - 712.1 Semiconducting Materials - 761 Nanotechnology - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 933 Solid State Physics
Numerical data indexing: Electric_Field_Strength 1.63e+06V/m, Electric_Field_Strength 3.12e+06V/m, Electron_Volt 1.50e+00eV
DOI: 10.1016/j.jallcom.2017.09.216
Funding Details: Number: 16JK1601, Acronym: -, Sponsor: -; Number: 2016JQ5037, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 2014KYCXTD02, Acronym: -, Sponsor: -; Number: 2016BS12, Acronym: -, Sponsor: Doctoral Scientific Research Start-up Foundation from Henan University of Technology; Number: 11447116, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work is supported by the National Natural Science Foundations of China (Grant No. 11447116), Natural Science Basic Research Plan in Shaanxi Province of China (Grant No. 2016JQ5037), Special Program for Scientific Research of Shaanxi Educational Committee (Grant No. 16JK1601), Doctoral Scientific Research Startup Foundation of Xi'an Shiyou University (Grant No. 2016BS12) and Scientific Research Innovation Team Construction Plan of XSYU (Grant No. 2014KYCXTD02).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

192. Crude oil output forecasting based on PSO of unbiased gray Markov model

Accession number: 20182105215564
Authors: Hu, Hongtao (1); Zhai, Xiaojing (1); Guan, Xin (2)
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an, Shaanxi, China; (2) Research Institute of Petroleum Exploration and Development-LangFang, Langfang, Hebei, China
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Abbreviated source title: Proc.IEEE Int. Conf. Software Eng. Serv. Sci., ICSESS
Volume: 2017-November
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ISBN-13: 9781538645703
Document type: Conference article (CA)
Conference name: 8th IEEE International Conference on Software Engineering and Service Science, ICSESS 2017
Conference date: November 24, 2017 - November 26, 2017
Conference location: Beijing, China
Conference code: 136085
Sponsor: IEEE Beijing Section; The Institute of Electrical and Electronics Engineers
Publisher: IEEE Computer Society
Abstract: With the adjustment of China's energy strategy structure, the pace of oil exploration and development will be further accelerated, and how to accurately predict the trend of crude oil output is a problem worth studying [1]. In this paper, the traditional unbiased gray Markov model is used to fit the exponential sequence when there is a big deviation, and we proposed the particle swarm optimization algorithm to optimize this model. The optimal position of the particle is obtained by constantly updating the position of the particle. The optimal whitening coefficient is used to improve the prediction accuracy. We compare with the traditional forecasting model, the predicted results from unpredictable gray Markov chain with PSO has smaller relative error, and more accurate, which presents a new method for forecasting the output of crude oil. © 2017 IEEE.
Number of references: 11
Main heading: Crude oil

Controlled terms: Markov processes - Forecasting - Particle swarm optimization (PSO)
Uncontrolled terms: Energy strategy - Forecasting modeling - Markov model - Oil exploration - Optimal position - Particle swarm optimization algorithm - Prediction accuracy - Relative errors
Classification code: 512.1 Petroleum Deposits - 723 Computer Software, Data Handling and Applications - 921.5 Optimization Techniques - 922.1 Probability Theory
DOI: 10.1109/ICSESS.2017.8342997
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

193. A method for crude oil output decline rate forecasting based on optimization of neural network by GA

Accession number: 20172903961092
Authors: Hu, Hongtao (1); Hu, Xin (1); Guan, Xin (2)
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an, Shaanxi, China; (2) Research Institute of Petroleum Exploration and Development-LangFang, Langfang Hebei, China
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Abbreviated source title: Int. Conf. Inf. Manag., ICIM
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Publication year: 2017
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Article number: 7950368
Language: English
ISBN-13: 9781509063048
Document type: Conference article (CA)
Conference name: 3rd International Conference on Information Management, ICIM 2017
Conference date: April 21, 2017 - April 23, 2017
Conference location: Chengdu, China
Conference code: 128381
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: Accurate prediction of the crude oil output decline rate is crucial to ensure the stability of oil field. This paper presents a new method that utilizes the neural networks optimized by Genetic Algorithm(GA) to dynamically predict the crude oil output decline rate. Firstly, choose the best weights for neural network by the GA's survival of the fittest mechanism. Next, learn the rules of production decrement of crude oil over the past few years by neural network which uses the Levenberg-Marquardt(LM) algorithm as training function. Lastly, test the optimized neural network with the test dataset. The experimental results show that the prediction method has reasonable weights, high learning efficiency, fast network convergence and accurate prediction result, which also provides a way for predicting other dynamic production indexes in oilfield. © 2017 IEEE.
Number of references: 14
Main heading: Genetic algorithms
Controlled terms: Crude oil - Forecasting - Statistical tests - Neural networks - Oil fields
Uncontrolled terms: Accurate prediction - BP neural networks - Learning efficiency - Levenberg-Marquardt algorithm - Network convergence - Oil output - Prediction methods - Survival-of-the-Fittest
Classification code: 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 922.2 Mathematical Statistics
DOI: 10.1109/INFOMAN.2017.7950368
Compendex references: YES
Database: Compendex
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194. Forecasting method of crude oil output based on optimization of LSSVM by particle swarm algorithm

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Authors: Hu, Hongtao (1); Hu, Xin (1); Guan, Xin (2)

Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an, Shaanxi, China; (2) Research Institute of Petroleum Exploration and Development-LangFang, Langfang, Hebei, China
Source title: Proceedings - 2017 4th International Conference on Information Science and Control Engineering, ICISCE 2017
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Conference location: Changsha, Hunan, China
Conference code: 132547
Sponsor: et al.; Hunan University; Hunan University of Humanities, Science and Technology; Minjiang University; University of Technology Sydney; Wayne State University
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: The accurate prediction of crude oil output plays an important role in the development of oilfield planning. This paper proposes a least squares support vector machine model based on the optimization of particle swarm algorithm (PSO-LSSVM) to predict the crude oil output. Each pair of penalty factor and kernel function parameter was taken as a particle, which follows the optimal particle in the current solution space and adjusts the search direction and speed accordingly. The optimal penalty factor and kernel function parameter were determined by fitness function, and then the optimal LSSVM model was obtained. In this paper, we studied the relationship between crude oil production and its influencing factors by using this model. The experimental results showed that it has fast convergence speed and high prediction accuracy. This study might contribute to the development of the oilfield planning. Moreover, this model will provide a useful reference for the prediction of other dynamic production indexes in oilfield development. © 2017 IEEE.
Number of references: 13
Main heading: Forecasting
Controlled terms: Oil well flooding - Crude oil - Particle swarm optimization (PSO) - Support vector machines - Oil field development - Planning
Uncontrolled terms: Crude oil production - Fast convergence speed - Kernel function parameters - Least squares support vector machines - LSSVM - Oil output - Parameters tuning - Particle swarm algorithm
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 723 Computer Software, Data Handling and Applications - 912.2 Management - 921.5 Optimization Techniques
DOI: 10.1109/ICISCE.2017.77
Compendex references: YES
Database: Compendex
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195. Atomic simulations of plastic deformation behavior of Cu50Zr50 metallic glass

