1. Transfer function relating compressive pressure to interfacial stress sensor for biomedical applications

Lü, Xiao-Zhou (1, 2, 4); Lu, Wen-Ke (2); Zhang, Jian-Jun (3)
Source: *Journal of Donghua University (English Edition)*, v 30, n 1, p 34-37, February 2013; **ISSN:** 16725220;
Publisher: Editorial Board of Journal of Dong Hua University
Author affiliation: (1) School of Mechano-Electronic Engineering, Xidian University, Xi'an 710071, China (2) College of Information Science and Technology, Donghua University, Shanghai 201620, China (3) School of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China (4) Department of Electrical Engineering, University of Washington, Seattle 108995, United States
Abstract: To help comfort for an amputee, it is important to understand the load distribution between the residual limb and the prosthetic socket for a prosthetic socket system. An interfacial stress sensor was presented which was capable of measuring compressive pressure and shear stress simultaneously. A mathematical model was built and an experiment was conducted to obtain the transfer function of interfacial stress sensor to compressive pressure. The results show that the sensor is capable of measuring a range of 30-217 kPa compressive pressure with a relative error of 32.15% in lower range and 6.22% in upper range. Copyright © 2013 by Editorial Board of Journal of Donghua University, Shanghai, China. (31 refs)
Main heading: Transfer functions
Controlled terms: Shear stress - Stress measurement - Medical applications
Uncontrolled terms: Biomedical applications - Compressive pressure - Interfacial stress - Load distributions - Prosthetic sockets - Relative errors - Residual limb
Classification Code: 921 Mathematics - 943.2 Mechanical Variables Measurements
Database: Compendex
Data Provider: Engineering Village

2. Investigation of regioselectivity in the synthesis of spiro [pyrrolidine-2,3#-oxindoles] by use of the Huisgen reaction

Chen, Gang (1); Miao, Yan-Qing (2); Zhou, Rui (1); Zhang, Li (1); Zhang, Jie (1); Hao, Xiao-Jiang (3)
Source: *Research on Chemical Intermediates*, v 39, n 6, p 2445-2450, July 2013; **ISSN:** 09226168, **E-ISSN:** 15685675; **DOI:** 10.1007/s11164-012-0770-z; **Publisher:** Kluwer Academic Publishers
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an 710065 Shaanxi, China (2) Department of Pharmacology, Xi'An Medical University, Xi'an 710068 Shaanxi, China (3) State Key Laboratory of Phytochemistry and Plant Resources in West China, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650201, China
Abstract: The Huisgen reaction has been used to synthesize five-membered heterocyclic compounds in high yield and with high regio and stereoselectivity. In the synthesis of spiro [pyrrolidine-2,3#-oxindole] derivatives from isatin, α–amino acids, and (E)-β–phenyl nitroolefins, two regioisomers were obtained in each reaction. The regioselectivity of the major product was found to be different from that in reported work, and was investigated at the B3LYP/6-311G*level of theory. On the basis of this new finding, several conditions, for example molar ratio, solvent, and temperature, which affect the regioselectivity of this reaction were investigated; the results obtained are discussed. It was found that the regioselectivity of this reaction was affected by solvent and temperature, irrespective of the ratio of the reactants. Low temperature and high solvent polarity leads to high regioselectivity, and protic solvents result in higher yield and regioselectivity. These results are of benefit for regioselective synthesis of some compounds. © 2012 Springer Science +Business Media B.V. (12 refs)
Main heading: Regioselectivity
Controlled terms: Synthesis (chemical) - Temperature - Solvents
Uncontrolled terms: Alpha-amino acids - Heterocyclic compound - Huisgen reaction - Low temperatures - Pyrrolidines - Regioisomers - Regioselective synthesis - Solvent polarity
Classification Code: 641.1 Thermodynamics - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals
Funding Details: Number: 12JK0582,12JK0589, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: 2012KJXX-40, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department;
Funding text: Acknowledgments This work was financially supported by grants from the Scientific and Technological Plan Projects of Shaanxi Province of China (2012KJXX-40) and the Scientific Research Program Funded by Shaanxi Provincial Education Department (12JK0582, 12JK0589).
Database: Compendex
Data Provider: Engineering Village

3. The forecasting of short-term wind speed on wind farm based on phase space reconstruction and neural network

Su, Yingying (1, 2); Ma, Fei (3); Zhang, Haiyan (1); Liao, Zhiqiang (4); Jun, Peng (1)
Source: *Applied Mechanics and Materials*, v 246-247, p 496-500, 2013, *Computer-Aided Design, Manufacturing, Modeling and Simulation II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855409; **DOI:** 10.4028/www.scientific.net/AMM.246-247.496; **Conference:** 2nd International Conference on Computer-Aided Design, Manufacturing, Modeling and Simulation, CDMMS 2012, September 21, 2012 - September 23, 2012; **Sponsor:** National Natural Science Foundation of China (NSFC); **Publisher:** Trans Tech Publications
Author affiliation: (1) Department of Electrical and Information Engineering, Chongqing University of Science and Technology, Chongqing 401331, China (2) College of Automation, Chongqing University, Chongqing, 400044, China (3) Department of Electric Power Chongqing Electric Power College, Chongqing, 400053, China (4) School of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, shanxi, China
Abstract: The forecasting precision of short-term wind speed is not high for its chaos and time-varying. Aimed at the problem, the novel data space is reconstructed with the best embedding dimension and time delay according to the phase space reconstruction. On the basis, neural network (NN) is used as the modeling tool with the novel sample data. Meanwhile, the structure of NN is confirmed compared with the others on the precision. In the end, the model of short-term wind speed is able to be obtained. The results show that the method is available and the Mean absolute error (MAE) is decreased to 16.2% for 2 hours. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Time delay
Controlled terms: Wind speed - Phase space methods - Timing circuits - Wind power
Uncontrolled terms: Data space - Embedding dimensions - Forecasting precision - Mean absolute error - Modeling tool - Phase space reconstruction - Sample data - Time varying - Wind farm - Wind speed
Classification Code: 615.8 Wind Power (Before 1993, use code 611) - 713 Electronic Circuits - 713.4 Pulse Circuits - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

4. Recognition model and contribution evaluation of main overpressure formation mechanisms in sedimentary basins

Zhang, Feng-Qi (1, 2); Wang, Zhen-Liang (2); Zhong, Hong-Li (3); Yang, Chao (4); Wang, Jiang-Tao (1)
Source: *Natural Gas Geoscience*, v 24, n 6, p 1151-1158, 2013; **Language:** Chinese; **ISSN:** 16721926; **Publisher:** Science Press
Author affiliation: (1) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Department of Geology, Northwest University, Xi'an 710069, China (3) College of Geology and Environment, Xi'an University of Science and Technology, Xi'an 710054, China (4) Research Institute of Shaanxi Yanchang Petroleum Company, Xi'an 710075, China
Abstract: Overpressures in sedimentary basins are usually controlled by many factors, which make recognition and evaluation of each overpressure mechanism be difficult. The paper divided the causes of overpressure into four general categories: disequilibrium compaction, fluid expansion, overpressure transfer, and lateral tectonic stress. The comprehensive recognition model of these overpressure mechanism types was established. Disequilibrium compaction and lateral tectonic stress overpressures are typically associated with abnormally high porosities and overpressures generated by fluid expansion and overpressure transfer mechanisms are not associated with a porosity anomaly. Sonic velocity-vertical effective stress and sonic velocity-density plots are used to distinguish between overpressures generated by the four types. On a sonic velocity-vertical effective stress plot, sediments that have undergone disequilibrium compaction remain on the exponential function curve of normal compaction loading. However, overpressures generated by fluid expansion or overpressure transfer or lateral tectonic stress follows a sonic velocity-vertical effective stress path away from the loading curve. On a sonic velocity-density plot, sediments that have undergone disequilibrium compaction or lateral tectonic stress remain on the loading curve. However, overpressures generated by fluid expansion or overpressure transfer follow a sonic velocity-density path away from the loading curve. On the basis of the hypothesis that the decreasing magnitudes of vertical effective stress are equal to the overpressures generated by fluid expansion or overpressure transfer or lateral tectonic stress, the overpressure mechanisms are assured and the magnitudes of overpressure and the relative contribution generated by these overpressures were evaluated combined with the regional geological conditions. Although the evaluation results will underestimate the overpressure generated by these mechanisms, these can provide a good method for recognition and evaluation of overpressure in complex regions of sedimentary basins. (40 refs)
Main heading: Compaction

Controlled terms: Loading - Stress analysis - Velocity - Sedimentology - Tectonics - Exponential functions - Well logging - Porosity
Uncontrolled terms: Evaluation method - Overpressure - Recognition models - Sedimentary basin - Well-log response
Classification Code: 481.1 Geology - 691.2 Materials Handling Methods - 921 Mathematics - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

5. Inactivation of Microcystis aeruginosa using dielectric barrier discharge low-temperature plasma

Pu, Sichuan (1); Chen, Jierong (2); Wang, Gang (3); Li, Xiaoyong (4); Ma, Yun (1, 5)
Source: *Applied Physics Letters*, v 102, n 19, May 13, 2013; **ISSN:** 00036951; **DOI:** 10.1063/1.4807286; **Article number:** 194105; **Publisher:** American Institute of Physics Inc.
Author affiliation: (1) School of Life Science and Technology, Xi'an Jiaotong University, Xi'an 710049, China (2) Department of Environmental Science and Engineering, Xi'an Jiaotong University, Xi'an 710049, China (3) BMEI CO., LTD, Beijing 100027, China (4) School of Science, Xi'an Jiaotong University, Xi'an 710049, China (5) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The efficiency of Microcystis aeruginosa plasma inactivation was investigated using dielectric barrier discharge low-temperature plasma. The inactivation efficiency was characterized in terms of optical density. The influence of electrical and physicochemical parameters on M. aeruginosa inactivation was studied to determine the optimal experimental conditions. The influence of active species was studied. The proliferation of the M. aeruginosa cells was significantly decreased under plasma exposure. The morphologic changes in M. aeruginosa were characterized under scanning electron microscopy. These results suggest that the low-temperature plasma technology is a promising method for water pollution control. © 2013 AIP Publishing LLC. (24 refs)
Main heading: Dielectric barrier discharge
Controlled terms: Water pollution - Temperature - Efficiency - Flow control - Scanning electron microscopy - Dielectric devices - Bacteria - Dielectric materials
Uncontrolled terms: Dielectric barrier discharges - Inactivation efficiency - Low temperature plasmas - Microcystis aeruginosa - Morphologic changes - Optimal experimental conditions - Physicochemical parameters - Plasma exposure
Classification Code: 453 Water Pollution - 631.1 Fluid Flow, General - 641.1 Thermodynamics - 701.1 Electricity: Basic Concepts and Phenomena - 708.1 Dielectric Materials - 731.3 Specific Variables Control - 913.1 Production Engineering
Funding Details: Number: 2008ZDKG-78, Acronym: -, Sponsor: -; Number: 20877062, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: SG0842, Acronym: -, Sponsor: -;
Funding text: This work was supported in part by the National Natural and Science Foundation of China (20877062), by the Specialized Project of "13115" Scientific Technique Innovation Engineering in Shaanxi Province (2008ZDKG-78), and by the key Scientific Technique Project of Suzhou City (SG0842).
Database: Compendex
Data Provider: Engineering Village

6. An in-fiber mach-zehnder interferometer based on arc-induced tapers for high sensitivity humidity sensing

Shao, Min (1); Qiao, Xueguang (2); Fu, Haiwei (3); Zhao, Na (3); Liu, Qinpeng (3); Gao, Hong (3)
Source: *IEEE Sensors Journal*, v 13, n 5, p 2026-2031, 2013; **ISSN:** 1530437X; **DOI:** 10.1109/JSEN.2013.2247591; **Article number:** 6463420; **Publisher:** Institute of Electrical and Electronics Engineers Inc.
Author affiliation: (1) School of Science, Shaanxi Key Laboratory of Optical Information Technology, Northwestern Polytechnical University, Xi'an 710072, China (2) Department of Physics, Northwest University, Xi'an 710069, China (3) School of Science, Ministry of Education Key Laboratory on Photoelectric Oil-Gas Logging and Detecting, Xi'An Shiyou University, Xi'an 710065, China
Abstract: A new humidity sensor based on in-fiber Mach-Zehnder interferometer (MZI) is proposed and demonstrated. The interferometer consists of two arc-induced ellipsoid fiber tapers and a section of single mode fiber between them. In our humidity experiment, the relative humidity sensitivity of MZI is-0.047 nm% RHin the range of 50%-90%RH. Temperature response characteristics of this MZI are also studied, and the temperature sensitivity is0.067 nm/° C from 27° C to 120° C. The experimental results show that the sensor has a linear response to humidity and temperature

with linear fitting of 0.993 and 0.992, respectively. The MZI presented in this paper has advantages of low cost, easy fabrication, and high sensitivity, which can be a potential detector for the relative humidity measurement. © 2001-2012 IEEE. (24 refs)
Main heading: Humidity sensors
Controlled terms: Mach-Zehnder interferometers - Single mode fibers
Uncontrolled terms: High sensitivity - Humidity and temperatures - Humidity sensing - Relative humidity measurements - Relative humidity sensitivities - taper - Temperature response - Temperature sensitivity
Classification Code: 443.2 Meteorological Instrumentation - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941.3 Optical Instruments
Database: Compendex
Data Provider: Engineering Village

7. Reducing dislocations of thick AlGaN epilayer by combining low-temperature AlN nucleation layer on c-plane sapphire substrates

Dang-Hui, Wang (1); Yue, Hao (2); Sheng-Rui, Xu (2); Tian-Han, Xu (1); Dang-Chao, Wang (3); Ting-Zhen, Yao (1); Ya-Ni, Zhang (1)
Source: *Journal of Alloys and Compounds*, v 555, p 311-314, April 5, 2013; **ISSN:** 09258388; **DOI:** 10.1016/j.jallcom.2012.12.018; **Publisher:** Elsevier Ltd
Author affiliation: (1) School of Materials Science and Engineering, Xi'An Shiyou University, Xi'an 710065, China (2) State Key Lab. of Fundamental Science on Wide Band-Gap Semiconductor Technology, School of Microelectronics, Xidian University, Xi'an 710071, China (3) Department of Physics and Electron Engineering, Xianyang Normal College, Xianyang 712000, China
Abstract: In this study, we have reported on growth of thick AlGaN layer on the c-plane sapphire substrate with low-temperature AlN (LT-AlN) nucleation layer by low-pressure metal-organic chemical vapor deposition (LPMOCVD). High resolution X-ray diffraction (HRXRD), atomic force microscopy (AFM), and photoluminescence (PL) measurements have been employed to study the crystal quality, threading dislocation density, surface morphology, and optical properties of thick AlGaN layer. Results indicate that the insertion of LT-AlN nucleation layer between sapphire substrate and high-temperature AlN nucleation layer effectively improves the thick AlGaN crystal quality, reduces the surface roughness and eliminates the threading dislocation density. © 2012 Elsevier B.V. All rights reserved. (20 refs)
Main heading: Atomic force microscopy
Controlled terms: III-V semiconductors - Organic chemicals - Superconducting films - Aluminum gallium nitride - Metallorganic chemical vapor deposition - Organometallics - Dislocations (crystals) - Surface roughness - X ray diffraction analysis - Semiconductor alloys - Aluminum nitride - Nucleation - Optical properties - Surface morphology - Temperature - Sapphire - Substrates
Uncontrolled terms: AlN nucleation layers - C-plane sapphire substrates - Crystal qualities - High-resolution x-ray diffraction - Low-pressure metal-organic chemical vapor depositions - Metal organic - Photoluminescence measurements - Threading dislocation densities
Classification Code: 482.2.1 Gems - 641.1 Thermodynamics - 708.3 Superconducting Materials - 712.1 Semiconducting Materials - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 802.2 Chemical Reactions - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids - 933.1.2 Crystal Growth
Funding Details: Number: -, Acronym: -, Sponsor: Xidian University; Number: 12JK0440, Acronym: -, Sponsor: -; Number: 61204006, Acronym: -, Sponsor: -; Number: Z12180, Acronym: -, Sponsor: -;
Funding text: This study was supported by state science fund for youths (Grant No. 61204006), youth science and technology innovation fund of Xi'an Shiyou University (No. Z12180), and science research program of department of education of Shaanxi province (Grant No. 12JK0440). The authors would like to thank Xidian university and Xi'an Shiyou University for the financial and technical support as well as for their kind permission to publish this work.
Database: Compendex
Data Provider: Engineering Village

8. Engineering analysis of non-uniform internal heat source in the thermocouple under the second boundary condition

Yang, Fanchao (1, 2); Wang, Hongwei (3); Wang, Cailing (4); Hu, Binliang (1)
Source: *Hongwai yu Jiguang Gongcheng/Infrared and Laser Engineering*, v 42, n SUPPL.1, p 30-33, 2013;
Language: Chinese; **ISSN:** 10072276; **Publisher:** Chinese Society of Astronautics

Author affiliation: (1) Laboratory of Spectral Imaging Technique, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, Xi'an 710119, China (2) University of Chinese Academy of Sciences, Beijing 100049, China (3) The Scientific Research Department in Engineering University of APF, Xi'an 710086, China (4) The School of Computer Science in Xi'an Shiyou University, Xi'an 710065, China
Abstract: The domestic and foreign scholars have done a lot of work of research on the principle and the cooling performance of thermoelectric cooler, but most of them neglect the micro thermal conditions and regard the thermocouple internal heat source as uniform distribution. In order to make the analysis results more accurate and suitable for engineering application, Joule heat was used as non-uniform internal heat source of thermocouple in this paper and one kind of analysis model was set up: the model was based on linear ordinary differential equation and met the conditions of using principle of superposition. Therefore, this paper proposed an engineering method to calculate the temperature and distribution of heat flow in thermocouple based on the shunt and superposition principle. At last this paper got the temperature and distribution of heat flow of thermocouple under the second boundary condition. By checking the results, this paper proves the correctness of the formula and provides a theoretical guidance for the further research and application of thermoelectric refrigeration technology. (8 refs)
Main heading: Thermocouples
Controlled terms: Ordinary differential equations - Refrigeration - Thermoelectricity - Thermoelectric equipment - Engineering research - Industrial research
Uncontrolled terms: Engineering applications - Internal heat source - Linear ordinary differential equations - Principle of superposition - Research and application - Second boundary condition - Superposition principle - Thermoelectric cooler
Classification Code: 615.4 Thermoelectric Energy - 644.1 Refrigeration Methods - 701.1 Electricity: Basic Concepts and Phenomena - 901.3 Engineering Research - 912.1 Industrial Engineering - 921.2 Calculus - 944.5 Temperature Measuring Instruments
Database: Compendex
Data Provider: Engineering Village

9. Degradation of high concentration methanol in aqueous solution by dielectric barrier discharge

Ma, Yun (1, 2); Chen, Jierong (3); Yang, Bo (2); Yu, Qingsong (4)
Source: *IEEE Transactions on Plasma Science*, v 41, n 7, p 1716-1724, 2013; **ISSN:** 00933813; **DOI:** 10.1109/TPS.2013.2262294; **Article number:** 6545371; **Publisher:** Institute of Electrical and Electronics Engineers Inc.
Author affiliation: (1) School of Life Science and Technology, Xi'an Jiaotong University, Xi'an 710049, China (2) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China (3) Department of Environmental Science and Engineering, Xi'an Jiaotong University, Xi'an 710049, China (4) Surface Science and Plasma Technology, Department of Mechanical and Aerospace Engineering, University of Missouri, Columbia, MO 65211, United States
Abstract: Degradation of high concentration methanol in aqueous solution is carried out in a dielectric barrier discharge (DBD) reactor. The degradation pathway of methanol is investigated by detecting the degradation products by gas chromatography and ion chromatography. The results demonstrate that formaldehyde as an intermediate product is accumulated easily at the early stage of the degradation process. An increase in the initial concentration (100 to 20 000 mg L?1) of methanol has a much greater effect on methanol mineralization than on methanol degradation. It is found that methanol degradation and mineralization could be enhanced by increasing either the acidity or basicity of the solution. The methanol degradation rate increases dramatically with the addition of Fe2+ (10-80 mg L?1), whereas the influence of Cl? concentration (3000-24 000 mg L?1) on methanol degradation and mineralization is not as significant. The increase in liquid conductivity increase and decrease in pH value are mainly attributable to the NO?3 formation due to the DBD treatment. Moreover, the methanol degradation mainly occurs in the liquid film on the liquid interface that is in direct contact with DBD, and the amount of methanol diffusing into the liquid film (main reaction zone) determines the degradation efficiency. © 1973-2012 IEEE. (45 refs)
Main heading: Degradation
Controlled terms: Alkalinity - Ion chromatography - Phase interfaces - Dielectric devices - Methanol - Organic carbon - Dielectric materials - Gas chromatography - Dielectric barrier discharge - Flow control - pH - Liquid films - Solutions - Mineralogy
Uncontrolled terms: Degradation efficiency - Degradation products - Dielectric barrier discharge reactors - Dielectric barrier discharges - Initial concentration - pH value - Reaction model - Total Organic Carbon
Classification Code: 482 Mineralogy - 631.1 Fluid Flow, General - 701.1 Electricity: Basic Concepts and Phenomena - 708.1 Dielectric Materials - 731.3 Specific Variables Control - 801 Chemistry - 801.1 Chemistry, General - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.1 Organic Compounds
Database: Compendex

Data Provider: Engineering Village

10. Provenance of Triassic Yanchang Formation Chang 6 turbidite of Huangling area, Ordos Basin

Liu, Jin (1, 2, 3); Feng, Juanping (4); Li, Wenhou (1); Guo, Yanqin (5)
Source: *Zhongnan Daxue Xuebao (Ziran Kexue Ban)/Journal of Central South University (Science and Technology)*, v 44, n 4, p 1464-1471, April 2013; **Language:** Chinese; **ISSN:** 16727207; **Publisher:** Central South University of Technology
Author affiliation: (1) Department of Geology, Northwest University, Xi'an 710069, China (2) Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China (3) Luming Oil and Gas Co. Ltd., Shengli Oilfield, Dongying 257000, China (4) College of Geology and Environment, Xi'an University of Science and Technology, Xi'an 710054, China (5) Institute of Oil and Gas Resources, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Based on lithogeochemistry, detrital composition of sandstone and other analysis methods, the source of Chang 6 Formation turbidite was studied carefully in Huangling area, Ordos Basin. It is shown that the #REE of Chang 6 mudstones are medium to high, fractional degree of HREE and LREE is not obvious and is of weakly right inclination and weakly positive europium abnormality of rare-earth pattern. Also, according to the analysis of the values of w(Nb)/w(Ta), w(Th)/w(U), w(La)/w(Sm), w(Hf)/w(Th) and w(Gb)/w(Yb) (most values are larger than 2) in Chang 6 mudstones, it is confirmed that Chang 6 mudstones and Archeozoic Proterozoic metamorphic rocks of orogenic belt in Northeastern Margin of Ordos Basin have a close relationship. The sandstone samples fall in the region of the basement uplift on the diagram. Through comprehensive analysis of the characteristics of lithogeochemistry, the nature of source area and the tectonic setting, the turbidite of Chang 6 Formation are mostly from the orogenic belt in Northeastern Margin of the Ordos Basin. (19 refs)
Main heading: Metamorphic rocks
Controlled terms: Sandstone - Rare earths
Uncontrolled terms: Chang 6 Formation - Heavy minerals - Lithogeochemistry - Ordos Basin - Provenance analysis - Turbidite
Classification Code: 482.2 Minerals - 804.2 Inorganic Compounds
Database: Compendex
Data Provider: Engineering Village

11. Microstructures, surface states and field emission mechanism of graphene-tin/tin oxide hybrids

Ding, Jijun (1, 2); Wang, Minqiang (1, 2); Yan, Xingbin (3); Zhang, Xiangyu (1, 2); Ran, Chenxin (1, 2); Chen, Haixia (4); Yao, Xi (1, 2)
Source: *Journal of Colloid and Interface Science*, v 395, n 1, p 40-44, April 1, 2013; **ISSN:** 00219797, **E-ISSN:** 10957103; **DOI:** 10.1016/j.jcis.2012.11.006; **Publisher:** Academic Press Inc.
Author affiliation: (1) Electronic Materials Research Laboratory, Key Laboratory of Ministry of Education, School of Electronic and Information Engineering, Xi'an Jiaotong University, Xi'an 710049, China (2) International Center for Dielectric Research, Xi'an Jiaotong University, Xi'an 710049, China (3) State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, China (4) School of Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The effects of microstructures and surface states on the field emission, which are important to a good understanding of the field emission mechanism, are unclear. In this paper, the microstructures and surface states of graphene-Sn/SnO2 hybrids were analyzed, and the field emission mechanism was explored. Raman spectra and images revealed that SnO2/Sn droplets are strongly bound on graphene surface, and there exist oxygen vacancies at the surface of graphene-Sn/SnO2 hybrids. Among X-ray photoelectron spectroscopy spectra, the peak of O 1s shifts 1.6eV toward higher binding energies in the 5min sample with the best field emission properties, which indicates that the field emission improvement in graphene-Sn/SnO2 hybrids arises from the band-bending effect and a lower work function. © 2012 . (39 refs)
Main heading: X ray photoelectron spectroscopy
Controlled terms: Binding energy - Oxygen vacancies - Graphene - Tin oxides - Field emission - Surface states
Uncontrolled terms: Band-bending effects - Field emission mechanism - Field emission property - X-ray photoelectron spectroscopy spectra
Classification Code: 761 Nanotechnology - 801.4 Physical Chemistry - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 931 Classical Physics; Quantum Theory; Relativity - 932 High Energy Physics; Nuclear Physics; Plasma Physics - 933.1 Crystalline Solids

Funding Details: Number: 2010ZDKG-58, Acronym: -, Sponsor: -; Number: 13115,61176056,91123019, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: NWU, Sponsor: Northwest University;
Funding text: The authors gratefully acknowledge financial support from Natural Science Foundation of China (Grant Nos. 91123019 and 61176056). This work has been financially supported by the "13115" Innovation Engineering of Shaanxi Province (2010ZDKG-58) and the open projects from Institute of Photonics and Photo-Technology, Provincial Key Laboratory of Photoelectronic Technology, Northwest University, China.
Database: Compendex
Data Provider: Engineering Village

12. Autonomous community construction and coordination technology to achieve real-time transmission in multiple emergencies' situation

Wei, Fan (2); Haque, M. Emdadul (3); Lu, Xiaodong (1); Mori, Kinji (4)
Source: *Telecommunication Systems*, v 54, n 1, p 61-78, September 2013; **ISSN:** 10184864, **E-ISSN:** 15729451; **DOI:** 10.1007/s11235-013-9716-z; **Publisher:** Kluwer Academic Publishers
Author affiliation: (1) Electronic Navigation Research Institute, 7-42-23 Jindaiji-higashimachi, Chofu, Tokyo 182-0012, Japan (2) School of Computer Science, Xi'An Shiyou University, No. 18, Dianzi 2nd Road, Xi'an 710065, China (3) Department of Information and Communication Engineering, University of Rajshahi, Rajshahi 6205, Bangladesh (4) Green Computing Systems Research Organization, Waseda University Waseda, Bld. 40-305, 27 Waseda, Shinjuku, Tokyo 162-0042, Japan
Abstract: Wireless Sensor Network (WSN) is used in Emergency Management System (EMS). If emergency situation happens, real-timely transmitting emergency information in dynamically changing environment should be assured. But this requirement could not be satisfied by conventional approaches which are based on static situation and centralized management. In this paper, to satisfy this requirement, autonomous community construction technology is proposed for single emergency. Emergency information could be transmitted in community and protected from interference of other information's transmission. Moreover, autonomous coordination technology is proposed for multiple emergencies' information's transmission. Via this technology, each emergency could have its individual route to transmit emergency information. Each emergency information's transmission will not influence with each other. Evaluation results are provided to demonstrate the improvement. © 2013 Springer Science+Business Media New York. (25 refs)
Main heading: Wireless sensor networks
Controlled terms: Information management - Information use - Civil defense - Risk management - Disasters
Uncontrolled terms: Autonomous community - Autonomous coordination - Centralized management - Community constructions - Emergency information - Emergency management systems - Real time - Real-time transmissions
Classification Code: 404.2 Civil Defense - 716.3 Radio Systems and Equipment - 722.3 Data Communication, Equipment and Techniques - 903.3 Information Retrieval and Use
Database: Compendex
Data Provider: Engineering Village

13. Modeling study of drilling engineering cooperative design based on workflow

Wang, Liupeng (1, 2); Li, Qi (2); Pan, Wanmin (3)
Source: *Applied Mechanics and Materials*, v 263-266, n PART 1, p 2004-2008, 2013, *Information Technology Applications in Industry*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855744; **DOI:** 10.4028/www.scientific.net/AMM.263-266.2004; **Conference:** 2012 International Conference on Information Technology and Management Innovation, ICITMI 2012, November 10, 2012 - November 11, 2012; **Sponsor:** Information Science School of Guangdong; University of Business Studies; **Publisher:** Trans Tech Publications
Author affiliation: (1) CMOE Key Laboratory of Petroleum Engineering, China University of Petroleum, Beijing 102249, China (2) Institute of Petroleum Engineering, Xi'an Petroleum University, Shaanxi Xi'an 710065, China (3) China Petroleum and Chemical Corporation Luoyang Company, Henan Luoyang 471012, China
Abstract: Drilling construction quality is closely related with drilling engineering design level, however, drilling engineering design includes multi different professional fields such as geology, reservoir and drilling engineering and so on, and optimization design needs people's cooperative work from different specialties and sections. Today drilling engineering design is usually completed by relevant staffs in isolation, and then drilling engineering planning report is generated by collection. In this process of design, there are lots of problems, such as lack of formation interaction, long design period, and inadequate capability to meet the high efficiency of optimization requirements. In this paper the model of drilling engineering cooperative design based on workflow is put forward, and by using computer workflow technology, planning automatic design workflow and providing cooperative work environment for people in different

specialties and fields, it can satisfy the need for information sharing during design process, improve design efficiency, and provide support for drilling optimization design. The multi-user cooperative model and workflow management model of drilling engineering design is detailed in this paper. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Workflow management
Controlled terms: Design - Efficiency
Uncontrolled terms: Automatic design - Construction quality - Cooperative Design - Cooperative model - Cooperative works - Design efficiency - Design period - Design process - Drilling engineering - Drilling engineering design - Drilling optimization - Information sharing - Modeling studies - Multi-user - Optimization design - Professional fields - State charts - Workflow - Workflow managements - Workflow technology
Classification Code: 912.2 Management - 913.1 Production Engineering
Database: Compendex
Data Provider: Engineering Village

14. Experiment research on influence of mud density to wear resistance of TP140 casing

Wang, Xinhe (1); Dou, Yihua (2); Wang, Xiaozeng (3); Yang, Jingwen (2)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 1203-1206, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.1203; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) CNPC Xibu Drilling Engineering Company Limited, Karamay, Xinjiang 834000, China (2) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (3) Jiaying University, Meizhou, Guangdong 514015, China
Abstract: Due to complex down-hole conditions and longer drilling time, there are serious casing wear in deep and ultra deep well. It is necessary to carry out a deeper research of the casing wear. Theory of casing wear and prediction method are not perfect in deep well and ultra deep well. The purpose of this paper is to obtain the wear efficiency and friction coefficient which is used to predict wear of the TP140 casing in down hole. A block-ring casing wear tester is specially designed and produced. The wear efficiency and coefficient of friction which is used to predict wear of TP140 casing in different density polysulfide water-based mud is obtained. The influence of the mud density on the TP140 casing wear resistance is analyzed. It is found that the larger mud density, the bigger casing wear efficiency and the friction coefficient. © (2013) Trans Tech Publications, Switzerland. (13 refs)
Main heading: Wear resistance
Controlled terms: Tribology - Efficiency - Wear of materials - Friction - Forecasting
Uncontrolled terms: Casing wear - Coefficient of frictions - Deep wells - Down holes - Drilling time - Experiment research - Experimental research - Friction coefficients - Mud density - Prediction methods - TP140 casing - Ultra-deep wells - Water-based muds
Classification Code: 913.1 Production Engineering - 931 Classical Physics; Quantum Theory; Relativity - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

15. Effect of intercritical quenching on microstructure and mechanical properties of oil casing steel N80

Huang, Min (1, 2); Wang, Yu (1); Zhang, Ya-Ni (2); Xie, Yue-Wei (1); Li, Shuo-Feng (1)
Source: *Applied Mechanics and Materials*, v 395-396, p 279-283, 2013, *Advanced Materials and Processes III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858424; **DOI:** 10.4028/www.scientific.net/AMM.395-396.279; **Conference:** 3rd International Conference on Advanced Design and Manufacturing Engineering, ADME 2013, July 13, 2013 - July 14, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Physics and Electronic Engineering, TaiZhou University, TaiZhou, 317000, China (2) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In order to improve the toughness of oil casing steel N80 without the sacrifice of its original high strength, an intercritical quenching treatment was conducted under the temperature determined by a differential scanning calorimetry (DSC) analysis. Effects of intercritical quenching on the microstructure of oil casing steel N80 were characterized by means of optical microscope (OM) and scanning electron microscope (SEM). Tensile strength, reduction of cross-sectional area and microhardness were measured to evaluate the mechanical property of oil casing steel N80 after intercritical quenching treatment. The study results show that the tensile strength and microhardness of intercritical quenched oil casing steel N80 consisting of ferrite (F) and martensite (M) is slightly lower than that of tempered oil casing steel N80 composing of sorbite (S), yet which is still higher than that of full annealled oil casing

steel N80 composing of pearlite (P) and a little amount offerrite (F). In particular, the reduction of cross-sectional area of oil casing steel N80 intercritical quenched at 740°C is higher than those of tempered and full annealled. Additionally, both dimple and cleavage can be found on the impact fracture surface of N80 steel after intercritical quenching at 740°C. The toughness of oil casing steel N80 can be obviously improved by the intercritical quenching treatment at 740°C due to the formation offerrite (F). © (2013) Trans Tech Publications, Switzerland. (12 refs)
Main heading: Microstructure
Controlled terms: Quenching - Differential scanning calorimetry - Microhardness - Tensile strength - Scanning electron microscopy - Toughness
Uncontrolled terms: Cross sectional area - High strength - Impact fracture - Intercritical quenching - Microstructure and mechanical properties - N80 Steel - Oil casing steel N80 - Optical microscopes
Classification Code: 537.1 Heat Treatment Processes - 944.6 Temperature Measurements - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

16. A hybrid association rule mining approach for characterizing network traffic behaviour

Liu, Bin (1, 2); Li, Yuefeng (1)
Source: *International Journal of Network Management*, v 23, n 3, p 214-231, May-June 2013; **ISSN:** 10557148, **E-ISSN:** 10991190; **DOI:** 10.1002/nem.1826; **Publisher:** John Wiley and Sons Ltd
Author affiliation: (1) School of Electrical Engineering and Computer Science, Queensland University of Technology, Brisbane QLD 4001, Australia (2) Information Center, Xi'An Shiyou University, Xi'an 710065, China
Abstract: Understanding network traffic behaviour is crucial for managing and securing computer networks. One important technique is to mine frequent patterns or association rules from analysed traffic data. On the one hand, association rule mining usually generates a huge number of patterns and rules, many of them meaningless or user-unwanted; on the other hand, association rule mining can miss some necessary knowledge if it does not consider the hierarchy relationships in the network traffic data. Aiming to address such issues, this paper proposes a hybrid association rule mining method for characterizing network traffic behaviour. Rather than frequent patterns, the proposed method generates non-similar closed frequent patterns from network traffic data, which can significantly reduce the number of patterns. This method also proposes to derive new attributes from the original data to discover novel knowledge according to hierarchy relationships in network traffic data and user interests. Experiments performed on real network traffic data show that the proposed method is promising and can be used in real applications. Copyright © 2013 John Wiley & Sons, Ltd. (32 refs)
Main heading: Association rules
Controlled terms: Data mining - Mining
Uncontrolled terms: Association rule mining methods - In networks - Network traffic - Real applications - Real networks - Traffic data - User interests
Classification Code: 502.1 Mine and Quarry Operations - 723.2 Data Processing and Image Processing - 903.1 Information Sources and Analysis
Database: Compendex
Data Provider: Engineering Village