Accession number: 20172503796755
Authors: Song, H.Y. (1); Li, S. (1); Zhang, Y.G. (1); Deng, Q. (2); Xu, T.H. (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)
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Language: English

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Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The effects of sample thickness, crystalline phase, nanoporous and temperature on the mechanical properties of Cu50Zr50 metallic glasses (MGs) under tensile loading are systematically investigated using molecular dynamics simulation method. The results indicate that the plastic deformation changes from initial homogeneous flow to a dominant shear band (SB) propagation, and ultimately again to homogeneous plastic mode mediated by a pattern of multiple SBs with increasing thickness. The plasticity of MGs can be enhanced by the introduction of crystalline phase. For MG-matrix composites, the superior tensile ductility and nearly perfect plastic flow behavior occur during plastic deformation. The results further indicate that the introduction of nanoporous leads to the decrease of the plasticity of MGs, which is due to the larger pore density. In addition, the plasticity of MGs can be enhanced with increasing temperature. © 2017 Elsevier B.V.
Number of references: 42
Main heading: Metallic glass
Controlled terms: Binary alloys - Glass - Metallic matrix composites - Molecular dynamics - Plasticity - Shear flow - Polymer matrix composites - Copper alloys - Crystalline materials - Plastic flow
Uncontrolled terms: Atomic simulations - Increasing temperatures - Mg matrix composites - Molecular dynamics simulation methods - Molecular dynamics simulations - Plastic deformation behavior - Plastic deformation mechanisms - Tensile ductility
Classification code: 531 Metallurgy and Metallography - 544.2 Copper Alloys - 631.1 Fluid Flow, General - 801.4 Physical Chemistry - 812.3 Glass - 815.1 Polymeric Materials - 933.1 Crystalline Solids - 951 Materials Science
DOI: 10.1016/j.jnoncrysol.2017.06.011
Funding Details: Number: B07050, Acronym: -, Sponsor: Higher Education Discipline Innovation Project; Number: 2012KJXX-39, Acronym: -, Sponsor: -; Number: 11372256, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2016KW-049, Acronym: -, Sponsor: -;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

196. Differential analysis for temperature distribution diagnostics of arc current-carrying region with low disturbance electrostatic probe

Accession number: 20173704160711
Authors: Li, Yuanbo (1); Li, Xiao (1); Shi, Quanfu (2); Liu, Jing (1); Li, Kai (1)
Author affiliation: (1) College of Materials Science and Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Lanzhou University of Finance and Economics, Lanzhou; 730101, China
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Abbreviated source title: Hanjie Xuebao
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Issue date: May 25, 2017
Publication year: 2017
Pages: 26-30
Language: Chinese
ISSN: 0253360X
CODEN: HHPAD2
Document type: Journal article (JA)
Publisher: Harbin Research Institute of Welding
Abstract: The differential analysis of low disturbance electrostatic probe was developed for local micro-measurement of TIG arc current-carrying region temperature. The temperature of TIG arc current-carrying region can be solved by ion saturation current of electrostatic probe. Furthermore the temperature distribution in different welding current and arc length can be also obtained. The results show that the variation trend of TIG arc current-carrying region temperature acquired by probe, which agrees with results of spectroscopic method; because of cool disturbance of probe, the temperature solved by ion saturation current is lower than temperature measured by spectroscopic method;

the distribution width of TIG arc current-carrying region temperature reduce to the smallest near cathode along the arc axial direction; the temperature rises to maximum at the center of TIG arc current-carrying region cross section along arc radial direction, and there is a region with higher temperature near cathode; when the welding current decreased, the highest temperature of TIG arc current-carrying region would be lowered, meanwhile the current-carrying region temperature distribution width reduced, and then the high temperature region near cathode tends to shrink along arc axis; the longer arc length cause spatial range of charged particles enlarged, this gives arise to expand distribution width of TIG arc current-carrying region temperature, but the highest temperature of TIG arc current-region would not change.
Number of references: 11
Main heading: Cathodes
Controlled terms: Electrostatics - Probes - Spectroscopic analysis - Charged particles - Temperature distribution
Uncontrolled terms: Differential analysis - Electrostatic probe - High temperature - Highest temperature - Ion saturation current - Micro measurements - Radial direction - Spectroscopic method
Classification code: 641.1 Thermodynamics - 701.1 Electricity: Basic Concepts and Phenomena - 801 Chemistry
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

197. Coupling effects of thickness and aspect ratio on deformation behavior of Cu50Zr50 metallic glass

Accession number: 20173204019850
Authors: Song, H.Y. (1, 2); Li, S. (1); Deng, Q. (2)
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Corresponding author: Song, H.Y.(gsfshy@sohu.com)
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Publication year: 2017
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Language: English
ISSN: 09270256
CODEN: CMMSEM
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: The coupling effects of sample thickness and aspect ratio on the mechanical properties of Cu50Zr50 metallic glasses (MGs) under tensile loading are systematically investigated using molecular dynamics simulation method. The results show that for MGs with various thicknesses, there exist different critical values of aspect ratio that separate the samples into two types with different deformation behavior, above which shear bands propagation is unstable and MGs exhibit catastrophic failure, while below which it is slow and stable homogeneous flow. It is found that in homogeneous plastic flow region, the MGs show nearly perfect plasticity. However, in the catastrophic failure region, the MG fails by necking or dominant SBs slip. In addition, the results indicate that in the critical region, the critical value of aspect ratio transition from initial rapidly decline to a gradual and smooth with increasing thickness, and the 5.6 nm-thick is the transition point.
Number of references: 27
Main heading: Metallic glass
Controlled terms: Deformation - Binary alloys - Copper alloys - Aspect ratio - Glass - Molecular dynamics - Shear flow - Zirconium alloys
Uncontrolled terms: Catastrophic failures - Coupling effect - Deformation behavior - Deformation mechanism - Molecular dynamics simulation methods - Molecular dynamics simulations - Perfect plasticity - Transition point
Classification code: 531 Metallurgy and Metallography - 544.2 Copper Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 631.1 Fluid Flow, General - 801.4 Physical Chemistry - 812.3 Glass
DOI: 10.1016/j.commatsci.2017.07.036
Funding Details: Number: 2016KW-049, Acronym: -, Sponsor: -; Number: 2012KJXX-39, 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 New Scientific and Technological Star of Shaanxi Province (Grant No. 2012KJXX-39) and the Program for International Cooperation and Exchanges of Shaanxi Province (Grant No. 2016KW-049).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