17. Research advances in explosives detection technique based on nuclear quadrupole resonance

Zhu, Kai-Ran (1, 2); Su, Tao (2); He, Xue-Hui (2)
Source: *Binggong Xuebao/Acta Armamentarii*, v 34, n 12, p 1575-1588, December 2013; **Language:** Chinese; **ISSN:** 10001093; **DOI:** 10.3969/j.issn.1000-1093.2013.12.013; **Publisher:** China Ordnance Industry Corporation
Author affiliation: (1) College of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, Shaanxi, China (2) National Laboratory of Radar Signal Processing, Xidian University, Xi'an 710071, Shaanxi, China
Abstract: Nuclear quadrupole resonance (NQR) is a solid-state radio frequency spectroscopic technique, allowing the detection of many high explosives. Unfortunately, the practical use of NQR is restricted by the low signal-to-noise ratio (SNR) and the radio frequency interference (RFI). The parameter estimation and detection for NQR signals are becoming research hot points in NQR. From the perspective of signal processing, some topics related to NQR are analyzed in-depth, such as basic concept, signal model, signal excitation methods, interference suppression and detector for NQR signals. The research status of explosive detection using NQR is summarized, and some directions of further work in NQR and their difficulties are predicted. (159 refs)
Main heading: Nuclear quadrupole resonance

Controlled terms: Signal to noise ratio - Frequency estimation - Explosives - Radio interference - Radio waves - Signal detection - Explosives detection
Uncontrolled terms: Estimation and detection - Explosive Detection - Low signal-to-noise ratio - Radio frequencies - Radio frequency interference - Radio frequency interference suppression - Spectroscopic technique - Weak signals
Classification Code: 711 Electromagnetic Waves - 716.1 Information Theory and Signal Processing - 716.3 Radio Systems and Equipment - 801 Chemistry - 932.2 Nuclear Physics
Database: Compendex
Data Provider: Engineering Village

18. Prediction of cooling time t8/5 in twin wire submerged arc welding of intermediate thickness plate

Li, Xiao (1); Ma, Ninshu (2); Xu, Xueli (1); Murakawa, Hidekazu (2)
Source: *China Welding (English Edition)*, v 22, n 2, p 24-29, June 2013; **ISSN:** 10045341; **Publisher:** China Welding
Author affiliation: (1) Key Laboratory of Material Processing Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Joining and Welding Research Institute, Osaka University, Osaka 567-0047, Japan
Abstract: Twin wire submerged arc welding (SAW) is widely used in oil or gas line pipe fabrication because of its high productivity. To investigate the strength and toughness of the heat-affected zone (HAZ) in twin wire SAW, the cooling time t8/5 of the coarse grained zone must be studied. The authors presented a method of predicting the cooling time in twin wire SAW of intermediate thickness plate. Based on Rosenthal analytical solutions, an energy factor was introduced to describe the energy contribution of the two wires, equations of thermal cycle and cooling time in twin wire SAW of both thick, and thin, plates were developed. Weighting factors determined by actual thickness and critical thickness were adopted to represent the thermal cycle and cooling time of intermediate thickness plate through linear interpolation with thick, and thin, plate solutions. The predicted cooling time for an intermediate thickness plate was verified experimentally, and the predicted results agreed therewith. (12 refs)
Main heading: Submerged arc welding
Controlled terms: Wire - Heat affected zone - Thermal cycling - Cooling
Uncontrolled terms: Cooling time - Critical thickness - Energy contribution - Energy factors - High productivity - Linear Interpolation - Strength and toughness - Weighting factors
Classification Code: 535.2 Metal Forming - 538.2 Welding - 538.2.1 Welding Processes - 641.2 Heat Transfer
Database: Compendex
Data Provider: Engineering Village

19. Contractor evaluation model for large project based on grey relevancy

Zhang, Wei (1); Yang, Yun (2); Wei, Liu (3)
Source: *Applied Mechanics and Materials*, v 357-360, p 2384-2387, 2013, *Architecture, Building Materials and Engineering Management*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857762; **DOI:** 10.4028/www.scientific.net/AMM.357-360.2384; **Conference:** 3rd International Conference on Civil Engineering, Architecture and Building Materials, CEABM 2013, May 24, 2013 - May 26, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of management, Xi'an University of Architecture And Technology, Xi'an, Shaanxi, China (2) Department of Design, Xi'an Shiyou University, Xi'an, Shaanxi, China (3) Shaanxi Huaxia construction Co., LTD, Xi'an, Shaanxi, China
Abstract: Large projects often face risks from technology, economy, nature, social and other aspects during development and construction. This paper describes a reasonable decision-making method of the general contractor based on Grey Relevancy. The primary weights of factors and evaluation of alternatives are determined by applying AHP. An illustration is presented to demonstrate the application of the method in contractor evaluation. The results are consistent with the results calculated by conventional contractor evaluation method. The research demonstrates that the method is objective and accurate, and is of an application value in the contractor evaluation. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Decision making
Controlled terms: Contractors
Uncontrolled terms: Contractor evaluations - Decision-making method - EPC turnkey contracting - General contractors - Grey relevancy - Large project
Classification Code: 912 Industrial Engineering and Management - 912.2 Management
Database: Compendex
Data Provider: Engineering Village

20. Hierarchy on multigranulation structures: A knowledge distance approach

Yang, Xibei (1, 2); Song, Xiaoning (1, 2); She, Yanhong (3); Yang, Jingyu (2)
Source: *International Journal of General Systems*, v 42, n 7, p 754-773, October 1, 2013; **ISSN:** 03081079, **E-ISSN:** 15635104; **DOI:** 10.1080/03081079.2013.810625; **Publisher:** Taylor and Francis Ltd.
Author affiliation: (1) School of Computer Science and Engineering, Jiangsu University of Science and Technology, Jiangsu, China (2) School of Computer Science and Technology, Nanjing University of Science and Technology, Jiangsu, China (3) College of Science, Xian Shiyou University, Xian, China
Abstract: In this paper, a knowledge distance approach is proposed to study the hierarchy under the frame of multigranulation. In our approach, the finest granulation structure is considered as the frame of reference, and then a knowledge distances algebraic lattice is constructed. Through such algebraic lattice, a partial order is derived, which can be used to characterize the finer or coarser relationships among multigranulation structures. It is also shown that the uncertainty measurements are monotonic in terms of the obtained partial order. © 2013 Taylor & Francis Group, LLC. (40 refs)
Main heading: Algebra
Controlled terms: Uncertainty analysis
Uncontrolled terms: hierarchy - Knowledge distance - lattice - Multigranulation structures - uncertainty
Classification Code: 921.1 Algebra - 922.1 Probability Theory
Funding Details: Number: 2012RZY02, Acronym: -, Sponsor: -; Number: 11KJB520004, Acronym: -, Sponsor: -; Number: 61100116,61203024, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 30920130122005, Acronym: MOE, Sponsor: Ministry of Education of the People's Republic of China; Number: IIP 2012-3, Acronym: CAS, Sponsor: Chinese Academy of Sciences; Number: BK2011492,BK2012700, Acronym: -, Sponsor: Natural Science Foundation of Jiangsu Province; Number: -, Acronym: NUST, Sponsor: Nanjing University of Science and Technology; Number: -, Acronym: ICT, CAS, Sponsor: Institute of Computing Technology, Chinese Academy of Sciences; Number: -, Acronym: -, Sponsor: Qinglan Project of Jiangsu Province of China;
Funding text: This work is supported by the Natural Science Foundation of China (Nos. 61100116, 61203024), Natural Science Foundation of Jiangsu Province of China (Nos. BK2011492, BK2012700), Natural Science Foundation of Jiangsu Higher Education Institutions of China (No. 11KJB520004), Key Laboratory of Intelligent Perception and Systems for High-Dimensional Information (Nanjing University of Science and Technology), Ministry of Education (No. 30920130122005), Qing Lan Project of Jiangsu Province of China,Opening Foundation of Key Laboratory of Intelligent Information Processing, Institute of Computing Technology, the Chinese Academy of Sciences (No. IIP 2012-3), Foundation of Artificial Intelligence of Key Laboratory of Sichuan Province (No. 2012RZY02), Foundation of Key Laboratory of Intelligent Computing & Signal Processing, Ministry of Education, Anhui University.
Database: Compendex
Data Provider: Engineering Village

21. A new massive data processing framework under cloud environment for digital community (*Open Access*)

Hou, Ke (1, 2); Zhang, Jing (1)
Source: *Information Technology Journal*, v 12, n 6, p 1079-1088, 2013; **ISSN:** 18125638, **E-ISSN:** 18125646; **DOI:** 10.3923/itj.2013.1079.1088; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) School of Computer Science and Engineering, Xi'An University of Technology, Xi'an 710048, China (2) School of Economic and Management, Xi'An Shiyou University, Xi'an 710065, China
Abstract: Digital community involves e-government, e-commerce, smart health and other applications. With the increase of customers and types of business, it becomes more important for digital community to process massive data efficiently. Although, the current cloud-based applications can provide some elastic and on-demand calculation abilities to digital community, their underlying programming models still have certain limitations. This study aims to provide a new framework of massive data processing for digital community. In the framework, multiple programming models are adopted and each programming model handles the specific calculations that they do best. These calculations mainly include embarrassingly parallel calculation, iteration calculation and data-dependent complex calculation. To improve the performance of the framework, the programming model connection pool and the virtual subnet are designed and applied. Compared to Hadoop and its modified version, on average, the proposed framework can reduce runtime by 1.32. The experimental results show that the proposed framework has higher generality and efficiency. Moreover, it is reasonable and valuable for digital community to analyze comprehensively trade area on geographical location and business volume. © 2013 Asian Network for Scientific Information. (25 refs)
Main heading: MapReduce
Controlled terms: Data handling - Government data processing - Iterative methods - Metadata

Uncontrolled terms: Cloud environments - Cloud-based applications - Digital communities - Geographical locations - Map-reduce - Parallel calculation - Programming models - Virtual subnet
Classification Code: 723.2 Data Processing and Image Processing - 723.5 Computer Applications - 921.6 Numerical Methods
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

22. Using power aggregation operators to fuse hesitant fuzzy information in multiple attribute decision making

Dong, Ming-Gao (1, 2); Shou-Yi, Li (1)
Source: *International Conference on Management Science and Engineering - Annual Conference Proceedings*, p 335-341, 2013, *2013 International Conference on Management Science and Engineering, ICMSE 2013 - 20th Annual Conference Proceedings*; **ISSN:** 21551847; **ISBN-13:** 9781479904716; **DOI:** 10.1109/ICMSE.2013.6586303; **Article number:** 6586303; **Conference:** 2013 20th International Conference on Management Science and Engineering, ICMSE 2013, July 17, 2013 - July 19, 2013; **Sponsor:** Harbin Institute of Technology; **Publisher:** IEEE Computer Society
Author affiliation: (1) Institute of Water Resources and Hydro-electric Engineering, Xi'An University of Technology, 710048, China (2) School of Economics and Management, Xi'An Shiyou University, 710065, China
Abstract: Hesitant fuzzy set, as an extension of fuzzy set, is useful to depict fuzzy information with several possible values of membership of an element to a set in multiple attribute decision making. Motivated by the idea of power average operator, in this paper, several hesitant fuzzy power aggregation operators are developed, and their properties are investigated. An accuracy function and a set of comparison rules are established for ranking hesitant fuzzy sets. Moreover, an approach to multiple-attribute decision-making with hesitant information is developed on the basis of the power aggregation operators and comparison rules. Finally, an application of them to multiple-attribute decision-making is given by an illustrative example. © 2013 IEEE. (14 refs)
Main heading: Fuzzy sets
Controlled terms: Decision making - Mathematical operators
Uncontrolled terms: Accuracy functions - Aggregation operator - Comparison rules - Fuzzy information - Fuzzy power - Hesitant fuzzy sets - Multiple attribute decision making - Power average operators
Classification Code: 912.2 Management
Funding Details: Number: 61005042, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 11071281, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Database: Compendex
Data Provider: Engineering Village

23. Transition between stratified and non stratified flow pattern for gas-liquid flow in horizontal porous pipe

Xiao, Rongge (1, 2); Wang, Yonghong (2); Pan, Jie (2); Wei, Bingqian (1); Chen, Gang (1)
Source: *Huagong Xuebao/CIESC Journal*, v 64, n 10, p 3606-3611, October 2013; **Language:** Chinese; **ISSN:** 04381157; **DOI:** 10.3969/j.issn.0438-1157.2013.10.016; **Publisher:** Chemical Industry Press
Author affiliation: (1) School of Hydraulic and Hydropower, Xi'an University of Technology, Xi'an 710048, Shaanxi, China (2) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, Shaanxi, China
Abstract: Based on Kelvin-Helmholtz stability criteria for stratified flow in literature, the new criteria of transition from stratified flow to non-stratified flow for gas-liquid flow in horizontal wellbore was developed, in which the influence of wall inflow was considered. Experimental researches and prediction calculations were done in order to analyze how much wall inflow affected transition conditions. The volumetric flow rate per unit pipe length was small, and the influence of wall inflow might be neglected for the flow pattern prediction of local segment unit, but could not be neglected for the flow pattern prediction of downstream segments unit because it changed the value of flow parameters of downstream segments. Therefore, the transition criteria used for normal pipe flow might be directly used for gas-liquid flow in horizontal perforated pipe. But flow pattern prediction calculations should be done segment by segment in downstream units. © All Rights Reserved. (20 refs)
Main heading: Hydrodynamics
Controlled terms: Aerodynamics - Flow patterns - Horizontal wells - Stability criteria - Thermal stratification - Two phase flow

Uncontrolled terms: Flow pattern transition - Gas-liquid two-phase flow - Non-stratified flow - Stratified flows - Wall inflow
Classification Code: 443.1 Atmospheric Properties - 512.1.1 Oil Fields - 631 Fluid Flow - 651.1 Aerodynamics, General - 961 Systems Science
Database: Compendex
Data Provider: Engineering Village

24. Flattening the spectrum of erbium-doped fiber ASE source combining with LPFG-based filter technique

Wang, Jian Gang (1); Bai, Yan (1); Han, Dang Wei (1); Zhou, Hong (1); Zhang, Wei (2)
Source: *Advanced Materials Research*, v 739, p 657-662, 2013, *Industrial Materials - Applications, Products, and Technologies*; **ISSN:** 10226680; **ISBN-13:** 9783037857465; **DOI:** 10.4028/www.scientific.net/AMR.739.657; **Conference:** 2013 World Congress on Industrial Materials - Applications, Products and Technologies, WCIM 2013, April 1, 2013 - April 2, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Science, 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
Abstract: Through studying the basic principle of super-fluorescent fiber source and combining with internal and external gain flattening technique, the spectral flatness of erbium-doped fiber amplified spontaneous emission (ASE) source with two-stage double-pass configuration pumped by two laser diodes (LDs) is improved. By optimizing the lengths of two-stage erbium-doped fiber (EDF) and adjusting the pump power of two LDs, the powers of C-band and L-band are matching, and the spectral flatness is superior to 0.5dBm from 1535 to 1610 nm. Utilizing the long period fiber grating (LPFG)-based thermally-insensitive gain flattening filter (GFF) fabricated by ourselves, the spectral protrusion is flattened near the peak of absorption wavelength of EDF, which make the spectrum not only cover the range of C-band and L-band, also realize the spectral flatness is better than 0.8dBm in the range of 3dB bandwidth. Application of the fiber ASE source in fiber Bragg grating sensing system could decrease the multi-signal peak power imbalance. © (2013) Trans Tech Publications, Switzerland. (15 refs)
Main heading: Absorption spectroscopy
Controlled terms: Fiber Bragg gratings - Spontaneous emission - Erbium - Manufacture - Pumping (laser) - Bandpass filters
Uncontrolled terms: Amplified spontaneous emission source - Amplified spontaneous emissions - Double pass configuration - Erbium doped fibers - Fiber sources - Gain flattening filters - In-fiber Bragg gratings - Long period fiber grating
Classification Code: 537.1 Heat Treatment Processes - 547.2 Rare Earth Metals - 703.2 Electric Filters - 711 Electromagnetic Waves - 744.1 Lasers, General - 913.4 Manufacturing
Funding Details: Number: 61240028, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Database: Compendex
Data Provider: Engineering Village

25. A state of the art of acid gas injection and its application prospects in China

Wang, Shouxi (1); Tang, Lin (2); John, Carroll (3)
Source: *Natural Gas Industry*, v 33, n 1, p 105-111, January 25, 2013; **Language:** Chinese; **ISSN:** 10000976; **DOI:** 10.3787/j.issn.1000-0976.2013.01.018; **Publisher:** Natural Gas Industry Journal Agency
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) CNPC, Exploration and Production Company, Beijing 100083, China (3) Gas Liquids Engineering Ltd., Calgary, AB T1Y 4T8, Canada
Abstract: As a zero-emission process, the acid gas injection is an alternative method for sulfur recovery and can also dispose of acid gases in a feasible, cost-effective and environmental-friendly way. In view of this, this paper first analyzes the state of the art of this process and according to case histories, makes a comparative analysis between acid injection and sulfur recovery in terms of economy, technology and environmental protection. The disposing cost of the unwanted sulfur in the acid gas injection will be US $ 1270 per ton; that in the sulfur recovery will be US$ 1400 per ton, and its cumulative cost will be more than US$ 1779 per ton if taking into account CO 2emission, sulfur sales, etc. Then, based on the analysis of the application need and condition of the acid gas injection, its application prospects in China are presented herein and it is also pointed out that it will be a better alternative choice in the following cases: (1) when gas quality started to change in those mature gas fields, the sulfur recovery units could not meet the need of production and need to be altered; (2) when a newly developed gas field is in a remote area or the H2S content is rather low in a gas field, the sulfur recovery is not cost-effective or the involved technologies are helpless; (3) when the component of natural gas is unstable in some newly developed gas fields, the sulfur recovery has to challenge

a high cost and a high risk; (4) when the associated gas in some carbonate gas fields contains a sharply fluctuated content of H2S, it is difficult for producers to decide upon the choice of sulfur recovery process; (5) when there is a small volume of associated gas although with a high content of H 2S in those dense oil fields, developed by fire flood or steam assisted gravity drainage, the sulfur recovery is never cost-effective; and (6) when the EOR measure is adopted by CO2 injection in those low-permeability oil fields. (13 refs)
Main heading: Greenhouse gases
Controlled terms: Environmental technology - Environmental protection - Risk assessment - Carbon - Cost benefit analysis - Enhanced recovery - Sulfur - Oil well flooding - Recovery - Cost effectiveness - Gas industry - Natural gas fields
Uncontrolled terms: Acid gas - Carbon emissions - China - Economic and environmental benefits - Sulfur recovery
Classification Code: 451.1 Air Pollution Sources - 454 Environmental Engineering - 454.2 Environmental Impact and Protection - 511.1 Oil Field Production Operations - 512.2.1 Natural Gas Fields - 522 Gas Fuels - 804 Chemical Products Generally - 911 Cost and Value Engineering; Industrial Economics - 911.2 Industrial Economics - 912.2 Management - 914.1 Accidents and Accident Prevention
Database: Compendex
Data Provider: Engineering Village

26. Experimental research on the technology of hydra-jet sidetracking of radial micro-borehole (*Open Access*)

Gang, Bi (1); Gensheng, Li (1); Zhonghou, Shen (1); Zhongwei, Huang (1); Dongjun, Ma (2); Liangbin, Dou (3)
Source: *Journal of Engineering Science and Technology Review*, v 6, n 5, p 137-142, 2013; **ISSN:** 17919320, **E-ISSN:** 17912377; **DOI:** 10.25103/jestr.065.20; **Publisher:** International Hellenic University - School of Science
Author affiliation: (1) State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum, Beijing, 102249, China (2) Sinopec Research Institute of Petroleum Engineering, Beijing, 100101, China (3) College of Petroleum Engineering, Xian Shiyou University, Xian, Shaanxi, 710065, China
Abstract: Ground on line test and field horizontal drilling test in well Jin 17-1 were carried out to prove the feasibility of hydra-jet sidetracking of radial micro-borehole. The pressure loss in the high pressure hose with different flow rates and the selfpropelled force of the designed multi-jet nozzle were tested. From the results, the inner pressure loss of the high pressure hose is large. Furthermore, the flow rate, the flow ratio of the front and back nozzle and the borehole diameter has great influence on the self-propelled force. The test results can provide theory basis for design of hydraulic parameters and prediction of pump pressure in construction process. In the ground on line test, casing-opening time is about 15 min and horizontal drilling length reaches 20.6 meters in 97 min, with the average penetration rate of 0.21m/min and the average borehole diameter of 50mm. In the field test, four radial horizontal boreholes have been drilled at the orientation of 90 ° and 180 ° in the two layers at depth of 861.5 m and 864.8 m respectively. The maximum drilling footage is 50m and the average drilling speed is 0.2m/min. The tests above confirm that the technology of hydra-jet sidetracking of radial microborehole is feasible, which provides a new technique for reconstruction of old well and well stimulation of low permeability reservoir. © 2013 Kavala Institute of Technology. (15 refs)
Main heading: Horizontal drilling
Controlled terms: Boreholes - Low permeability reservoirs - Nozzles - Jet drilling - Oil well drilling - Petroleum reservoir engineering
Uncontrolled terms: Construction process - Experimental research - Field test - Ground tests - High-pressure hose - Hydraulic parameters - Inner pressure - Penetration rates
Classification Code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

27. Synthesis of ortho phthaloyl chloride using triphosgene by response surface methodology

Tang, Xuan (1); Cheng, Xitao (2); Huang, Fenglin (1)
Source: *Advanced Materials Research*, v 634-638, n 1, p 3026-3032, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.3026; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications

Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Shaanxi Research Design Institute of Petroleum and Chemical Industry, Xi'an 710054, China
Abstract: A simple approach for the synthesis of Ortho Phthaloyl Chloride(OPC) was studied. Response surface methodology (RSM) was used to optimize the synthesis conditions of OPC. A 4-factor central composite design (CCD) was used for experimental design and analysis to obtain the optimal processing parameters, such as amount of triphosgene(BTC), amount of catalyst, reaction temperature and time. The 3-D response surface and the contour plots derived from the mathematical models were applied to determine the optimal conditions. The optimum reaction conditions were as follows: amount of BTC 62 g, amount of cat. 3.3 g, reaction temperature 75°C, reaction time 5 h. Under these conditions, The yield of OPC was 96.61%. Comparison of predicted and experimental values revealed good correspondence, implying that empirical model could be used to adequately describe the relationship between the factors and response in OPC synthesis process. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Surface properties
Controlled terms: Chlorine compounds
Uncontrolled terms: Central composite designs - Contour plot - Empirical model - Experimental design and analysis - Experimental values - Optimal conditions - Optimal processing - Optimum reaction conditions - Ortho phthaloyl chloride - Reaction temperature - Response surface - Response surface methodology - Simple approach - Synthesis conditions - Synthesis process - Triphosgene
Classification Code: 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

28. Design and research of semi-automatic tubing elevator

Hui, Hong Hai (1); Zhang, Man (1); Zhu, Duan Yin (2)
Source: *Applied Mechanics and Materials*, v 415, p 534-537, 2013, *Automatic Control and Mechatronic Engineering II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858653; **DOI:** 10.4028/www.scientific.net/AMM.415.534; **Conference:** 2nd International Conference on Automatic Control and Mechatronic Engineering, ICACME 2013, June 21, 2013 - June 22, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) The fifth oil production plant, Petro China Changqing Oilfield, Xi'an, Shaanxi, 710200, China (2) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: In our country oil field workover wellhead operation process, constructors need to manipulate the tubing elevator, but sometimes they forget to bolt or too late to do it, this will produce safe hidden trouble, to this end, this paper puts forward some ideas of semi-automatic tubing elevator. Semi-automatic tubing elevator can realize automatic bolt and semi-automatic lifting pin, it not only can reduce safety hidden trouble, also can reduce the work of the bolt and lifting pin, further reduce the chance of fatigue. In this paper, the semi automatic tubing elevator is described, using Pro/E to model, and using ANSYS to carry out strength check, verifying the rationality of its structure. © (2013) Trans Tech Publications, Switzerland. (3 refs)
Main heading: Elevators
Controlled terms: Automation - Bolts - Oil fields - Manufacture
Uncontrolled terms: ANSYS - Operation process - Pro/E - Semi-automatics - Workover
Classification Code: 512.1.1 Oil Fields - 537.1 Heat Treatment Processes - 605 Small Tools and Hardware - 692.2 Elevators - 731 Automatic Control Principles and Applications - 913.4 Manufacturing
Database: Compendex
Data Provider: Engineering Village

29. Validation of a phenomenological lifetime estimation method with biaxial experiments at high temperature

Cui, Lu (1, 2); Wang, Peng (2)
Source: *Advanced Materials Research*, v 602-604, p 2251-2254, 2013, *Progress in Materials and Processes*; **ISSN:** 10226680; **ISBN-13:** 9783037855430; **DOI:** 10.4028/www.scientific.net/AMR.602-604.2251; **Conference:** 2nd International Conference on Materials and Products Manufacturing Technology, ICMPMT 2012, September 22, 2012 - September 23, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Dianzi Erlu 18#, 710065, Xi'an, China (2) Institute for material technology, TU Darmstadt, Grafenstrasse 2, 64283 Darmstadt, Germany
Abstract: Modern 9-12%Cr steels are widely used for steam turbine components. For the design optimization and lifetime estimation of steam turbines, it is very important to investigate and describe the deformation as well as crack initiation behavior at critical location of steam turbine components under multiaxial service-type loading conditions. In

this paper a phenomenological lifetime estimation method was validated by multiaxial loading. The applicability and reliability of this lifetime estimation model was confirmed by a recalculation of biaxial creep fatigue tests performed on cruciform specimens of rotor steel X12CrMoWVNbN10-1-1 successfully. © (2013) Trans Tech Publications, Switzerland. (10 refs)
Main heading: Steam turbines
Controlled terms: Creep - Turbine components - Fatigue testing
Uncontrolled terms: Biaxial - Creep fatigue - Cruciform specimen - Lifetime - Service-type
Classification Code: 617 Turbines and Steam Turbines - 617.2 Steam Turbines - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

30. Low-amplitude structures and oil-gas enrichment on the Yishaan Slope, Ordos Basin

Wang, Jianmin (1); Wang, Jiayuan (2)
Source: *Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development*, v 40, n 1, p 49-57, February 2013;
Language: Chinese; **ISSN:** 10000747; **Publisher:** Science Press
Author affiliation: (1) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) School of Settlements and Civil Engineering, Xi'an Jiaotong University, Xi'an 710049, China
Abstract: Considering the geological and tectonic characteristics and based on drilling data and production test results, a drawing method with a dense well pattern and large scale was used to analyze the low-amplitude structures and oil-gas enrichment in the Yishaan slope, Ordos Basin. Low-amplitude structures are developed regionally and intensively, extended directionally in array folding, and evolved inheritedly. Based on geometry, coverage and genesis, the structures are divided primarily. With tectonic stress as the driving factor, the low-amplitude structures contain basically nose-like units, in nearly E-W trend. The fluctuating attitude of strata at the break affects the driving force, speed and direction of oil-gas migration along the updip of the slope, making oil/gas/water differ in sections and oil/gas dissipate or cluster locally, so that the alternating oil-gas areas and the oil-water areas with more water are formed. A series of composite traps (lithologic-structural, structural-lithologic or stratigraphical-structural) are defined by combination of the endpoint connecting line of hinge zone in low amplitude tectonic slope break with the lithology or property pinch-out line of sedimentary facies belt side parts, or with local strata pinch-out line. In such traps, the hydrocarbons are accumulated. The advantageous configuration of low-amplitude structures and large sedimentary systems as well as favorable facies controls the oil and gas distribution in Mesozoic - Paleozoic formations in the Yishaan slope. (27 refs)
Main heading: Tectonics
Controlled terms: Gases - Geochronology - Metamorphic rocks - Lithology - Sedimentology
Uncontrolled terms: Low-amplitude - Mesozoic-Paleozoic - Oil and gas distributions - Oil gas - Ordos Basin - Sedimentary facies - Sedimentary systems - Yishaan slope
Classification Code: 481.1 Geology - 481.3 Geophysics
Funding Details: Number: 2010JM5003, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province;
Funding text: Received date: 14 May 2012; Revised date: 28 Nov. 2012. * Corresponding author. E-mail: wangjm@xsyu.edu.cn Foundation item: Supported by the Natural Science Foundation of Shaanxi Province, China (2006Z07; 2010JM5003).
Database: Compendex
Data Provider: Engineering Village

31. Structural design for oil well pump with soft sealing and small diameter piston

Yan, Wenhui (1); Gao, Ping (1); Chen, Yong (2)
Source: *Advanced Materials Research*, v 655-657, p 359-364, 2013, *Engineering Solutions for Manufacturing Processes*; **ISSN:** 10226680; **ISBN-13:** 9783037856482; **DOI:** 10.4028/www.scientific.net/AMR.655-657.359;
Conference: 2012 3rd International Conference on Advances in Materials and Manufacturing Processes, ICAMMP 2012, December 22, 2012 - December 23, 2012; **Sponsor:** University of Wollongong, Australia; Northeastern University, China; University of Science and Technology Beijing; Hong Kong Industrial Technology Research Centre;
Publisher: Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) Oil and Gas Technology Research Institute, Changqing Oilfield Company, PetroChina, Xi'an, Shaanxi 710018, China
Abstract: For the low pumping demand of daily production per well of low permeability oilfield, a diameter of 25mm soft sealing small diameter piston-type subsurface pump is designed, and an external traveling valve to ensure that

the valve still application of standard parts is adopted, while reducing the pump barrel diameter. In order to solve the problems of pump leakage increasing with wear, automatically compensate for soft seal ring is adopted in piston design. The liquid pressure of the pump barrel is changed in the pump working process, so that the sealing ring is deformed outwardly. When the pump reaches the upper stroke, the gap between the pump barrel and the piston reduced, and further improve the sealing effect. The innovation of structure and the selection of new materials can reduce the difficulty of pump processing, as well as can extend the maintenance cycle. This paper introduces the overall structure and sealing characteristics of soft sealing small diameter piston-type subsurface pump. If the soft sealing small diameter piston-type subsurface pump and real-time variable frequence control technique of pumping unit combined, a more reasonable machine rod pump combination can be provided to achieve ultra-low permeability oilfield stripped well efficiently pumping. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Pistons
Controlled terms: Seals - Oil well flooding - Structural design - Pumps
Uncontrolled terms: Application of standards - Control techniques - Daily production - Liquid pressure - Low permeability - Maintenance cycles - Pump leakages - Pumping unit - Real-time variable - Rod pump - Seal rings - Sealing characteristics - Sealing effect - Sealing ring - Small diameter - Soft sealing - Working process
Classification Code: 408.1 Structural Design, General - 511.1 Oil Field Production Operations - 612.1.1 Internal Combustion Engine Components - 618.2 Pumps - 619.1.1 Pipe Accessories
Database: Compendex
Data Provider: Engineering Village

32. An analysis of the collapse strength of down-hole tubings loaded by axial compressive forces and bending moment

Xu, Jiangwen (1); Zhang, Hao (2); Dou, Yihua (3); Wang, Xiaozeng (4)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 733-736, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.733; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) CNPC Xinjiang Oilfield Company, Korla, Xinjiang 841000, China (2) CNPC Tarim Oilfield Company, Korla, Xinjiang 841000, China (3) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (4) Jiaying University, Meizhou, Guangdong 514015, China
Abstract: Due to collapses of tubings during well testing and completing in HPHT wells, it is required by Petrochina officially to calculate and analysis the collapse strength of down hole tubings with axial forces and corresponding bending moment being taken into considerations. Based on the 4th strength theorem, formulas were derived and method was present to analyze the collapse strength of down hole tubings loaded by compressive axial forces and bending moment to fulfill the official requirements, which could not be accomplished according to published standards and references. And, influences of axial tensile forces, compressive forces and bending loads on the collapse strengths of down hole tubings were studied. It is found that the collapse strength of down hole tubing loaded by compressive axial force is smaller with compressive axial force and buckling bending moment taking into considerations. The bigger the compressive axial forces, the smaller the collapse strengths. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Tubing
Controlled terms: Bending moments - Compressive strength - Well testing
Uncontrolled terms: Analysis - Axial compressive forces - Axial forces - Axial tensile forces - Bending load - Collapse strength - Compressive forces - Down holes - HP-HT well - PetroChina
Classification Code: 408.2 Structural Members and Shapes - 619.1 Pipe, Piping and Pipelines
Database: Compendex
Data Provider: Engineering Village

33. Sectionalized mechanical models of drilling tool of trenchless directional drilling

Xia, Hui (1); Dou, Yihua (1); Wang, Xinhe (2); Xu, Jiangwen (3)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 1190-1193, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.1190; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications

Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, Shaanxi, China (2) CNPC Xibu Drilling Engineering Company Limited, Karamay, Xinjiang 834000, China (3) CNPC Xinjiang Oilfield Company, Korla, Xinjiang 841000, China
Abstract: There are three working conditions namely drilling a guide hole, expanding the guide hole and pulling back pipeline in trenchless directional drilling. The position of drill string in the wellbore and loads exerted on the drill string varied in different working conditions. The models of buckling analysis of drill strings under compression, mechanical analysis of drill string under axial compression near drill bit in inclined straight section, mechanical analysis of drill string with multi-centralizers under axial compression near drill bit in inclined straight section, mechanical analysis of drill string near drill bit under axial compression in horizontal section, mechanical analysis of drill string near drill bit under axial tension in horizontal section, mechanical analysis of drill strings near drill bit under axial tension in inclined straight section and mechanical analysis of drill string in failed well are established based on the characteristic of loads and trajectories in each section. The establishment of sectionalized mechanical model of drilling tool is the fundament of further study of force analysis, deformation analysis and stress analysis. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Stress analysis
Controlled terms: Trenching - Axial compression - Drills - Buckling - Horizontal drilling - Directional drilling - Drill strings
Uncontrolled terms: Axial tensions - Buckling analysis - Deformation analysis - Drill strings - Drilling tool - Force analysis - Horizontal section - Mechanical analysis - Mechanical model - Sectionalized - Trenchless - Wellbore
Classification Code: 511.1 Oil Field Production Operations - 511.2 Oil Field Equipment - 603.2 Machine Tool Accessories - 619.1 Pipe, Piping and Pipelines - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