198. The use of a tartaric–Co(II) complex in the catalytic aquathermolysis of heavy oil

Accession number: 20173003991737
Authors: Song, Shao-Fu (1); Guo, Zhen (1); Bai, Yun (1); Gu, Xue-Fan (1); Chen, Gang (1); Zhang, Jie (1); Li, Bian-Qing (1); Zhang, Zhi-Fang (2)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an, China; (2) School of Chemistry and Chemical Engineering, Yulin University, Yulin, China
Corresponding author: Chen, Gang(gangchen@xsyu.edu.cn)
Source title: Petroleum Science and Technology
Abbreviated source title: Petrol Sci Technol
Volume: 35
Issue: 7
Issue date: April 3, 2017
Publication year: 2017
Pages: 661-666
Language: English
ISSN: 10916466
E-ISSN: 15322459
CODEN: PSTEFV
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: A tartaric–Co(II) complex was synthesized and then used in aquathermolysis of heavy oil as a catalyst at relatively low temperature, 180°C. The effects of water amount and catalyst concentration on aquathermolysis were investigated in this work. The crude oil before and after aquathermolysis was fully characterized, and the mechanism of viscosity reduction was discussed at last. The results show that heavy oil can undergo aquathermolysis in the present of water and the tartaric–Co(II) complex at low temperature. Besides, the catalytic aquathermolysis could not only decrease the viscosity of heavy oil, but also remove some heteroatoms, finally making the flow properties better and the quality upgraded. © 2017 Taylor & Francis Group, LLC.
Number of references: 11
Main heading: Crude oil
Controlled terms: Temperature - Catalysts - Viscosity - Cobalt compounds - Heavy oil production
Uncontrolled terms: Aquathermolysis - Catalyst concentration - complex - Flow properties - Heteroatoms - Low temperatures - Viscosity reduction - Water amount
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 631.1 Fluid Flow, General - 641.1 Thermodynamics - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Temperature 4.53e+02K
DOI: 10.1080/10916466.2016.1273239
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

199. Research of surge current for the traction PMSM

Accession number: 20183005612312
Authors: Gao, Ya (1); Gao, Yi (2); Zhu, Qinling (3)
Author affiliation: (1) Electronic information engineering college, Xi'an Technological University, Xi'an, China; (2) School of Electronic Engineering, Xi'an Shiyou University, Xi'an, China; (3) Western Superconducting Technologies CO., Ltd, Xi'an, China
Source title: Proceedings - 2017 Chinese Automation Congress, CAC 2017
Abbreviated source title: Proc. - Chin. Autom. Congr., CAC
Volume: 2017-January

Part number: 1 of 1
Issue title: Proceedings - 2017 Chinese Automation Congress, CAC 2017
Issue date: December 29, 2017
Publication year: 2017
Pages: 131-135
Language: English
ISBN-13: 9781538635247
Document type: Conference article (CA)
Conference name: 2017 Chinese Automation Congress, CAC 2017
Conference date: October 20, 2017 - October 22, 2017
Conference location: Jinan, China
Conference code: 130206
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: There is the high surge current emerging when the asynchronous traction motor is replaced by PMSM with power down-rejoining on. The high back EMF voltage exists when traction PMSM is passing the switching phase insulator. The reason is due to the constant value existence of the permanent magnet. Aiming at above mentioned problems, this paper analyses the reasons of causing transient surge current based on PMSM transient mathematical model. According to the analyzing results, the control strategies and conditions are discussed when the power down-rejoining on. The control system include the given speed, the voltage amplitude and phase of inverter and so on. A control system is finally designed that makes the transient surge current minimum in the process of power down-rejoining on. By the comparative analysis of simulations and experiments, the validity of analysis process is verified, the positive function of optimizing control system is illustrated to reduce the transient surge current when power down-rejoining on. © 2017 IEEE.
Number of references: 8
Main heading: Control systems
Controlled terms: Electric machine control - Permanent magnets - Traction control - Power quality - Synchronous motors - Traction motors - Transients
Uncontrolled terms: Error compensating - Optimizing control - Permanent Magnet Synchronous Motor - Power downs - Transient surge
Classification code: 704.1 Electric Components - 705.3.1 AC Motors - 706.1.2 Electric Power Distribution - 731.1 Control Systems - 731.2 Control System Applications
DOI: 10.1109/CAC.2017.8242750
Funding Details: Number: 51604226, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work was supported by a grant from the Agricultural Science and Technology Research and Innovation Plan of Shaanxi Province (Grant No.2016NY-164), the National Natural Science Foundation of China (Grant No.51604226), the Xi'an city science and technology bureau (Grant No. 2017075CG/RC038 (XAGY005)).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

200. Erosion of water-based fracturing fluid containing particles in a sudden contraction of horizontal pipe (*Open Access*)

Accession number: 20174704435867
Authors: Cheng, Jiarui (1); Cao, Yinping (2); Dou, Yihua (2); Li, Zhen (2)
Author affiliation: (1) State Key Laboratory of Multiphase Flow in Power Engineering, Xi'An Jiaotong University, Xi'an, China; (2) Department of Mechanical Engineering, Xi'An Shiyou University, Xi'an, China
Corresponding author: Cao, Yinping(caoyinping029@163.com)
Source title: Journal of Physics: Conference Series
Abbreviated source title: J. Phys. Conf. Ser.
Volume: 916
Part number: 1 of 1
Issue: 1
Issue title: International Conference on Fluid Mechanics and Industrial Applications, FMIA 2017
Issue date: October 29, 2017
Publication year: 2017
Article number: 012017
Language: English
ISSN: 17426588