34. Mechanochemical assisted synthesis of titanium silicalite-1

Zhang, Jun (1); Qiao, Shengru (2)
Source: *Advanced Materials Research*, v 652-654, p 693-697, 2013, *Advances in Materials and Materials Processing*; **ISSN:** 10226680; **ISBN-13:** 9783037856208; **DOI:** 10.4028/www.scientific.net/AMR.652-654.693; **Conference:** 2012 3rd International Conference on Advances in Materials and Manufacturing Processes, ICAMMP 2012, December 22, 2012 - December 23, 2012; **Sponsor:** University of Wollongong, Australia; Northeastern University, China; University of Science and Technology Beijing; Hong Kong Industrial Technology Research Centre; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) National Key Laboratory of Thermostructure Composite Materials, Northwestern Polytechnical University, Xi'an 710072, China
Abstract: Titanium Silicalite-1 (TS-1) zeolite was successfully synthesized through a mechanochemical assisted processing. In this method, an amorphous silica-titania precursor was firstly prepared through a mechanochemical treatment. TS-1 was then synthesized by the hydrothermal treatment of the silica-titania precursor with tetrapropylammonium bromide (TPABr) as the template. The results of the XRD, UV-vis, and FT-IR spectrum indicated that the titanium atom was incorporated into the amorphous silica-titania precursor during the grinding, and was also retained in the final TS-1 framework after the hydrothermal treatment. SEM image showed that the TS-1 appeared in a shape of elongated prism. The catalytic performance of TS-1 was examined by phenol hydroxylation with hydrogen peroxide as the oxidant. The results indicated that TS-1 synthesized by this method exhibited a good activity. © (2013) Trans Tech Publications, Switzerland. (17 refs)
Main heading: Silica
Controlled terms: Zeolites - Titanium dioxide - Silicate minerals
Uncontrolled terms: Assisted processing - Catalytic performance - FT-IR spectrum - Hydrothermal treatments - Mechanochemical treatment - Mechanochemicals - Phenol hydroxylation - SEM image - Silica-titania - Tetrapropyl ammonium bromide - Titana - Titanium atoms - Titanium silicalite-1 - TPABr - XRD
Classification Code: 482.2 Minerals - 804.2 Inorganic Compounds
Database: Compendex
Data Provider: Engineering Village

35. Effect of dual phase treatment on microstructure and mechanical properties of S135 drill pipe steel

Luo, She-Ji (1, 2); Wang, Rong (2); Zhao, Kang (1)

Source: *Cailiao Rechuli Xuebao/Transactions of Materials and Heat Treatment*, v 34, n 4, p 118-122, April 2013; **Language:** Chinese; **ISSN:** 10096264; **Publisher:** Editorial Office of Transactions of Materials
Author affiliation: (1) School of Materials Science and Engineering, Xi'an University of Technology, Xi'an 710048, China (2) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Effects of dual phase treatment on microstructure and mechanical properties of S135 drill pipe steel were studied by means of optical microscope (OM), scanning electron microscopy (SEM) and mechanical property testing. The results show that the ferrite-martensite dual phase microstructure is obtained for the steel heat-treated at the temperatures of 760-800°C. With increasing of dual-phase treatment temperature, the volume of martensite increases and the volume of ferrite decreases, the strength and hardness of the steel increase, the plasticity and toughness of the steel decrease, the fracture mode changes from ductile fracture to brittle fracture. The work-hardening exponent of the steel increases, and two n values are observed for the steel after dual-phase treatment. (13 refs)
Main heading: Strain hardening
Controlled terms: Drills - Martensite - Steel pipe - Ductile fracture - Microstructure - Steel testing - Scanning electron microscopy - Brittle fracture - Drill pipe - Ferrite
Uncontrolled terms: Dual phase microstructure - Dual-phase treatment - Fracture mode - Fracture morphology - Mechanical property testing - Microstructure and mechanical properties - Optical microscopes - Treatment temperature
Classification Code: 511.2 Oil Field Equipment - 531.2 Metallography - 537.1 Heat Treatment Processes - 545.3 Steel - 603.2 Machine Tool Accessories - 619.1 Pipe, Piping and Pipelines - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

36. Critical heat flux prediction model for low quality flow boiling

Pan, Jie (1); Yang, Dong (2); Xiao, Rong-Ge (1); Deng, Zhi-An (1)
Source: *Hedongli Gongcheng/Nuclear Power Engineering*, v 34, n 4, p 58-63, August 2013; **Language:** Chinese; **ISSN:** 02580926; **Publisher:** Atomic Energy Press
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, 710049, China
Abstract: Based on the near wall bubble crowding mode, aimed at the two-phase flow boiling heat transfer at high pressure and low flow rate conditions, a critical heat flux prediction model for low vapor quality region was developed in this paper. The limiting transverse mass flux crossing the interface of the bubbly layer and core was determined from a momentum balance in the model. A formula for detached bubble diameter considering buoyancy and some existing correlations for bubble detachment point, turbulent velocity profile and void fraction were applied in the model, and the critical void fraction of wall bubbly layer were presented based on the experimental data. A good agreement is achieved between the results and experimental data, which implies that the CHF model is accurate at high pressure and low flow rate. (17 refs)
Main heading: Heat flux
Controlled terms: Bubbles (in fluids) - Two phase flow - Void fraction - Nuclear fuels - Heat transfer
Uncontrolled terms: Bubble detachments - Flow boiling - Flux prediction model - Heat transfer deterioration - Low qualities - Momentum balances - Turbulent velocity - Two-phase flow boiling
Classification Code: 631.1 Fluid Flow, General - 631.1.2 Gas Dynamics - 641.2 Heat Transfer - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

37. Investigations of fatigue performance of S135 drill pipe steel under uniaxial loading

Luo, She-Ji (1, 2); Wang, Rong (1); Zhao, Kang (2)
Source: *Advanced Materials Research*, v 716, p 418-422, 2013, *Materials Science and Technology II*; **ISSN:** 10226680; **ISBN-13:** 9783037857137; **DOI:** 10.4028/www.scientific.net/AMR.716.418; **Conference:** 2013 2nd International Conference on Materials Science and Technology, ICMST 2013, April 11, 2013 - April 12, 2013; **Sponsor:** Hong Kong Education Society; Singapore Management and Sports Science Institute; Trans Tech Publications inc.; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) School of Materials Science and Engineering, Xi'an University of Technology, Xi'an 710048, China
Abstract: The fatigue life of S135 drill pipe steel was investigated by means of tension-compression loading and torsion loading under uniaxial loading during the fatigue test. The quantitative formulas of fatigue life were obtained by regression analysis method, and the fatigue fracture mechanism was analyzed. The results show that a linear

correlation was found between fatigue life and effective stress in the double logarithmic plots. Cracks initiated from the specimens surfaces under tension-compression loading as well as torsion loading. For the tension-compression fatigue and the torsion fatigue specimens, the main characteristics for cracks propagation were striations and sheares ripple marks, respectively. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Regression analysis
Controlled terms: Cracks - Drills - Torsional stress - Fatigue testing - Bending tests - Drill pipe
Uncontrolled terms: Fatigue fracture mechanisms - Fatigue performance - Linear correlation - Quantitative formula - Regression analysis methods - Tension-compression - Tension-compression loading - Torsion fatigue
Classification Code: 422 Strength of Building Materials; Test Equipment and Methods - 511.2 Oil Field Equipment - 603.2 Machine Tool Accessories - 922.2 Mathematical Statistics
Database: Compendex
Data Provider: Engineering Village

38. Biaxial fatigue behavior under combined axial and torsional loading for S135 drill pipe steel

Luo, She-Ji (1, 2); Zhao, Kang (1); Wang, Rong (2)
Source: *Cailiao Gongcheng/Journal of Materials Engineering*, n 1, p 40-44, January 2013; **Language:** Chinese; **ISSN:** 10014381; **DOI:** 10.3969/j.issn.1001-4381.2013.01.009; **Publisher:** Beijing Institute of Aeronautical Materials (BIAM)
Author affiliation: (1) School of Materials Science and Engineering, Xi'an University of Technology, Xi'an 710048, China (2) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Biaxial fatigue behavior under combined axial and torsional loading for S135 drill pipe steel was investigated by means of fatigue tests and data regression analysis methods, and the fracture surfaces were observed through scanning electron microscopy. The results show that when #a/#eq is 0.7 the fatigue life regulation of S135 drill pipe steel under combined axial and torsional loading can be represented well by the fatigue life equation, which is expressed by equivalent stress of tension-torsion stress amplitude. The fracture surfaces are mainly divided into three regions such as the crack initiation, steady crack propagation and instantaneous fracture. Fatigue cracks mainly initiate at the specimen surface and propagate rapidly in specimen. Fatigue cracks are multiple source and the so-called ridge patterns were formed by connecting the different fatigue source and combined loading. The fracture surfaces are characteristic of river patterns at crack initiation region, the fracture surfaces are characteristic of fatigue striation and rippled patterns at crack propagation region. (13 refs)
Main heading: Fracture
Controlled terms: Crack initiation - Torsional stress - Drill pipe - Fatigue testing - Scanning electron microscopy - Drills - Regression analysis - Stress analysis
Uncontrolled terms: Axial-torsional loading - Biaxial fatigue - Equivalent stress - Fatigue striations - Fracture surfaces - In-phase - Specimen surfaces - Torsional loadings
Classification Code: 511.2 Oil Field Equipment - 603.2 Machine Tool Accessories - 922.2 Mathematical Statistics - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

39. Mechanical analysis of outer sleave for electronic pressure meter

Yan, W.H. (1); Yan, J. (1); Chen, Y. (2)
Source: *Applied Mechanics and Materials*, v 313-314, p 608-612, 2013, *Machinery Electronics and Control Engineering II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856840; **DOI:** 10.4028/www.scientific.net/AMM.313-314.608; **Conference:** 2012 2nd International Conference on Machinery Electronics and Control Engineering, ICMECE 2012, December 29, 2012 - December 30, 2012; **Sponsor:** Shandong University; Tianjin University; Harbin Institute of Technology; Hong Kong University; Beijing Jiaotong University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Oil and Gas Technology Research Institute, Changqing Oilfield Company, PetroChina, Xi'an, Shaanxi 710018, China
Abstract: Electronic pressure meter is an essential part in the fracturing process. This paper briefly introduced the structure of electronic pressure meter. Mechanical properties of outer sleave for electronic pressure meter in the high-temperature, high-pressure conditions is analyzed emphatically. And gives the change regularity. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Fracture
Controlled terms: Hydraulic fracturing - Manufacture

Uncontrolled terms: Distribution regularities - Electronic pressure - Fracturing process - High temperature - High-pressure condition - Hydraulic fracture - Mechanical analysis
Classification Code: 512.1.2 Petroleum Deposits : Development Operations - 537.1 Heat Treatment Processes - 913.4 Manufacturing - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

40. The application and evaluation of the heat medium heater in Changqing oil field production

Chen, Xufeng (1); Zhao, Cui-Hua (1); Zhou, Jiaming (2); Shen, Haijing (2)
Source: *Applied Mechanics and Materials*, v 291-294, p 1653-1656, 2013, *Advances in Energy Science and Technology*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856345; **DOI:** 10.4028/www.scientific.net/AMM.291-294.1653; **Conference:** 2012 International Conference on Sustainable Energy and Environmental Engineering, ICSEEE 2012, December 29, 2012 - December 30, 2012; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) No.2 Oil Production Company of Changqing Oil-field Company of CNPC, Gansu 745100, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, 710065, China
Abstract: As a new type of heating equipment, the heat medium heater furnace overcomes the shortage of the traditional heating methods such as the boiler, heating furnace. Through the comparison and analysis of the field application between the heat medium heater, YQWP - 4000/1.6/220/180 - QT, and steam boiler in a central gathering station of Changqing oil field, results indicated: in the condition of 0.3 MPa pressure and 200°C temperature above, the heat medium heater is higher thermal efficiency, more safety and security than steam boiler, and it do not pollute the environment and significantly save energy. One the heat medium heater saves by 982700 RMB than one set of steam boiler per each year. Due to the good economy, heat medium heater is suitable for the heating and heat supply of the large-scale central gathering station in the oil field. Thus, heat medium heater has a good application prospects. And the field application of the heat medium heater provides oil field energy saving and safe production with a certain reference in oil field. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Engines
Controlled terms: Boilers - Heating - Steam - Energy conservation - Oil well flooding
Uncontrolled terms: Application prospect - Comparison and analysis - Economic evaluations - Field application - Safety and securities - Steam boiler - Thermo-coal-furnace - Traditional heating
Classification Code: 511.1 Oil Field Production Operations - 525.2 Energy Conservation - 614 Steam Power Plants
Database: Compendex
Data Provider: Engineering Village

41. Study on vacuum degree of mechanical cleaning system for product oil tank

Li, Xiao Hong (1); Zhang, Guang Wei (1); Zhang, Peng (1); Li, Du Juan (1, 2)
Source: *Advanced Materials Research*, v 742, p 488-491, 2013, *Civil, Materials and Environmental Sciences*; **ISSN:** 10226680; **ISBN-13:** 9783037857298; **DOI:** 10.4028/www.scientific.net/AMR.742.488; **Conference:** 2013 International Conference on Civil, Materials and Environmental Sciences, CMES 2013, April 17, 2013 - April 18, 2013; **Sponsor:** Trans Tech Publications inc.; Hong Kong Education Society; American Applied Sciences Research Institute; Elsevier; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Coledge of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China (2) Department of Mechanical Engineering, Shaanxi Petroleum and Chemical Engineering School, Xi'an, Shaanxi, 710061, China
Abstract: A practical calculation method to determine the vacuum degree of a mechanical cleaning system is proposed mainly based on the theories of fluid mechanics. The system for cleaning of product oil tanks is operated relying on vacuum suction and simplified without heating section comparing with the system for crude oil tanks. It shows that the determination of vacuum level depends on two factors: to overcome the frictional resistance of suction tank's inlet pipes and to meet the net positive suction head (NPSH) required for a centrifugal pump fixed on outlet pipes of a suction tank. So, the higher and lower limits of vacuum degree can be found. The calculating method of vacuum degree is proved in a real system. © (2013) Trans Tech Publications, Switzerland. (10 refs)
Main heading: Oil tanks
Controlled terms: Fluid mechanics - Lubricating oils - Friction - Cleaning - Crude oil
Uncontrolled terms: Calculating methods - Cleaning system - Frictional resistance - Net positive suction heads - Practical calculation - Product oil - Tank - Vacuum suction

Classification Code: 512.1 Petroleum Deposits - 523 Liquid Fuels - 607.1 Lubricants - 619.2 Tanks - 802.3 Chemical Operations - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

42. A new route to synthesis of Titanium Silicalite-1 by ball-milling

Zhang, Jun (1); Qiao, Shengru (2)
Source: *Advanced Materials Research*, v 634-638, n 1, p 475-478, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.475; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) National Key Laboratory of Thermostructure Composite Materials, Northwestern Polytechnical University, Xi'an 710072, China
Abstract: Titanium Silicalite-1 (TS-1) was successfully synthesized from amorphous silica and titania powders by using a ball-milling method. In this method, amorphous fumed silica and anatase titania powders were ground in a planetary ball mill to produce a silica-titania precursor. The obtained precursor was then hydrothermally treated where TPABr was used as a template to obtain titanium silicalite-1 (TS-1). The XRD and UV-vis spectra indicate that the titanium in anatase with octahedral coordination is incorporated into the silica-titania precursor and the final TS-1 framework with a tetrahedral coordination. SEM image shows that TS-1 synthesized in this work appears in a shape of elongated prism with a dimension of about 3μm×1μm×0.2μm. This method gives a simple new approach to the synthesis of TS-1 using inexpensive silicon source, titanium source and template. © (2013) Trans Tech Publications, Switzerland. (15 refs)
Main heading: Ball milling
Controlled terms: Milling (machining) - Titanium dioxide - Amorphous materials - Powders - Silica - Silicate minerals
Uncontrolled terms: Amorphous silica - Anatase titania - Fumed silicas - Hydrothermally treated - Octahedral coordination - Planetary ball mill - SEM image - Silica-titania - Tetrahedral coordination - Titania powders - Titanium silicalite-1 - Titanium source - UV-vis spectra - XRD
Classification Code: 482.2 Minerals - 604.2 Machining Operations - 802.3 Chemical Operations - 804.2 Inorganic Compounds - 933.2 Amorphous Solids
Database: Compendex
Data Provider: Engineering Village

43. Ordered silver nanoparticle arrays as surface-enhanced Raman spectroscopy substrates for label-free detection of vitamin C in serum

Dongming, Li (1, 3); Shuhai, Jia (2); Jun, Wang (1); Yang, Jia (4)
Source: *Sensors and Actuators, A: Physical*, v 201, p 416-420, 2013; **ISSN:** 09244247; **DOI:** 10.1016/j.sna.2013.07.038; **Publisher:** Elsevier B.V.
Author affiliation: (1) School of Science, Xi'an Jiaotong University, Xi'an 710049, China (2) School of Mechanical Engineering, Xi'an Jiaotong University, Xi'an 710049, China (3) School of Science, Xian Shiyou University, Xian, Shaanxi 710065, China (4) Department of Mechanical Engineering, Boston University, Boston 02215, United States
Abstract: A porous anodic aluminum oxide (AAO) template is fabricated using two-step anodization technology. The Ag nanostructure arrays are realized by electron beam evaporating a thin layer of silver onto the porous side of the AAO template. The device as a robust and cost-efficient surface-enhanced Raman scattering (SERS) substrate is used for label-free detection of vitamin C in serum. This substrate produces a high Raman signal due to its periodic hexagonal arrangements. The nanostructures have sharp edges to bring about a further enhancement to the local electromagnetic field. The partial least squares (PLS) regression method is applied on measuring vitamin in serum within physiological levels. In comparison with other methods of measuring vitamin C, our method provides the advantages of high precision and simple way in physiological levels. The error of vitamin C concentration is less than 0.04 μmol/L between measurement by Raman spectrum and by high performance liquid chromatography (HPLC). © 2013 Published by Elsevier B.V. (30 refs)
Main heading: Substrates
Controlled terms: Aluminum oxide - Raman scattering - High performance liquid chromatography - Metal nanoparticles - Regression analysis - Silver nanoparticles - Least squares approximations - Physiology - Alumina - Surface scattering - Body fluids - Anodic oxidation - Raman spectroscopy

Uncontrolled terms: Hexagonal arrangements - Nanostructure arrays - Partial least-squares regression - Porous anodic aluminum oxides - SERS - Silver nanoparticle array - Surface enhanced Raman spectroscopy - Vitamin C
Classification Code: 461.2 Biological Materials and Tissue Engineering - 461.9 Biology - 539.2.1 Protection Methods - 741.1 Light/Optics - 761 Nanotechnology - 804.2 Inorganic Compounds - 921.6 Numerical Methods - 922.2 Mathematical Statistics - 931 Classical Physics; Quantum Theory; Relativity
Funding Details: Number: U1233116, Acronym: CAAC, Sponsor: Civil Aviation Administration of China; Number: 20120201110032, Acronym: SRFDP, Sponsor: Specialized Research Fund for the Doctoral Program of Higher Education of China;
Funding text: We are very grateful to Prof. Liqing Huang for her help in fabricating AAO template Ag nanoparticle arrays. This project is financially supported by the National Natural Science Fund Committee and the Civil Aviation Administration of China Jointly Funded Project (U1233116) and Research Fund for the Doctoral Program of Higher Education of China (20120201110032).
Database: Compendex
Data Provider: Engineering Village

44. Original feature selection in soft-sensor modeling process based on ICA_FNN

Li, Taifu (1); Su, Yingying (1); Yi, Jun (1); Yao, Lizhong (2); Xu, Min (1)
Source: *Yi Qi Yi Biao Xue Bao/Chinese Journal of Scientific Instrument*, v 34, n 4, p 736-742, April 2013; **Language:** Chinese; **ISSN:** 02543087; **Publisher:** Science Press
Author affiliation: (1) College of Electric and Information Engineering, Chongqing University of Science and Technology, Chongqing 401331, China (2) School of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Aiming at the problems that the secondary variables in soft-sensor modeling process usually are mixed signals with multi-factors, and it is difficult to achieve the original feature reduction in the original feature space, a new original feature selection method combining independent component analysis (ICA) and false nearest neighbors (FNN) is presented. By using the independent component analysis, the mixed signal in the original feature space could be mapped into a new independent feature subspace; then using FNN, the similarity measure of each original feature in the independent feature subspace is calculated when the original feature is either retained or eliminated, and the influence capability of the original feature on the dominant variables is determined, thus the original features could be selected. Simulation results show that the proposed method has good original feature selection capability. Therefore, the research provides a new method for the original feature selection of the soft-sensor model. (16 refs)
Main heading: Independent component analysis
Controlled terms: Feature Selection
Uncontrolled terms: False nearest neighbor - Feature selection methods - Feature subspace - Independent component analysis(ICA) - Secondary variables - Similarity measure - Soft sensor models - Soft sensors
Classification Code: 961 Systems Science
Database: Compendex
Data Provider: Engineering Village

45. Wellbore flow and heat transfer during formation supercritical CO2 invasion

Dou, Liang-Bin (1, 2); Li, Gen-Sheng (2); Shen, Zhong-Hou (2); Huang, Zhong-Wei (2); Bi, Gang (2); Wang, Hai-Zhu (2)
Source: *Kung Cheng Je Wu Li Hsueh Pao/Journal of Engineering Thermophysics*, v 34, n 11, p 2086-2092, November 2013; **Language:** Chinese; **ISSN:** 0253231X; **Publisher:** Science Press
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) State Key Laboratory of Petroleum Resource and Prospecting, China University of Petroleum, Beijing 102249, China
Abstract: With the development of oil and gas reservoirs exploration, an increasing number of carbon dioxide (CO2) gas reservoirs, especially those containing high content of CO2 are developed in the world. Considering the pressure and temperature sensitivity of CO2, there is a big error if the phase transition and heat transfer are neglected in the drilling process, and the kick or blowout is easy to occur. Considering the physical properties of CO2 and its phase transition in wellbore, a mathematical model for wellbore flow and heat transfer during formation supercritical CO2 (SC-CO2) invasion was established. Heat transfer and pressure was coupling calculated along with CO2 physical properties parameters in the paper. The results indicate that CO2 transforms from supercritical or liquid to gas state during its rising in the annulus, and the flow above the phase transition point is two-phase flow and the pressure gradient is small in the annulus, while the flow below the phase transition point is single-phase flow and the pressure gradient is large in the annulus. The distributions of pressure and temperature are both influenced by

SC-CO2 invasion, the bottom-hole temperature increases with the increase of SC-CO2 influx rate, but the annular wellhead temperature is little impacted by SC-CO2 invasion; the bottom-hole pressure first decreases rapidly, and then increases as SC-CO2 influx rate increases. The backpressure greatly affects the bottom-hole pressure, but the amplitude of affecting diminishes as the backpressure increases. (16 refs)
Main heading: Carbon dioxide
Controlled terms: Heat transfer - Petroleum reservoir engineering - Boreholes - Bottom hole pressure - Two phase flow - Pressure gradient - Oil field equipment - Low permeability reservoirs - Oil wells
Uncontrolled terms: Bottom hole temperatures - Formation fluids - Oil and gas reservoir - Phase transition point - Pressure and temperature - Wellbore - Wellbore pressure - Wellhead temperature
Classification Code: 511.2 Oil Field Equipment - 512 Petroleum and Related Deposits - 512.1 Petroleum Deposits - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 641.2 Heat Transfer - 804.2 Inorganic Compounds - 944.4 Pressure Measurements
Database: Compendex
Data Provider: Engineering Village

46. Pull-back force calculations for a long distance product pipeline crossing the yellow river by horizontal directional drilling

Xu, Shiqi (1); Li, Na (2); Cui, Zhijian (1)
Source: *ICPTT 2012: Better Pipeline Infrastructure for a Better Life - Proceedings of the International Conference on Pipelines and Trenchless Technology 2012*, p 1951-1962, 2013, *ICPTT 2012: Better Pipeline Infrastructure for a Better Life - Proceedings of the International Conference on Pipelines and Trenchless Technology 2012*; **ISBN-13:** 9780784412619; **DOI:** 10.1061/9780784412619.196; **Conference:** International Conference on Pipelines and Trenchless Technology 2012: Better Pipeline Infrastructure for a Better Life, ICPTT 2012, October 19, 2012 - October 22, 2012; **Sponsor:** Buried Asset Management Institute - International (BAMI-I); CUG, CTRD; Pipeline Div. Am. Soc. Civ. Eng. (ASCE); Soil Rock Drill. Dep. Eng. Res. Cent. China Minist. Educ. (MOE); UTA, CUIRE; Wuhan Deawon Trenchless Technology Co. Ltd.; **Publisher:** American Society of Civil Engineers (ASCE)
Author affiliation: (1) Southwest Petroleum University, Department of Petroleum Engineering, Xi'An Shiyou Univervity, Xi'an, 710065, China (2) Southwest Petroleum University, CNOOC, Tianjin Engineering Design Co, Ltd., Tanggu, 300452, China
Abstract: Pull-back force data is very important in designing pipeline crossing project by horizontal directional drilling, which is also the basis of choosing drilling machine. Through evaluating the maximum pull-back force, the damage of pipeline can be avoided. There have various factors influencing the pull-back force, such as engineering geological factors and operating conditions. There has no suitable universal mechanics model so far. In this paper the research object is a long distance product pipeline horizontal directional drilling crossing under the bottom of the Yellow River. Based on the research achievements and mechanics theory, the pull-back force has been respectively calculated by four kinds of methods, which are standard formula calculation, unloading arc earth pressure calculation, net buoyancy calculation and winch calculation. Then, the maximum pull-back force is determined by analyzing the applicable conditions and results of these four calculation methods. Finally, a securer, more effective and economical construction and pull-back force calculation method has been obtained, which can also provide valuable references for such kind of projects. © 2013 American Society of Civil Engineers. (5 refs)
Main heading: Unloading
Controlled terms: Crossings (pipe and cable) - Directional drilling - Pipelines - Horizontal drilling - Trenching
Uncontrolled terms: Applicable conditions - Geological factors - Horizontal directional drilling - Horizontal directional drilling crossings - Mechanics modeling - Operating condition - Pull-back force - Research achievements
Classification Code: 511.1 Oil Field Production Operations - 619.1 Pipe, Piping and Pipelines - 691.2 Materials Handling Methods
Database: Compendex
Data Provider: Engineering Village

47. Effect of heating temperature on microstructure and properties of X100 grade pipeline steel for heat-bending bend

Dong, Lu (1); Hao, Shi-Ying (2); Zhang, Xiao-Yong (1); Gao, Hui-Lin (1)
Source: *Cailiao Rechuli Xuebao/Transactions of Materials and Heat Treatment*, v 34, n 6, p 42-47, June 2013; **Language:** Chinese; **ISSN:** 10096264; **Publisher:** Editorial Office of Transactions of Materials
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) School of Materials Science and Engineering, Xi'an University of Architecture Technology, Xi'an 710055, China

Abstract: Effect of heating temperature on microstructure, strength and toughness of X100 grade pipeline steel was studied by means of mechanical property tests and microstructure observation using OM, SEM and TEM. The results show that strength increases and toughness decreases for the X100 grade steel with the increasing of heating temperature. The microstructure of experimental steel heated at 950-1050°C mainly consists of bainitic ferrite and granular bainite. A good combination of strength and toughness can be obtained for the steel heated at 950-1050°C because of the microstructure of fine bainitic ferrite and granular bainite with multidirectional ferrite lath bundles and high dislocation density. The bainitic ferrite grains of experimental steel grow up obviously when the heating temperature is above 1050°C so that the toughness decreases significantly. Polygonal ferrite appears when the heating temperature is lower than 950°C, leading to the decrease of strength of the experimental steel. (14 refs)
Main heading: Heating temperature
Controlled terms: Steel pipe - Microstructure - Pipelines - Toughness - Bending tests - Bainite - Ferrite - Heating
Uncontrolled terms: Grain size - Heating temperatures - High dislocation density - Microstructure and properties - Microstructure observation - Pipeline steel - Property - Strength and toughness
Classification Code: 422 Strength of Building Materials; Test Equipment and Methods - 531.2 Metallography - 545.3 Steel - 619.1 Pipe, Piping and Pipelines - 641 Heat and Mass Transfer; Thermodynamics - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

48. Study on high frequency weak signal detection method based on stochastic resonance

Fan, Yangyu (1); Li, Lipin (1); Dang, Ruirong (2)
Source: *Yi Qi Yi Biao Xue Bao/Chinese Journal of Scientific Instrument*, v 34, n 3, p 566-572, March 2013; **Language:** Chinese; **ISSN:** 02543087; **Publisher:** Science Press
Author affiliation: (1) Northwestern Polytechnical University, Xi'an 710072, China (2) Key Laboratory of Photoelectric Logging and Detecting of Oil and Gas, Ministry of Education, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Common nonlinear stochastic resonance system(a=1, b=1)is subject to the restriction of small frequency parameter and weak signal amplitude in weak signal detection, which brings difficulty to actual applications. In order to solve this problem, a stochastic resonance detection method suitable for high frequency weak signal detection is presented. The method can make the input high frequency weak periodic signal meet the stochastic resonance amplitude requirement through adjusting the coefficient k to change the nonlinear parameter b; and also realize the stochastic resonance of high frequency weak signal through adjusting the coefficient R to change the nonlinear parameters a, b to improve the resonance frequency by R times. With theoretical analysis and numerical simulation, the adjustment methods and adjustment steps of coefficients K and R are studied; and a realizable high frequency weak signal detection method is established. (16 refs)
Main heading: Stochastic systems
Controlled terms: Signal detection - Natural frequencies - Magnetic resonance - Circuit resonance - Numerical methods
Uncontrolled terms: Detection methods - Frequency parameters - High frequency HF - Non-linear parameters - Parameter adjustments - Resonance frequencies - Stochastic resonances - Weak signal detection
Classification Code: 701.2 Magnetism: Basic Concepts and Phenomena - 703.1 Electric Networks - 716.1 Information Theory and Signal Processing - 731.1 Control Systems - 921.6 Numerical Methods - 961 Systems Science
Database: Compendex
Data Provider: Engineering Village

49. Application of rotary steering drilling technology and its research progress

Jiang, Wei (1); Jiang, Shiquan (2); Fu, Xinsheng (3); Chen, Ping (4)
Source: *Natural Gas Industry*, v 33, n 4, p 75-79, April 2013; **Language:** Chinese; **ISSN:** 10000976; **DOI:** 10.3787/j.issn.1000-0976.2013.04.013; **Publisher:** Natural Gas Industry Journal Agency
Author affiliation: (1) CNOOC Co., Ltd., Beijing 100011, China (2) CNOOC Research Institute, Beijing 100083, China (3) Xi'an Shiyou University, Xi'an, Shaanxi 710061, China (4) Southwest Petroleum University, Chengdu, Sichuan 610500, China
Abstract: The rotary steering drilling technology arose in response to the new requirement for well track in oil and gas drilling. Such systematic research of this technology through engineering approaches had already been completed during the period between the 9th and 11th Five-Year Plans in China. Also, over 20 times of such practical drilling pilot tests had been performed on well track control in different types of boreholes in Gansu, Sichuan, and Bohai oil fields during 2009 - 2012. In conclusion, this rotary steering drilling system implemented the functions of formation parameter measurement, engineering parameter measurement, directional well track survey and control, pulse feedback and

transceiver. While in the pilot tests, the maximum build-up rate reached up to 6.73°/30 m, which met both the designed needs and the anticipated goal. In summary, a breakthrough has been made in the following three aspects: the principles and methods of observe and control of downhole tools; the design principle and technology of the orientation assembly; the research and design of the eccentric stabilizer to obtain the maximum lateral force. The further pilot tests should focus on the long-term stability of this rotary steering drilling system and its well control accuracy and thereby to improve its practicability and reliability in the future drilling practices. (14 refs)
Main heading: Oil fields
Controlled terms: Oil well drilling
Uncontrolled terms: Drilling technology - Engineering parameters - Formation parameter - Long term stability - Rotary steering - Systematic research - Tool systems - Well tracks
Classification Code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations
Database: Compendex
Data Provider: Engineering Village

50. Study on stochastic resonance characteristic in double threshold binary array channel

Li, Lipin (1, 2); Dang, Ruirong (2); Fan, Yangyu (1)
Source: *Yi Qi Yi Biao Xue Bao/Chinese Journal of Scientific Instrument*, v 34, n 6, p 1260-1265, June 2013;
Language: Chinese; **ISSN:** 02543087; **Publisher:** Science Press
Author affiliation: (1) Northwestern Polytechnical University, Xi'an 710072, China (2) Key Laboratory of Photoelectric Logging and Detecting of Oil and Gas, Ministry of Education, Xi'an Shiyou University, Xian 710065, China
Abstract: A dual threshold binary array channel is constructed, and stochastic resonance phenomenon in array channel under different noise background is studied with the input output mutual information as an index. Theoretical derivation and numerical simulation show that under the four distributions of Gauss noise, Rayleigh noise, exponential noise and chi-square noise, through adjusting adequate input noise intensity, the input signal, array channel and noise reach matching and stochastic resonance is generated. And as the number of array channels increases, the resonance effect is more obvious. Finally the bit error rate under different noise background is analyzed. The bit error rate can reach the minimum value by adjusting the noise intensity. (17 refs)
Main heading: Bit error rate
Controlled terms: Errors - Channel capacity - Circuit resonance - Magnetic resonance - Stochastic systems
Uncontrolled terms: Double threshold - Minimum value - Mutual informations - Noise intensities - Rayleigh noise - Resonance effect - Stochastic resonances - Theoretical derivations
Classification Code: 701.2 Magnetism: Basic Concepts and Phenomena - 703.1 Electric Networks - 716.1 Information Theory and Signal Processing - 723.1 Computer Programming - 731.1 Control Systems - 961 Systems Science
Database: Compendex
Data Provider: Engineering Village

51. High sensitivity refractive index sensing of Mach-Zehnder interferometer based on multimode fiber core sandwiched between two waist-enlarged fiber tapers

Shao, Min (1); Qiao, Xueguang (2); Fu, Haiwei (1); Liu, Yinggang (1); Zhao, Xue (1); Yao, Ni (1)
Source: *Optics Communications*, v 311, p 359-363, 2013; **ISSN:** 00304018; **DOI:** 10.1016/j.optcom.2013.08.090;
Publisher: Elsevier B.V.
Author affiliation: (1) Ministry of Education, Key Laboratory on Photoelectric Oil-Gas Logging and Detecting, Xi'An Shiyou University, Xi'an 710072, China (2) Department of Physics, Northwest University, Xi'an 710069, China
Abstract: Abstract A taper based Mach-Zehnder interferometer (MZI) for high sensitivity refractive index (RI) measurement is investigated. The sensor head consists of two waist-enlarged tapers, in which a section of multimode fiber core (MMFC) is sandwiched to improve the sensitivity of the MZI. Theoretical analysis shows that the RI sensitivity could be enhanced by reducing the MMFC diameter, which is verified in the experiments. A high RI sensitivity of 430.94 nm/RIU and resolution of 4.64×10-5 are achieved in the RI range of 1.33-1.39 for the MZI with MMFC core diameter of 68.5 um. The temperature response of the MZI is also demonstrated. © 2013 Published by Elsevier B.V. (20 refs)
Main heading: Multimode fibers
Controlled terms: Refractive index - Mach-Zehnder interferometers
Uncontrolled terms: Core diameters - Fiber taper - High sensitivity - Machzehnder interferometers (MZI) - Refractive index measurement - Refractive index sensing - Sensor head - Temperature response

Classification Code: 741.1 Light/Optics - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941.3 Optical Instruments
Funding Details: Number: 61240028,F050304, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 2009AA06Z203, Acronym: -, Sponsor: National High-tech Research and Development Program;
Funding text: This work is supported by the National Science Foundation of China under Grant (F050304 , 61240028) and National "863" Project of China under Grant (2009AA06Z203).
Database: Compendex
Data Provider: Engineering Village