E-ISSN: 17426596
Document type: Conference article (CA)
Conference name: International Conference on Fluid Mechanics and Industrial Applications 2017, FMIA 2017
Conference date: October 21, 2017 - October 22, 2017
Conference location: Taiyuan, China
Conference code: 131620
Sponsor: Asian Union of Information Technology
Publisher: IOP Publishing Ltd
Abstract: A lab experiment was carried out to study the effects of pipe flow rate, particle concentration and pipe inner diameter ratio on proppant erosion of the reducing wall in hydraulic fracturing. The results show that the erosion rate and erosion distribution are different not only in radial direction but also in circumferential direction of the sample. The upper part of sample always has a minimum erosion rate and erosion area. Besides, the erosion rate of reducing wall is most affected by fluid flow velocity, and the erosion area is most sensitive to the change in the diameter ratio. Meanwhile, the erosion rate of reducing wall in crosslinked fracturing fluid is mainly determined by the fluid flowing state due to the high viscosity of the liquid. In general, the increase in flow velocity and diameter ratio not only cause the expansion of erosion-affected flow region in sudden contraction section, but also lead to more particles impact the wall. © Published under licence by IOP Publishing Ltd.
Number of references: 5
Main heading: Erosion
Controlled terms: Flow velocity - Fracturing fluids - Hydraulic fracturing
Uncontrolled terms: Circumferential direction - High viscosities - Horizontal pipes - Inner diameters - Particle concentrations - Particles impacts - Radial direction - Sudden contraction
Classification code: 512.1.2 Petroleum Deposits : Development Operations - 631 Fluid Flow - 943.2 Mechanical Variables Measurements
DOI: 10.1088/1742-6596/916/1/012017
Funding Details: Number: 51404198, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work was supported by the National Natural Science Foundation of China (grant no. 51404198), and it was also performed by the group of profession and innovation for well testing integrity and safety of Xi'an Shiloh University.
Compendex references: YES
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

201. Micro-influencing mechanism of permeability on spontaneous imbibition recovery for tight sandstone reservoirs

Accession number: 20182105222845
Authors: Gu, Xiaoyu (1); Pu, Chunsheng (1); Huang, Hai (2); Huang, Feifei (1); Li, Yuejing (1); Liu, Yang (1); Liu, Hengchao (1)
Author affiliation: (1) School of Petroleum Engineering, China University of Petroleum, Qingdao; 266580, China; (2) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Corresponding author: Pu, Chunsheng(chshpu@163.com)
Source title: Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development
Abbreviated source title: Shiyou Kantan Yu Kaifa
Volume: 44
Issue: 6
Issue date: December 23, 2017
Publication year: 2017
Pages: 948-954
Language: Chinese
ISSN: 10000747
CODEN: SKYKEG
Document type: Journal article (JA)
Publisher: Science Press
Abstract: Taking the Chang 8 tight sandstone reservoir of the Yanchang Formation of Fuxian area in Ordos Basin as an example, the influencing mechanism of permeability on imbibition recovery in tight sandstone was explored by spontaneous imbibition experiment, combining nuclear magnetic resonance (NMR) and CT Scanning. Results show that: (1) spontaneous imbibition played a vital role in water-flooding of the tight sandstone reservoir, the recovery

by spontaneous imbibition of experimental core samples can reach 5.24% - 18.23%, and the higher the matrix permeability, the higher the recovery degree by spontaneous imbibition; (2) because of the thickness of adsorbed layer, pores above sub-micron scale made a great contribution to the imbibition recovery of tight sandstone reservoir, and nano-submicron pores made less contribution to imbibition recovery; (3) the connectivity of pore and throat was the major microscopic mechanism of the positive correlation between matrix permeability and spontaneous imbibition recovery. Samples of different permeability didn't differ much in the sizes of sub-micron to micron pores, but with the rise of permeability, the connected pores and throats and surface porosity increased exponentially, leading to significant increase of imbibition recovery.
Number of references: 28
Main heading: Recovery
Controlled terms: Petroleum reservoir engineering - Petroleum reservoirs - Reservoirs (water) - Tight gas - Sandstone - Computerized tomography - Nuclear magnetic resonance
Uncontrolled terms: Adsorbed layers - Influence mechanism - Micro-nano - Oil recoveries - Pore throat - Tight sandstones
Classification code: 441.2 Reservoirs - 482.2 Minerals - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 723.5 Computer Applications
Numerical data indexing: Percentage 5.24e+00% to 1.82e+01%
DOI: 10.11698/PED.2017.06.12
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

202. The research on modeling and simulation of crude oil output prediction based on KPCA-DE-SVM

Accession number: 20181104902507
Authors: Hu, Hongtao (1); Fan, Lin (1); Guan, Xin (2)
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an shaanxi, China; (2) Research Institute of Petroleum Exploration and Development-LangFang, Langfang, Hebei, China
Source title: 2017 2nd IEEE International Conference on Computational Intelligence and Applications, ICCIA 2017
Abbreviated source title: IEEE Int. Conf. Comput. Intell. Appl., ICCIA
Volume: 2017-January
Part number: 1 of 1
Issue title: 2017 2nd IEEE International Conference on Computational Intelligence and Applications, ICCIA 2017
Issue date: December 4, 2017
Publication year: 2017
Pages: 93-97
Language: English
ISBN-13: 9781538620304
Document type: Conference article (CA)
Conference name: 2nd IEEE International Conference on Computational Intelligence and Applications, ICCIA 2017
Conference date: September 8, 2017 - September 11, 2017
Conference location: Beijing, China
Conference code: 133504
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: The accurate prediction of crude oil output plays an important role in the deployment of oilfield development and ensuring stable production. Crude oil output forecast is the premise and the core project management system of the whole oil production, while crude oil output is a dynamic system affected by multivariate variables. To accurately predict crude oil output, this paper presents a method to predict crude oil output in combination of kernel principal component analysis (KPCA) and differential evolution algorithm optimized support vector machine (DE-SVM). Firstly, the influence factors of crude oil output are extracted by using nuclear principal component analysis. Secondly, the parameters of support vector machine are optimized by using differential evolution algorithm. Finally, the prediction model of support vector machine based on differential evolution is constructed. The results show that the prediction accuracy is high and the error is stable at 1.5%, which has good application value.
Number of references: 9
Main heading: Forecasting
Controlled terms: Crude oil - Project management - Support vector machines - Evolutionary algorithms - Optimization - Principal component analysis - Vectors

Uncontrolled terms: Accurate prediction - Differential Evolution - Differential evolution algorithms - Evolution algorithms - Kernel principal component analyses (KPCA) - Model and simulation - Oil output - Project management system
Classification code: 512.1 Petroleum Deposits - 723 Computer Software, Data Handling and Applications - 912.2 Management - 921.1 Algebra - 921.5 Optimization Techniques - 922.2 Mathematical Statistics
Numerical data indexing: Percentage 1.50e+00%
DOI: 10.1109/CIAPP.2017.8167187
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