52. Gas source conditions of quasi-continuous accumulation of the Upper Paleozoic in Ordos Basin

Cao, Qing (1); Zhao, Jingzhou (1); Fu, Jinhua (2); Yao, Jingli (2); Liu, Xinshe (2); Zhao, Huitao (2); Hou, Yundong (2); Fan, Liyong (2)
Source: *Oil and Gas Geology*, v 34, n 5, p 584-591, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130502; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Exploration and Development Research Institute, PetroChina Changqing Oilfield Company, Xi'an, Shaanxi 710021, China
Abstract: A comprehensive analysis of the Upper Paleozoic gas source conditions in Ordos Basin shows that high quality source rock is the major factor controlling the formation and distribution of large tight sandstone gas field in the study area. The lower limit of gas generation intensity for large tight sandstone gas field is determined based on analysis of gas production test results. A correlation analysis is first performed on the thickness, total organic carbon content (TOC) and maturity of the Upper Paleozoic source rocks in Ordos Basin, and gas generation intensity of the sources rocks is then calculated based on the correlation analysis. The calculation results are finally integrated with gas production tests to perform comprehensive analysis. The analysis of gas source conditions indicates that the Upper Paleozoic source rocks are characterized by high quality, wide distribution, high maturity, high intensity of gas generation and wide gas supply. In general, the intensity of gas generation ranges from 10×108 m3/km2 to 40×108 m3/km2. However, the gas generation intensity is not equilibrium in the whole basin. It ranges from 10×108 m3/km2 to 20×108 m3/km2 in the western basin, whereas, it is more than 16×108 m3/km2 in most part of eastern basin. In conclusion, high quality source rock is one of the major factors controlling the formation of large tight sandstone gas field, and it also controls the distribution of gas-water contact in the Upper Paleozoic tight sand reservoirs. As gas accumulation is closed to the source rocks and the accumulation efficiency is high, the lower limit of gas-generation intensity can be reduced to about 10×108 m3/km2 for Upper Paleozoic quasi-continuous tight gas accumulation in Ordos Basin. (41 refs)
Main heading: Quality control
Controlled terms: Correlation methods - Gas generators - Gas industry - Gases - Metamorphic rocks - Petroleum reservoirs - Rocks
Uncontrolled terms: Gas generation - Gas sources - Ordos Basin - Tight sandstones - Upper Paleozoic
Classification Code: 481.1 Geology - 481.1.2 Petrology (Before 1993, use code 482) - 522 Gas Fuels - 913.3 Quality Assurance and Control - 922.2 Mathematical Statistics - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

53. Analysis of strength safety of perforated string considering detonation parameters

Yang, Xiangtong (1); Zhang, Fuxiang (1); Li, Mingfei (2); Dou, Yihua (2)
Source: *Advanced Materials Research*, v 634-638, n 1, p 3573-3576, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.3573; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Tarim Oilfield Company, CNPC, Korla Xinjiang 841000, China (2) Mechanical Engineering College, Xi'an Shiyou university, No.18, Dianzi 2nd Road, Xi'an City, Shaanxi Province ,Xi'an 710065, China
Abstract: The strength safety of perforated string is the premise of safety production of oil well test, detonation parameters of perforating charge is an important factor that affects strength safety of perforated string. On the basis of correctly calculating the detonation parameters such as detonation temperature, detonation heat, detonation volume, detonation pressure and detonation velocity, then adopting the related thermodynamic theory and analyzing the surge pressure of perforated interval, "pocket"of down hole and the packer, thus get the impulsive load of perforation moment

and then according to Buckling theory of string to analyze the strength safety of perforated interval tubing string. Considering the fitting sex between the analytic method of the strength safety of perforated interval tubing string and the practical situation of real well cases is very good, and the result of analysis can reflect the state of strength safety of perforated interval tubing string at the moment of detonation, therefore this method can provide primary reference analysis data for the design of strength safety of perforated interval tubing string. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Safety factor
Controlled terms: Tubing - Detonation - Oil wells
Uncontrolled terms: Analytic method - Buckling theory - Detonation parameter - Detonation pressure - Detonation velocity - Down holes - Impulsive loads - Perforating charges - Safety production - Study - Surge pressure - Thermodynamic theory - Tubing string - Well test
Classification Code: 512.1.1 Oil Fields - 619.1 Pipe, Piping and Pipelines - 914.1 Accidents and Accident Prevention
Database: Compendex
Data Provider: Engineering Village

54. The influence of temperature transients on the lifetime of modern high-chromium rotor steel under service-type loading

Cui, L. (1, 2); Wang, P. (2); Hoche, H. (2); Scholz, A. (2); Berger, C. (2)
Source: *Materials Science and Engineering A*, v 560, p 767-780, January 10, 2013; **ISSN:** 09215093; **DOI:** 10.1016/j.msea.2012.10.032; **Publisher:** Elsevier Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Dianzi Erlu 18, 710065 Xi'an, Shaanxi, China (2) Institut für Werkstoffkunde (IfW), Technische Universität Darmstadt, Grafenstrasse 2, 64283 Darmstadt, Germany
Abstract: Nowadays, fossil power plants are increasingly required to start up and shut down frequently due to the flexibility of electrical power demand. Thermomechanical fatigue (TMF) induced by temperature transients with superimposed creep on the heated surfaces of components leads to a significant reduction of lifetime. In this paper, the influence of temperature transients on the crack initiation behavior of high-chromium rotor steel of the type X12CrMoWVNbN10-1-1 was studied by performing uniaxial and biaxial service-type TMF experiments. The experiments represent a range of steam turbine cycles with a maximum temperature of 600° C. A significant lifetime reduction was observed on TMF loading compared to isothermal loading under the same mechanical strain cycle. Metallographic examinations have been employed to characterize the associated thermal fatigue damage mechanisms for comparison of the damage evolution under isothermal loading. In particular, the evolution of damage was investigated by systematic metallographic examinations to study the temperature influence on the crack initiation behavior. © 2012 Elsevier B.V. (24 refs)
Main heading: Creep
Controlled terms: Fossil fuel power plants - Crack initiation - Plant shutdowns - Steam turbines - Isotherms - Steam power plants - Fatigue damage
Uncontrolled terms: 9-12 %Cr steel - Creep fatigue - Cruciform specimens - Electrical power demand - Fatigue damage mechanism - Metallographic examination - Temperature transients - Thermo mechanical fatigues (TMF)
Classification Code: 614 Steam Power Plants - 617.2 Steam Turbines - 951 Materials Science
Funding Details: Number: A232, Acronym: -, Sponsor: -; Number: 608 951, Acronym: FVV, Sponsor: Forschungsvereinigung Verbrennungskraftmaschinen;
Funding text: Thanks to the Forschungsvereinigung der Arbeitsgemeinschaft der Eisen und Metall verarbeitenden Industrie e.V. (AVIF No. A232) and the FVV Forschungsvereinigung Verbrennungskraftmaschinen e.V. (FVV No. 608 951) for financial support.
Database: Compendex
Data Provider: Engineering Village

55. Geological conditions for hydrocarbon accumulation in middle reservoir-source rock combination of the Ordovician Majiagou Formation on the east side of the paleo-uplift in Ordos Basin

Shi, Baohong (1); Liu, Yanan (1); Wu, Chunying (2); Huang, Zhengliang (2); Ren, Junfeng (2)
Source: *Oil and Gas Geology*, v 34, n 5, p 610-618, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130505; **Publisher:** Editorial Department of Oil and Gas Geology

Author affiliation: (1) School of Earth Science and Engineering, Xi'an, Shiyou University, Xi'an Shaanxi 710065, China (2) Exploration and Development Research Institute of PetroChina, Changqing Oilfield Company, Xi'an, Shaanxi 710018, China
Abstract: The dolomite reservoirs in middle reservoir-source rock combination of the Ordovician Majiagou Formation on the east side of paleo-uplift in Ordos Basin are obviously different from the weathering crust reservoirs at the top of the Ordovician in Jinbian gas field. A systematic study had been carried out on the geological conditions for hydrocarbon accumulation in these dolomite reservoirs in respect of source rocks, reservoirs, sedimentation based on results of reservoir lithology characterization and fluid inclusion testing as well as analysis of drilling data, geochemical and testing data. The results show that the middle reservoir-source rock combination of the Formation experienced strong hydrodynamics against a brief regression sedimentary settings. Beach facies were well developed and formed dolomite reservoirs. The dolomite features in highly automorphic coarse powder and fine-crystal texture, uniform grains, excellent connectivity and well-developed intercrystal pores. Affected by tectonic uplifting during the late Caledonian, the top Ordovician at eastern side of the paleo-uplift were denuded and came into contact with coal-measure source rocks, providing favorable source-reservoir combination. Controlled by lithofacies transformation at updip direction, the dolomites of beach facies in the middle reservoir-source rock combination of the Formation change gradually into micrite, forming discontinuous lithological traps. (24 refs)
Main heading: Metamorphic rocks
Controlled terms: Beaches - Gas industry - Lithology - Weathering
Uncontrolled terms: Majiagou formation - Middle reservoir-source rock combination - Ordos Basin - Ordovician - Paleo-uplift - Reservoiring condition
Classification Code: 407.3 Coastal Engineering - 421 Strength of Building Materials; Mechanical Properties - 481.1 Geology - 481.1.2 Petrology (Before 1993, use code 482) - 522 Gas Fuels
Database: Compendex
Data Provider: Engineering Village

56. The analysis of the influence of perforating parameters on the strength security of perforation string

Xu, Fei (1); Li, Mingfei (2); Dou, Yihua (2); Zhang, Fuxiang (3); Yang, Xiangtong (3)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 514-518, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.514; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) 127 School of Aeronautics, Northwestern Polytechnical University, xi'an 710072, China (2) Mechanical Engineering College, Xi'an shiyou university, Xi'an 710065, China (3) Tarim Oilfield Company, CNPC, Korla Xinjiang 841000, China
Abstract: Perforating parameters, such as charge density, charge quantity and shooting density, are the important factors that affect the strength security of perforation string. Finding out the relationship between this two and understanding the regularity has the guiding significance to avoid the perforating accidents. Based on the research about the strength security of perforation string at the moment of perforating, taking a perforated completion gas well as an example, by changing the perforating parameters and conducting the contrastive analysis and research, then gets the regularity understanding about the influence of the perforating parameters on the strength security of perforation string:When the charge density is more than 1.9g/m3, the amplification of peak pressure will slow down,and the influence of charge density will decrease; When the charge quantity is more than 40 gram, the amplification of the peak pressure on the packer and the peak stress of tubing will slow down,and the influence of charge quantity will decrease; When the shooting density is more than 20 hole/m, the amplification of peak will slow down, and the influence of shooting density will decrease. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Perforating
Controlled terms: Well perforation - Charge density - Sustainable development
Uncontrolled terms: Charge quantity - Contrastive analysis - Gas well - Peak pressure - Peak stress - Perforated completion - Perforating parameters - Perforation strings - Strength security
Classification Code: 701.1 Electricity: Basic Concepts and Phenomena
Database: Compendex
Data Provider: Engineering Village

57. Effect of liquid crystal on gel formation rate of viscoelastic surfactant for hydraulic fracturing

Yang, Jiang (1); Lu, Yongjun (1); Guan, Baoshan (1); Cui, Weixiang (1); Qiu, Xiaohui (1); Yang, Zhen (2); Chen, Junbin (2); Yang, Guanke (3)
Source: *Society of Petroleum Engineers - SPE Western Regional / Pacific Section AAPG Joint Technical Conference 2013: Energy and the Environment Working Together for the Future*, p 636-641, 2013, *Society of Petroleum Engineers - SPE Western Regional / Pacific Section AAPG Joint Technical Conference 2013: Energy and the Environment Working Together for the Future*; **ISBN-13:** 9781627482868; **Conference:** SPE Western Regional / Pacific Section AAPG Joint Technical Conference 2013: Energy and the Environment Working Together for the Future, April 19, 2013 - April 25, 2013; **Sponsor:** Aera; Chevron; et al.; Oxy; PacSeis, Inc.; Petrotechnical Resources Alaska (PRA);
Publisher: Society of Petroleum Engineers (SPE)
Author affiliation: (1) RIPED-Langfang, PetroChina, China (2) Xi'An Petroleum University, China (3) CNPC Great Wall Drilling Corp., China
Abstract: The viscoelastic surfactant (VES) as low formation damage fluids can be used in hydraulic fracturing and acidizing of low permeability oil and gas reservoir. The physical association and entanglement of wormlike micelle in diluted range gives viscoelastic properties, which gives similar properties as polymer. Compared with traditional polymer fluids, VES fluids used few additives and were easy to prepare in the wellsite. However, some VES fluids could take a long time to dissolve and build up viscosity in the field operation when it is diluted from concentrate. Amphoteric VES is hereby studied to understand the cause of such problems. The phase behavior of the surfactant-solvent-water was investigated. It was found that a three phase range consisted of liquid crystal gel was passed during diluting process. It consisted of a hexagonal liquid crystal phase. Hexagonal liquid crystal is highly viscose rod-like aggregate, it took longer time, up to several hours, to dissolve to form VES in the lab and field test. A cosurfactant was added to concentrate to increase the dissolve rate. Transient hexagonal liquid crystal gel is transformed to lamellar liquid crystal gel upon addition of co-surfactant. The microstructure of liquid crystal is confirmed by cross-polarizer microscope and small angle X-ray diffraction. The lamellar liquid crystal with multi-layer structure has low viscosity. It forms VES and builds up in viscosity within 2 minutes in the lab tested, and can form VES on-the-fly in field blending. Addition of cosurfactant didn't change performance of the prepared fluid at high temperature. Hence, the liquid crystal phase structure is the critical factor for dissolving rate of VES concentrate in the field operation. Copyright 2013, Society of Petroleum Engineers. (12 refs)
Main heading: Hydraulic fracturing
Controlled terms: Phase structure - Liquid crystals - Low permeability reservoirs - Surface active agents - Fracturing fluids - Viscoelasticity - Viscosity - X ray diffraction - Gas permeability - Petroleum reservoir engineering - Blending
Uncontrolled terms: Fracturing and acidizing - Hexagonal liquid crystal phase - Hexagonal liquid crystals - Lamellar liquid crystal - Multilayer structures - Small angle x-ray diffractions - Viscoelastic properties - Viscoelastic surfactants
Classification Code: 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 931.2 Physical Properties of Gases, Liquids and Solids - 933 Solid State Physics
Database: Compendex
Data Provider: Engineering Village

58. Effect of dynamic surface activity of surfactant on performance of foam for gas well deliquification

Yang, Jiang (1); Wang, Xiaoling (1); Lu, Yongjun (2); Guan, Baoshan (2); Yang, Guanke (3)
Source: *Society of Petroleum Engineers - SPE Western Regional / Pacific Section AAPG Joint Technical Conference 2013: Energy and the Environment Working Together for the Future*, p 631-635, 2013, *Society of Petroleum Engineers - SPE Western Regional / Pacific Section AAPG Joint Technical Conference 2013: Energy and the Environment Working Together for the Future*; **ISBN-13:** 9781627482868; **Conference:** SPE Western Regional / Pacific Section AAPG Joint Technical Conference 2013: Energy and the Environment Working Together for the Future, April 19, 2013 - April 25, 2013; **Sponsor:** Aera; Chevron; et al.; Oxy; PacSeis, Inc.; Petrotechnical Resources Alaska (PRA);
Publisher: Society of Petroleum Engineers (SPE)
Author affiliation: (1) Xi'an Petroleum University, China (2) RIPED-Langfang, PetroChina, China (3) CNPC Great Wall Drilling Corp., China
Abstract: As gas well flow rate decreases, liquid loading occurs in the wellbore and reduces the gas productions. Among various artificial lift methods for liquid removal, foam is one of most economic and widely used method. Foam process in gas deliquification is different from foam applications in drilling fluid and fracturing fluid. The foam for gas well deliquification is generated by gas flow in the tubing. The liquid is accumulated in the thin film of foam and plateau border area, which reduces the overall density of the fluid and unload liquid at lower gas flow rate. In this foaming process, a dynamic diffusion of surfactant to the interface is involved. Dynamic surface and elastic properties of foam are very important parameter to success in foam deliquification. We hereby studied the dynamic surface properties of the foaming surfactant by maximum bubble pressure tensiometer at high flow rate/frequency. The different molecular

structures of surfactants were studied and compared. The dynamic surface activity is correlated well to performance of liquid unloading with foam column test method, while equilibrium surface activity obtained by Wilhelmy plate tensiometer is not correlated. Surfactant concentration can be also optimized by evaluation of its dynamic surface activity. For the foam evaluation test method, blender test is also widely used to in the industry to evaluate foam in gas well deliquification. It was found that the two foam generation test methods gave different results when they were compared with the performance of different foamers. The blender foam test is more static, and is not simulated well to the real foam generating process in the gas well. Hence, dynamic surface activity of surfactant by maximum bubble pressure tensiometer gives a high throughput screening parameter to predict performance of different foamers for liquid deliquification. Copyright 2013, Society of Petroleum Engineers. (10 refs)
Main heading: Surface active agents
Controlled terms: Diffusion in liquids - Natural gas wells - Oil wells - Unloading - Drilling fluids - Fracturing fluids - Blending - Petroleum engineering - Flow of gases - Liquids - Gases
Uncontrolled terms: Artificial lift methods - Dynamic diffusion - Elastic properties - Foam applications - High throughput screening - Maximum bubble pressure - Surface activities - Surfactant concentrations
Classification Code: 512.1.1 Oil Fields - 512.2.1 Natural Gas Fields - 631.1.2 Gas Dynamics - 691.2 Materials Handling Methods - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals
Database: Compendex
Data Provider: Engineering Village