203. Research on separation performance of supersonic separator with a forward helical guide blade

Accession number: 20182505332028
Authors: Liang, Huirong (1, 2); Zhang, Shuai (2); Kang, Yong (2); Ling, Kegang (1); Wang, Sai (1)
Author affiliation: (1) Petroleum Engineering Department, University of North Dakota, Grand Forks; ND, United States; (2) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, China
Source title: Separations Division 2017 - Core Programming Area at the 2017 AIChE Annual Meeting
Abbreviated source title: Sep. Div. - Core Program. Area AIChE Annu. Meet.
Volume: 1
Part number: 1 of 2
Issue title: Separations Division 2017 - Core Programming Area at the 2017 AIChE Annual Meeting
Issue date: 2017
Publication year: 2017
Pages: 478-486
Language: English
ISBN-13: 9781510857919
Document type: Conference article (CA)
Conference name: Separations Division 2017 - Core Programming Area at the 2017 AIChE Annual Meeting
Conference date: October 29, 2017 - November 3, 2017
Conference location: Minneapolis, MN, United states
Conference code: 136324
Publisher: American Institute of Chemical Engineers
Abstract: The supersonic separation is a new approach to dehydrate the natural gas in recent years. In the conventional supersonic separator, a cyclone or a delta wing is employed to generate the swirling flow. Unfortunately, the separation efficiency of conventional supersonic separator is low. In order to overcome the disadvantages, helical guide blade was designed to incorporate into the swirling device which is fixed at the upstream of the Laval nozzle in this paper. The computational fluid dynamics modeling was performed to investigate the flow characteristics in the supersonic separator and optimize the structure of the blade. The swirling flow generated from the blade promoted the separation of the droplets from the gas. The optimization results showed that a pitch of 30 mm and a blade length of 120 mm are the best geometry structure for the swirling device in the supersonic separator in the dehydration process, which can create the stable flow field and benefit the separation effect. Copyright © (2017) by AIChE All rights reserved.
Number of references: 15
Main heading: Swirling flow
Controlled terms: Delta wing aircraft - Dehydration - Cyclone separators - Computational fluid dynamics - Storms
Uncontrolled terms: Computational fluid dynamics modeling - Dehydration process - Flow charac-teristics - Geometry structure - New approaches - Separation efficiency - Separation performance - Supersonic separators
Classification code: 443.3 Precipitation - 631.1 Fluid Flow, General - 652.1 Aircraft, General - 723.5 Computer Applications - 802.1 Chemical Plants and Equipment - 802.2 Chemical Reactions - 931.1 Mechanics
Numerical data indexing: Size 1.20e-01m, Size 3.00e-02m
Funding Details: Number: 2012KTCG01-12, Acronym: -, Sponsor: -; Number: -, Acronym: -, Sponsor: ShanXi Science and Technology Department;
Funding text: The authors thank the Science and Technology Department of Shaanxi Province for providing the financial support of the Shaanxi Province Science and Technology Co-ordination Innovation Project (2012KTCG01-12).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

204. Research on separation performance of supersonic separator with a forward helical guide blade

Accession number: 20182505320474
Authors: Liang, Huirong (1, 2); Zhang, Shuai (2); Kang, Yong (2); Ling, Kegang (1); Wang, Sai (1)
Author affiliation: (1) Petroleum Engineering Department, University of North Dakota, Grand Forks; ND, United States; (2) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, China
Source title: Poster Sessions 2017 - Core Programming Area at the 2017 AIChE Annual Meeting
Abbreviated source title: Poster Sess. - Core Program. Area AIChE Annu. Meet.
Volume: 2
Part number: 2 of 3
Issue title: Poster Sessions 2017 - Core Programming Area at the 2017 AIChE Annual Meeting
Issue date: 2017
Publication year: 2017
Pages: 1143
Language: English
ISBN-13: 9781510858145
Document type: Conference article (CA)
Conference name: Poster Sessions 2017 - Core Programming Area at the 2017 AIChE Annual Meeting
Conference date: October 29, 2017 - November 3, 2017
Conference location: Minneapolis, MN, United states
Conference code: 136332
Publisher: American Institute of Chemical Engineers
Abstract: The supersonic separation is a new approach to dehydrate the natural gas in recent years. In the conventional supersonic separator, a cyclone or a delta wing is employed to generate the swirling flow. Unfortunately, the separation efficiency of conventional supersonic separator is low. In order to overcome the disadvantages, helical guide blade was designed to incorporate into the swirling device which is fixed at the upstream of the Laval nozzle in this paper. The computational fluid dynamics modeling was performed to investigate the flow characteristics in the supersonic separator and optimize the structure of the blade. The swirling flow generated from the blade promoted the separation of the droplets from the gas. The optimization results showed that a pitch of 30 mm and a blade length of 120 mm are the best geometry structure for the swirling device in the supersonic separator in the dehydration process, which can create the stable flow field and benefit the separation effect. Copyright © (2017) by AIChE. All rights reserved.
Number of references: 15
Main heading: Swirling flow
Controlled terms: Computational fluid dynamics - Storms - Cyclone separators - Dehydration - Delta wing aircraft
Uncontrolled terms: Computational fluid dynamics modeling - Dehydration process - Flow charac-teristics - Geometry structure - New approaches - Separation efficiency - Separation performance - Supersonic separators
Classification code: 443.3 Precipitation - 631.1 Fluid Flow, General - 652.1 Aircraft, General - 723.5 Computer Applications - 802.1 Chemical Plants and Equipment - 802.2 Chemical Reactions - 931.1 Mechanics
Numerical data indexing: Size 1.20e-01m, Size 3.00e-02m
Funding Details: Number: 2012KTCG01-12, Acronym: -, Sponsor: Shaanxi Key Science and Technology Innovation Team Project;
Funding text: The authors thank the Science and Technology Department of Shaanxi Province for providing the financial support of the Shaanxi Province Science and Technology Co-ordination Innovation Project (2012KTCG01-12).
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

205. Study of adsorption and desorption performances of Zr-based metal-organic frameworks using paper spray mass spectrometry (*Open Access*)

Accession number: 20172903957428
Authors: Wang, Xiaoting (1); Chen, Ying (2); Zheng, Yajun (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: Materials
Abbreviated source title: Mater.
Volume: 10
Issue: 7
Issue date: July 8, 2017
Publication year: 2017
Article number: 769
Language: English
E-ISSN: 19961944
Document type: Journal article (JA)
Publisher: MDPI AG
Abstract: The dynamic pore systems and high surface areas of flexible metal-organic framework materials make them excellent candidates to be used in different kinds of adsorption processes. However, the adsorption and desorption behaviors of therapeutic drugs on metal-organic frameworks in solution are not fully developed. Here, we systematically investigated the adsorption and desorption behaviors of a typical therapeutic drug, verapamil, over several Zr-based metal-organic frameworks [e.g., Zr-FUM, UiO-66(Zr), UiO-66(Zr)-NH2 and UiO-66(Zr)-2COOH] as well as ZrO2 in an acetonitrile solution by using paper spray mass spectrometry. In contrast to other materials, UiO-66(Zr)-2COOH demonstrated a superior adsorption performance to verapamil due to their strong acid-base and/or hydrogen-bond interactions, and the adsorption process fitted well with the pseudo-second-order kinetic model. As verapamil-adsorbed materials were used for desorption experiments, ZrO2 demonstrated the most favorable desorption performance, whereas UiO-66(Zr)-2COOH yielded the poorest desorption capability. These Zr-based materials had also been coated at the surface with filter papers for the analysis of various drugs and proteins in the process of paper spray mass spectrometry. The results demonstrated that among the studied materials, ZrO2-coated paper gave the most favorable desorption performance as a pure drug solution, whereas the paper from UiO-66(Zr) demonstrated the optimal capability in the analyses of therapeutic drugs in a complex matrix (e.g., blood) and a protein (e.g., myoglobin). © 2017 by the authors.
Number of references: 63
Main heading: Mass spectrometry
Controlled terms: Metals - Adsorption - Coated materials - Drug products - Organometallics - Proteins - Desorption - Crystalline materials - Hydrogen bonds - Zirconia
Uncontrolled terms: Acetonitrile solutions - Adsorption and desorptions - Adsorption performance - Analysis of various - Hydrogen bond interaction - Metal organic framework materials - Pseudo-second-order kinetic models - Zr-based materials
Classification code: 801 Chemistry - 801.4 Physical Chemistry - 802.3 Chemical Operations - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 813 Coatings and Finishes - 933.1 Crystalline Solids
DOI: 10.3390/ma10070769
Funding Details: Number: 2016GY-231, Acronym: -, Sponsor: -; Number: 21575112, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work was supported by the National Natural Science Foundation of China (21575112) and Shaanxi S and T Research Development Project of China (No. 2016GY-231).
Compendex references: YES
Open Access type(s): All Open Access, Gold, Green
Database: Compendex
Data Provider: Engineering Village

206. Influence of surface micro-beams with large deflection on the frequency shift of a quartz resonator

Accession number: 20183205672171
Authors: Cui, Zhi-Jian (1); Fan, Shuai-Qi (2); Luo, Chi (2)
Author affiliation: (1) College of Petroleum Engineering, Xi'An Shiyou University, Xi'an; 710065, China; (2) Department of Mechanics, Huazhong University of Science and Technology, Wuhan; 430074, China
Corresponding author: Cui, Zhi-Jian(329132546@qq.com)
Source title: Proceedings of the 2017 Symposium on Piezoelectricity, Acoustic Waves, and Device Applications, SPAWDA 2017
Abbreviated source title: Proc. Symp. Piezoelectricity, Acoust. Waves, Dev. Appl., SPAWDA
Volume: 2018-April
Part number: 1 of 1

Issue title: Proceedings of the 2017 Symposium on Piezoelectricity, Acoustic Waves, and Device Applications, SPAWDA 2017
Issue date: July 2, 2017
Publication year: 2017
Pages: 57-60
Article number: 8340287
Language: English
ISBN-13: 9781538662373
Document type: Conference article (CA)
Conference name: 2017 Symposium on Piezoelectricity, Acoustic Waves, and Device Applications, SPAWDA 2017
Conference date: October 27, 2017 - October 30, 2017
Conference location: Chengdu, China
Conference code: 136006
Sponsor: Acoustical Society of China (ASC); Chinese Society of Theoretical and Applied Mechanics (CSTAM); IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society (UFFC-S)
Publisher: Institute of Electrical and Electronics Engineers Inc., United States
Abstract: This paper studies the nonlinear effect of the composite quartz crystal resonator system. A vibration equation considering the nonlinear deformation effect of micro-beams is established, and then the perturbation solution of the vibration equation is solved. Frequency shift of the compound quartz crystal resonator system depends on material and geometrical parameters is illustrated for nonlinear and linear vibration. It is found that the frequency shift produces a little right (or left) translation for increasing elastic modulus (or aspect ratio) of micro-beams when taking into account the nonlinear effect of the MBs. © 2017 IEEE.
Number of references: 6
Main heading: Aspect ratio
Controlled terms: Geometry - Nonlinear equations - Deformation - Quartz - Crystal resonators
Uncontrolled terms: Frequency shift - Linear vibrations - Micro beams - Nonlinear deformations - Perturbation solutions - Quartz crystal resonator - Quartz resonators - Vibration equations
Classification code: 482.2 Minerals - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 921 Mathematics
DOI: 10.1109/SPAWDA.2017.8340287
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

207. Clean aquathermolysis of heavy oil catalyzed by Fe(III) complex at relatively low temperature

Accession number: 20170703348116
Authors: Chen, Gang (1); Yan, Jiao (1); Bai, Yun (1); Gu, Xuefan (1); Zhang, Jie (1); Li, Yongfei (1); Jeje, Ayodeji (2)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an, China; (2) Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, Canada
Corresponding author: Chen, Gang(gangchen@xsyu.edu.sn)
Source title: Petroleum Science and Technology
Abbreviated source title: Petrol Sci Technol
Volume: 35
Issue: 2
Issue date: January 17, 2017
Publication year: 2017
Pages: 113-119
Language: English
ISSN: 10916466
E-ISSN: 15322459
CODEN: PSTEFV
Document type: Journal article (JA)
Publisher: Bellwether Publishing, Ltd.
Abstract: In order to develop a clean catalyst for aquathermolysis of heavy oil at relatively low temperature, a series of water-soluble Fe(III) complexes were prepared as the catalysts for the catalytic aquathermolysis of heavy oil. Under the optimized condition, the adding amount of Fe-3 (a complex of Fe(III) and citrate) is 0.1%, the reaction temperature is 180°C, and the reaction time is 24 h, the heavy oil viscosity reduction ratio reaches to 80.1% (40°C). Results of the

composition analysis show that the contents of resin and asphaltene decrease and the saturated hydrocarbon and aromatic increase. GC analysis shows that the light components increase remarkably after the aquathermolysis. © 2017 Taylor & Francis Group, LLC.
Number of references: 17
Main heading: Crude oil
Controlled terms: Aromatic hydrocarbons - Catalysts - Heavy oil production - Iron compounds - Temperature
Uncontrolled terms: Aquathermolysis - Composition analysis - Fe complex(III) - Low temperatures - Oil viscosity - Optimized conditions - Reaction temperature - Saturated hydrocarbons
Classification code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 641.1 Thermodynamics - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds
Numerical data indexing: Percentage 1.00e-01%, Temperature 3.13e+02K, Temperature 4.53e+02K
DOI: 10.1080/10916466.2016.1255644
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

208. Drag reduction in reservoir rock surface: Hydrophobic modification by SiO2 nanofluids

Accession number: 20165203166208
Authors: Yan, Yong-Li (1); Cui, Ming-Yue (2); Jiang, Wei-Dong (2); He, An-Le (2); Liang, Chong (2)
Author affiliation: (1) College of Chemistry & Chemical Engineering, Xi'an Shiyou University, Xi'an; 710065, China; (2) Langfang Branch of Research Institute of Petroleum Exploration & Development, Langfang; 065007, China
Corresponding author: Yan, Yong-Li(yylhill@163.com)
Source title: Applied Surface Science
Abbreviated source title: Appl Surf Sci
Volume: 396
Issue date: February 28, 2017
Publication year: 2017
Pages: 1556-1561
Language: English
ISSN: 01694332
CODEN: ASUSEE
Document type: Journal article (JA)
Publisher: Elsevier B.V., Netherlands
Abstract: Based on the adsorption behavior of modified silica nanoparticles in the sandstone core surface, the hydrophobic surface was constructed, which consists of micro-nanoscale hierarchical structure. This modified core surface presents a property of drag reduction and meets the challenge of high injection pressure and low injection rate in low or ultra-low permeability reservoir. The modification effects on the surface of silica nanoparticles and reservoir cores, mainly concerning hydrophobicity and fine structure, were determined by measurements of contact angle and scanning electron microscopy. Experimental results indicate that after successful modification, the contact angle of silica nanoparticles varies from 19.5° to 141.7°, exhibiting remarkable hydrophobic properties. These modified hydrophobic silica nanoparticles display a good adsorption behavior at the core surface to form micro-nanobinary structure. As for the wettability of these modified core surfaces, a reversal has happened from hydrophilic into hydrophobic and its contact angle increases from 59.1° to 105.9°. The core displacement experiments show that the relative permeability for water has significantly increased by an average of 40.3% via core surface modification, with the effects of reducing injection pressure and improving injection performance of water flooding. Meanwhile, the mechanisms of drag reduction and improving water injection operation induced from the modified core surface were uncovered. The present study will establish a fundamental understanding on the drag reduction at the core surface modified by nanofluids and its applications in more industries. © 2016 Elsevier B.V.
Number of references: 32
Main heading: Silica nanoparticles
Controlled terms: Oil well flooding - Surface chemistry - Drag reduction - Nanofluidics - Hydrophobicity - Low permeability reservoirs - Contact angle - Rocks - Scanning electron microscopy - Water injection - Petroleum reservoir engineering - Surface treatment
Uncontrolled terms: Displacement experiments - Hierarchical structures - High injection pressures - Hydrophobic modification - Hydrophobic properties - Nanobinary - Reservoir rock - Ultra-low permeability reservoirs
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 - 632.5.2 Nanofluidics - 761 Nanotechnology - 801.4 Physical Chemistry - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Percentage 4.03e+01%

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

209. Efficient MnOx-Co3O4-CeO2 catalysts for formaldehyde elimination

Accession number: 20170103217133
Authors: Lu, Suhong (1); Li, Kelun (2); Huang, Fenglin (1); Chen, Canchang (1, 2); Sun, Bo (1)
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ISSN: 01694332
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Publisher: Elsevier B.V., Netherlands
Abstract: A series of highly efficient MnOx-Co3O4-CeO2 mixed oxides, synthesized by a sol-gel citric acid method, were applied to eliminate indoor formaldehyde (HCHO). The influence of the molar ratio of Mn/Co/Ce was investigated. The catalyst could efficiently eliminate HCHO into CO2 and H2O when the molar ratio of Mn/Co/Ce was 16/19/1. Complete HCHO conversion was achieved at a temperature as low as 100 °C. The prepared samples were characterized by N2 adsorption and desorption, XRD, H2-TPR and O2-TPD techniques to explain the improvement of catalytic activity. The results show that the introduction of MnOx into Co3O4-CeO2 could improve the high dispersion of Co3O4 and then increase the surface areas. Especially, the addition of MnOx enhanced reducibility and abundant surface active oxygen of MnOx-Co3O4-CeO2, which contributed to the excellent catalytic activity toward complete elimination of HCHO. © 2016 Elsevier B.V.
Number of references: 38
Main heading: Cerium oxide
Controlled terms: Sol-gel process - Cobalt - Manganese compounds - Catalytic oxidation - Catalyst activity - Formaldehyde - Sol-gels
Uncontrolled terms: High dispersion - Mixed oxide - MnOx-Co3O4-CeO2 - N2 adsorption - Surface active - Surface area
Classification code: 451.2 Air Pollution Control - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 812.3 Glass
DOI: 10.1016/j.apsusc.2016.12.207
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

210. Catalytic oxidation of formaldehyde over CeO2-Co3O4 catalysts

Accession number: 20173804186017
Authors: LU, Suhong (1); WANG, Fan (1); CHEN, Canchang (1); HUANG, Fenglin (1); LI, Kelun (2)
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Corresponding author: LU, Suhong(lusuhong@xsyu.edu.cn)
Source title: Journal of Rare Earths
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CODEN: JREAE6
Document type: Journal article (JA)
Publisher: Editorial Office of Chinese Rare Earths
Abstract: A series of CeO2-Co3O4 mixed oxide catalysts with different Co/(Co+Ce) atomic ratios were synthesized by citric acid sol-gel method and used for catalytic oxidation of formaldehyde (HCHO). Many techniques such as Brumauer-Emmett-Teller (BET), X-ray diffraction (XRD), scanning electron microscopy (FE-SEM), temperature programmed reduction (H2-TPR), temperature-programmed desorption (O2-TPD) and X-ray photoelectron spectroscopy (XPS) were used to characterize catalysts. The results of catalytic performance tests showed that the catalyst CeO2-Co3O4 with Co/(Co+Ce) ratio of 0.95 exhibited the best performance, and the temperature of complete oxidation of HCHO was 80 °C. The analytical results indicated that the addition of CeO2 enhanced the specific surface area of Co3O4 and the fine dispersion of both of them. Moreover, the strong interaction between CeO2 and Co3O4 resulted in the unique redox properties, which enhanced the available surface active oxygen and led to high valence state of cobalt oxide species. All those effects played crucial roles in the excellent performance of CeO2-Co3O4 for the HCHO oxidation. © 2017 The Chinese Society of Rare Earths
Number of references: 32
Main heading: Catalytic oxidation
Controlled terms: Temperature programmed desorption - X ray photoelectron spectroscopy - Cobalt compounds - Formaldehyde - Rare earths - Scanning electron microscopy - Sol-gel process - Sol-gels - Cerium oxide - X ray diffraction - Catalysts
Uncontrolled terms: Analytical results - Catalytic performance - CeO2-Co3O4 - Cobalt oxide species - Complete oxidation - Mixed oxide catalysts - Strong interaction - Temperature-programmed reduction
Classification code: 451.2 Air Pollution Control - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 812.3 Glass
Numerical data indexing: Temperature 3.53e+02K
DOI: 10.1016/S1002-0721(17)60988-8
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Funding text: Foundation item: Project supported by the Doctoral Program of Xi'an Shiyou University (134010155) and Shaanxi Provincial College Students' Inno vative Entrepreneurial Training Program (No. 2016107051360 and 201610705046) Corresponding author: LU Suhong (E-mail: lusuhong@xsyu.edu.cn; Tel: +86-29-88382693)
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

211. Sputtering gas pressure and target power dependence on the microstructure and properties of DC-magnetron sputtered AlB2-type WB2films

Accession number: 20170603330173
Authors: Liu, Y.M. (1); Han, R.Q. (1); Liu, F. (1); Pei, Z.L. (2); Sun, C. (2)
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Publisher: Elsevier Ltd
Abstract: The study is mainly to optimize the process parameters (sputtering pressure and sputtering power) of the AlB2-type WB2films deposited by DC magnetron sputtering by comparing their microstructure, elemental composition, and tribo-mechanical properties. As the argon pressure (PAr) increases (0.3–1.0 Pa), the particle density increases first and then decreases, with a corresponding decrease for particle energy. Under this condition, both the deposition rate and the B/W atomic ratio of the WB2films increase first and then decrease under the competition effect between the sputtering and scattering process, the film orientation changes from (0 0 1) to (1 0 1), the microstructure changes from dense fine-fiber to porous column coupled with the stress evolution from compressive stress to increased tensile stress. Consequently, films deposited at PAr > 0.5 Pa have the poor hardness and wear-resistance. As the sputtering power increases (150–310 W), both the particle density and particle energy increase. Thus, the deposition rate increases greatly, the B/W atomic ratio declines slightly due to the resputtering process, the film structure becomes dense but rough by the particle bombardment causing the stress change from tensile stress to enhanced compressive stress, and the film orientation changes from the well-crystallized (0 0 1) to poor-crystallized (1 0 1). In conclusion, films with (0 0 1) orientation, high B/W atomic ratio, dense structure and proper compressive stress, which can be deposited at PAr = 0.5 Pa and sputtering current 0.5 A (corresponding to target power about 150 W), show the excellent tribo-mechanical properties with high hardness about 39.4 GPa and low wear rate of 2.2 × 10-7 mm3/mN. © 2017 Elsevier B.V.
Number of references: 50
Main heading: Magnetron sputtering
Controlled terms: Compressive stress - Hardness - Microstructure - Aluminum compounds - Wear resistance - Atoms - Deposition rates - Tensile stress
Uncontrolled terms: AlB2-type WB2films - Dc magnetron sputtering - Elemental compositions - Microstructure and properties - Microstructure changes - Sputtering gas pressure - Sputtering power - Sputtering pressures
Classification code: 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 951 Materials Science
Numerical data indexing: Electric_Current 5.00e-01A
DOI: 10.1016/j.jallcom.2017.01.337
Funding Details: Number: 2016BS22, Acronym: -, Sponsor: -; Number: 51505378, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 201610705036, Acronym: -, Sponsor: National College Students Innovation and Entrepreneurship Training Program;
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Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

212. Integrating embedded discrete fracture and dual-porosity, dual-permeability methods to simulate fluid flow in shale oil reservoirs (*Open Access*)

Accession number: 20181304964748
Authors: Li, Weirong (1); Dong, Zhenzhen (2); Lei, Gang (1)
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Publisher: MDPI AG
Abstract: The oil recovery factor from shale oil remains low, about 5 to 7% of the oil in place. How to increase oil recovery from shale oil reservoirs is attracting more and more attention. CO2 huff-And-puff was historically considered one of the best approaches to improve the oil rate. Most previous simulation studies have been based on dual porosity,

but simulation results from dual-porosity models have not been as accurate as discrete fracture models in composition modeling. This study proposes a new model that integrates the embedded discrete fracture model and the dual-porosity, dual-permeability model (DPDP). The newly developed method could explicitly describe large-scale fractures as flow conduits by embedded discrete fracture modeling and could model the flow in small-and medium-length fractures by DPDP modeling. In this paper, we first introduce four different non-neighboring connections and the way to calculate the transmissibility among different media in the new model. Then, the paper compares the performance of the new method, discrete fracture modeling, DPDP modeling, and embedded discrete fracture modeling for production from oil reservoirs. Following, the paper carries out a series of simulations to analyze the effects of hydraulic fracture stages, hydraulic fracture permeabilities, and natural fracture permeabilities on the CO2 huff-And-puff process based on the new method. In addition, the injection cycle and soaking time are investigated to optimize CO2 huff-And-puff performance. This study is the first to integrate embedded discrete fracture modeling with DPDP modeling to simulate the CO2 huff-And-puff process in a shale oil reservoir with natural fractures. This paper also provides detailed discussions and comparisons on the integrated strategy, embedded discrete fracture modeling, discrete fracture modeling, and dual-porosity, dual-permeability modeling in the context of fracture simulation with a compositional model. Most importantly, this study answers the question regarding how fractures affect CO2 huff-And-puff and how to optimize the CO2 huff-And-puff process in a reservoir with natural fractures.

Number of references: 20
Main heading: Carbon dioxide
Controlled terms: Flow of fluids - Oil well flooding - Shale oil - Hydraulic fracturing - Shale gas - Natural fractures - Petroleum reservoirs - Petroleum reservoir engineering - Porosity
Uncontrolled terms: CO2 huff-And-puff - Compositional modeling - Discrete-fracture models - Dual permeability model - Dual porosity model - Fracture permeability - Fracture simulations - Integrated strategy
Classification code: 421 Strength of Building Materials; Mechanical Properties - 511.1 Oil Field Production Operations - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 523 Liquid Fuels - 631.1 Fluid Flow, General - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
Numerical data indexing: Percentage 5.00e+00% to 7.00e+00%
DOI: 10.3390/en10101471
Compendex references: YES
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Data Provider: Engineering Village