59. Geologic conditions for hydrocarbon accumulation in Chang-9 oil reservoir of the Yanchang Formation, Ordos Basin

Shi, Baohong (1); Yao, Jingli (2); Zhang, Yan (2); Zhang, Lei (2); Yang, Yajuan (2); Li, Hui (3)
Source: *Oil and Gas Geology*, v 34, n 3, p 294-300, June 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130303; **Publisher:** Use me
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Institute of Exploration and Development, PetroChina Changqing Oilfield Company, Xi'an, Shaanxi 710018, China (3) The 7th Oil Plant, PetroChina Changqing Oilfield Company, Xi'an, Shaanxi 710018, China
Abstract: This paper analyzes the geologic conditions of hydrocarbon accumulation in the Chang-9 reservoir of Ordos Basin. The oil in the Chang-9 reservoir is mixed oil sourced from both the overlying Chang-7 and Chang-9 itself. However, oil in the Chang-9 reservoir in Zhidan area is only sourced from Chang-9 source rocks, without any contribution from the Chang-7 source rocks. The oil mainly occurs in the first segment of Chang-9 oil reservoir. Reservoirs are mainly of distributary channel sandstone of braided river delta plain facies and underwater distributary channel sand of delta front facies, with some turbidites of semi-deep lake facies. Lithology of Chang-9 reservoir is dominated by lithic arkose with well-developed primary inter-granular pores, low porosity and permeability. The physical properties of the Chang-9 oil reservoirs show great lateral variation. In Jiyuan area, the sandstone feature in coarse grain, well-developed inter-granular pores and good poroperm characteristics. In contrast, in Luochuan area, the carbonate cemented sandstone has poor poroperm characteristics due to poor development of pores. According to the relationship between source rocks and reservoirs, two source rock-reservoir combination patterns were identified in Chang-9 oil reservoirs, i.e. "upper sourcing" pattern and "indigenously sourcing" pattern. Jiyuan area is the most favorable for further exploration based on comprehensive analysis. (20 refs)
Main heading: Sandstone
Controlled terms: Lithology - Low permeability reservoirs - Metamorphic rocks - Hydrocarbons - Petroleum reservoir engineering
Uncontrolled terms: Accumulation condition - Comprehensive analysis - Hydrocarbon accumulation - Low porosity and permeability - Oil reservoirs - Ordos Basin - Underwater distributary channels - Yanchang Formation
Classification Code: 481.1 Geology - 482.2 Minerals - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 804.1 Organic Compounds
Database: Compendex
Data Provider: Engineering Village

60. Analysis of interaction between HTHP completion packer's slip and the casing wall

Cai, Mao Jia (1); Cao, Yin Ping (2); Wang, Xing (3); Dou, Yi Hua (2)
Source: *Applied Mechanics and Materials*, v 423-426, p 866-870, 2013, *Applied Materials and Technologies for Modern Manufacturing*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858882; **DOI:** 10.4028/www.scientific.net/AMM.423-426.866; **Conference:** 3rd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2013, August 24, 2013 - August 25, 2013; **Publisher:** Trans Tech Publications Ltd

Author affiliation: (1) Exploration Department of Dagang Oilfield Company of PetroChina, Tianjin 300280, China (2) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (3) CNPC Chuanqing Drilling Engineering Co.,Ltd, Xi'an, Shaanxi, 710018, China
Abstract: The HTHP completion packer's slip is a key element in ensuring the reliability of the packer. It plays an important part in supporting and locking the seal bore after anchoring in the casing wall. When the slip in touch with the casing, the interaction force between them occurs, and the supporting function of slip relies mainly on the interaction with the casing. This article analyzes the depth of slip into the casing based on the theory analysis and ANSYS finite element analysis. It approves that the biting depth of the slip increases with the load, and with the increase of tooth number, biting depth is gradually reduced. At last, we get the biting depth of the slip when the packer seated, which is 0.5mm~0.7mm. Besides this, we also analyze the VONMISES stress of the slip and the casing system and find that with the increase of tooth number the tooth stress gradually reduced, and that the slip biting depth and tooth stress gradually increase with the load. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Packers
Controlled terms: Locks (fasteners) - Finite element method
Uncontrolled terms: Ansys finite elements - Casing - HTHP - Interaction - Interaction forces - Key elements - Slip - VonMises stress
Classification Code: 511.2 Oil Field Equipment - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

61. Data transmission system of logging cable based on CPLD and DSP

Zhang, J.T. (1); Hou, Y.C. (1, 2); Yan, Z.G. (1)
Source: *Applied Mechanics and Materials*, v 290, p 133-137, 2013, *Spacecraft Structures, Materials and Mechanical Testing*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856338; **DOI:** 10.4028/www.scientific.net/AMM.290.133; **Conference:** 2012 International Conference on Spacecraft Structures, Materials and Mechanical Testing, ICSSMMT 2012, December 27, 2012 - December 28, 2012; **Sponsor:** Information Engineering Research Institute, USA; Information Engineering Research Branch, CHINA; **Publisher:** Trans Tech Publications
Author affiliation: (1) Key Lab of Photo-electricity Gas/Oil Logging and Detection Ministry of Education, Xi'an Shiyou University, Xi'an 710065, China (2) Baoji University of arts and science, Baoji 710016, China
Abstract: This paper has designed data transmission system of logging cable based on CPLD and DSP. This system realizes the function of modulation and demodulation in BPSK with CPLD, in which the application is flexible and the circuit is simple and reliable. The System uses DSP to realize the checking function of software CRC, improving the stability and reliability of data transmission. Practical application shows that the system works normally with stable and reliable performance and can meet the requirements of the transmission of conventional logging. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Data communication systems
Controlled terms: Cables - Transmissions - Binary phase shift keying - Data transfer - Data communication equipment - Digital signal processing - Flexible electronics - Software reliability
Uncontrolled terms: BPSK - Conventional logging - CRC - Logging cables - Reliable performance - Stability and reliabilities - System use
Classification Code: 602.2 Mechanical Transmissions - 715 Electronic Equipment, General Purpose and Industrial
Database: Compendex
Data Provider: Engineering Village

62. Structure evolution of Qinjiatun-Qindong fault system in Lishu subbasin

Qu, Shao Dong (1); Liu, Chi Yang (1); Song, Li Jun (2); Deng, Hui (1); Zhang, Long (1); Mao, Guang Zhou (3)
Source: *Advanced Materials Research*, v 734-737, p 170-177, 2013, *Resources and Sustainable Development*; **ISSN:** 10226680; **ISBN-13:** 9783037857441; **DOI:** 10.4028/www.scientific.net/AMR.734-737.170; **Conference:** 2013 2nd International Conference on Energy and Environmental Protection, ICEEP 2013, April 19, 2013 - April 21, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China (2) Xi'an Shiyou University, Xi'an 710065, China (3) Shandong University of Science and Technology, Qingdao 266590, China
Abstract: Three-dimensional(3-D) seismic data and structure analysis of the Lishu subasin in Songliao basin indicates that Qinjiatun fault zone is composed of two faults: East-Qin and West-Qin fault. This fault system initially formed at Huoshiling stage, peaked at Shahezi stage and faded dramatically from Yingcheng stage. The Qinjiatun fault was

important in controlling strata thickness and distribution of the Huoshiling formation. Qindong fault, a typical strike-slip fault, developed relatively later, cutting the Qinjiatun fault, The major active stage was in Denglouku-Quantou stage, and weakened in the end of late Cretaceous. Qinjiatun fault zone was reversed at Denglouku stage when the regional stress went compressive, generating a structure nose that was potentially beneficial for hydrocarbon to accumulate. The strike-slip Qindong fault became active relatively later, cutting through the previous strata and proving pathways for both accumulation and effusion of hydrocarbon. © (2013) Trans Tech Publications, Switzerland. (30 refs)
Main heading: Strike-slip faults
Controlled terms: Seismology - Sustainable development - Hydrocarbons
Uncontrolled terms: Fault system - Hydrocarbon accumulation - Late cretaceous - Structural evolution - Structure analysis - Structure evolution - Subbasins - Three-dimensional (3-D) seismic data
Classification Code: 484.1 Earthquake Measurements and Analysis - 804.1 Organic Compounds
Database: Compendex
Data Provider: Engineering Village

63. The correlation of neutron and density logs and its application in tight gas reservoirs identification

Tang, Wen (1); Liu, Xiao-Peng (2); Hu, Xiao-Xin (2); Zhang, Xiao-Ling (2); Wang, Shang-Xu (1)
Source: *Society of Petroleum Engineers - SPE Middle East Unconventional Gas Conference and Exhibition 2013, UGAS 2013 - Unconventional and Tight Gas: Bridging the Gaps for Sustainable Economic Development*, p 21-27, 2013, *Society of Petroleum Engineers - SPE Middle East Unconventional Gas Conference and Exhibition 2013, UGAS 2013 - Unconventional and Tight Gas: Bridging the Gaps for Sustainable Economic Development*;
ISBN-13: 9781622769759; **Conference:** SPE Middle East Unconventional Gas Conference and Exhibition 2013 - Unconventional and Tight Gas: Bridging the Gaps for Sustainable Economic Development, UGAS 2013, January 28, 2013 - January 30, 2013; **Sponsor:** Baker Hughes; bp; et al.; Halliburton; Petroleum Development Oman; Schlumberger; **Publisher:** Society of Petroleum Engineers (SPE)
Author affiliation: (1) China University of Petroleum, Beijing, Xi'an Shiyou University, Xi'an, Shaanxi, China (2) Geological Exploration and Development Research Institute, CNPC Chuanqing Drilling Engineering Company Limited, Southwest Petroleum University, Chengdu, Sichuan, China
Abstract: It's a great challenge for petrophysicsts and log analysts in identifying tight gas rservoirs from conventional resistivity logs due to the complicated pore structure, thus leads to high irreducible water saturation. The resistivity contrast between tight gas bearing reservoirs and pure water saturated layers is lower than 2.0. The neutron and density logs, which are used for reservoir porosity estimation, are usable in gas bearing formation identification. In gas bearing formation, the neutron derived porosity is lower than the ture formation porosity due to the effection of excavation effect, and the density derived porosity is higher than the true formation porosity. Thus, porosity estimated from density logs is increased and the neutron derived porosity is decreased, the negative correlation exists between these two derived porosity in tight gas bearing formations. On the contrary, with the increasing of neureon porosity, the density derived porosity also increase, the positive correlation exists between them. Based on these two different correlations between tight gas bearing sands and water bearing formation, a technique, which is used to quantitatively characterize the correlation factor, is proposed and the corresponding correlation function is established. For tight gas resercoirs, the value of the correlation factor is negative, and in water saturated formations, its value is positive. Case studies from two tight gas reservoirs in China illustrate that the proposed technique is available in tight gas sands identification. Copyright 2013, Society of Petroleum Engineers. (10 refs)
Main heading: Porosity
Controlled terms: Petroleum reservoirs - Tight gas - Neutron logging - Neutrons - Gases - Petroleum reservoir evaluation
Uncontrolled terms: Correlation factors - Correlation function - Irreducible water saturation - Negative correlation - Positive correlations - Reservoir porosity - Tight gas reservoirs - Water bearing formation
Classification Code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

64. Geometry impacts on migration amplitude and migration noise

Li, Weibo (1); Li, Peiming (1); Wang, Wei (2); Wang, Nashen (3)
Source: *Shiyou Diqiu Wuli Kantan/Oil Geophysical Prospecting*, v 48, n 5, p 682-687, October 2013; **Language:** Chinese; **ISSN:** 10007210; **Publisher:** Science Press

Author affiliation: (1) Acquisition Technique Supports, BGP Inc., CNPC, Zhuozhou, Hebei 072751, China (2) Field Equipment Supports, BGP Inc., CNPC, Zhuozhou, Hebei 072751, China (3) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: Discontinuous spatial sampling in image domain can make the migration amplitude of targets disturbing, non-unifrm sampling lead also that irrelevant energy cannot be removed enough, and usually called by migration noise. One of the aims of geometry design is to reduce the amplitude disturbance and migration noise. Here, for the geometry of 12L4S320T applied in WN Block in Tarim Basin, by comparing the different imaging results in different cases, we analyze quantitatively multi-factor impacts on migration amplitude and migration noise such as target depth, target dip, receiving line number, line interval, point interval, survey types and so on. The following understandings are obtained: (1) With different position in box, seismic imaging result in each bin show large differences. (2) Amplitude attenuation and migration noise are more obvious in shallow or dip target. (3) Wide-azimuth acquisition has imaging advantages only in complex structural area or anisotropic medium. (4) Smaller shot line (shotpoint) intervals can improve the imaging quality more than receiving line (receiver point) intervals. (5) Orthogonal, slant and brick pattern with the same acquisition parameters give the almost same imaging results. (12 refs)
Main heading: Geometry
Controlled terms: Anisotropic media
Uncontrolled terms: Acquisition footprint - Discontinuity - Geometry designs - Inconformity - Migration amplitude - Migration noise
Classification Code: 921 Mathematics - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

65. The microsturcture and linear viscoelasticity of OTAC/NaSal wormlike micelles

Wang, Zhiguo (1, 2); Wang, Shuzhong (1); Sun, Xiao (1); Jing, Zefeng (1); Wu, Jinqiao (3); He, Jing (3)
Source: *Lixue Xuebao/Chinese Journal of Theoretical and Applied Mechanics*, v 45, n 6, p 854-860, November 2013; **Language:** Chinese; **ISSN:** 04591879; **DOI:** 10.6052/0459-1879-13-062; **Publisher:** Chinese Society of Theoretical and Applied Mechanics
Author affiliation: (1) School of Energy and Power Engineering, Xi'an Jiaotong University, Xi'an 710049, China (2) Xi'an Shiyou University, Xi'an 710065, China (3) Institute of Shaanxi Yanchang Petroleum (Group) Corp. Ltd, Xi'an 710075, China
Abstract: The formation, microstructure and linear viscoelasticity of wormlike micelles with octadecyl trimetryl ammoium chloride (OTAC)/sodium salicylate (NaSal) were analyzed with the method of rheology and freeze-fracture transmission electron microscopy (FF-TEM). It is shown that the long wormlike micelles with several micrometers are obtained if the mass ratio of the OTAC master solution to NaSal is 5:1. The linear micelle is dominated when the OTAC master solution weight content is 1.4%. The micelles begin to entangle with the increase of the OTAC solution concentration. When the weight content of OTAC master solution is 4% at a constant mass ratio, 5:1 of OTAC to NaSal, the minimum of entanglement length, Ie, may occur and the solution shows good viscoelasticity with a longer relaxtion time, 2.86 second. The entanglement wormlike micelles show the Maxwellian behavior at low frequency and the deviation occurs at high oscillation frequency. The deviation shows that the "breathing" and "Rouse-like" motions of wormlike micelles will dominate the stress relaxation process for the entanglements of micelles. It is a solely characteristic stress relaxation mechanism of wormlike micelles at high oscillation frequency. (28 refs)
Main heading: Microstructure
Controlled terms: Stress relaxation - Sodium compounds - Viscoelasticity - Chlorine compounds - Micelles - High resolution transmission electron microscopy
Uncontrolled terms: Freeze fracture transmission electron microscopy - Linear viscoelasticity - NaSal - Oscillation frequency - OTAC - Relaxation mechanism - Solution concentration - Worm-like micelles
Classification Code: 741.3 Optical Devices and Systems - 801.3 Colloid Chemistry - 931 Classical Physics; Quantum Theory; Relativity - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

66. Study on defect detecting and locating method of tubular cylindrical conductor

Wu, Yinchuan (1, 2); Guo, Baolong (1); Zhang, Jiatian (2); Yan, Zhengguo (2)
Source: *Telkomnika - Indonesian Journal of Electrical Engineering*, v 11, n 6, p 3251-3258, June 2013; **ISSN:** 23024046, **E-ISSN:** 2087278X; **DOI:** 10.11591/telkomnika.v11i6.2676; **Publisher:** Universitas Ahmad Dahlan

Author affiliation: (1) Institute of Intelligent Control and Image Engineering, Xidian University, Xi'an 710071, China (2) Key Laboratory of Photoelectric Logging and Detecting of Oil and Gas, Xi'an Shiyou University, Xi'an 710065, China
Abstract: This paper is to present a defect detecting and locating method of tubular cylindrical conductor based on alternating current impedance measurement theory. A defect estimation can be made through the impedance measurement of some distance on the inner and the outer surfaces of the tubular cylindrical conductor. A defect in the thickness direction can be located by the skin effect influence on impedance and the frequency change in exciting current. The results show that: this method can effectively identify and locate a defect, and therefore should be promoted in the defect detecting of metal materials in other shapes. © 2013 Universitas Ahmad Dahlan. (11 refs)
Main heading: Defects
Controlled terms: Electric impedance measurement - Measurement theory - Skin effect
Uncontrolled terms: Alternating current impedance - Cylindrical conductors - Defect detecting - Defect estimations - Exciting currents - Frequency changes - Impedance measurement - Thickness direction
Classification Code: 423 Non Mechanical Properties and Tests of Building Materials - 701.1 Electricity: Basic Concepts and Phenomena - 922 Statistical Methods - 942.2 Electric Variables Measurements - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

67. In-fiber Mach-Zehnder interferometer based on fiber core etched air-bubble and core diameter mismatch for liquid refractive index sensing (*Open Access*)

Li, Hui-Dong (1); Fu, Hai-Wei (1, 2); Shao, Min (1, 2); Zhao, Na (1); Qiao, Xue-Guang (2); Liu, Ying-Gang (1); Li, Yan (1); Yan, Xu (1)
Source: *Wuli Xuebao/Acta Physica Sinica*, v 62, n 21, November 5, 2013; **Language:** Chinese; **ISSN:** 10003290; **DOI:** 10.7498/aps.62.214209; **Article number:** 214209; **Publisher:** Institute of Physics, Chinese Academy of Sciences
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 (2) Department of Physics, Northwest University, Xi'an 710069, China
Abstract: A kind of optical fiber liquid refractive index sensor is proposed based on fiber core etched air-bubble and core diameter mismatched in-fiber Mach-Zehnder interferometer. A core etched standard single-mode fiber is spliced to another core etched standard single-mode fiber (SMF) to form an air bubble at the connecting point, and a 20 mm thinned fiber is cascaded (TCF) by fusion splicing method, which is 20 mm apart from the bubble, then a leading-mode fiber is spliced to the thinned fiber to form a structure of SMF-(air-bubble)-SMF-TCF-SMF in-fiber Mach-Zehnder interferometer liquid refractive index sensor. The air-bubble and the two fiber core diameter mismatched points serve as optical couplers for modes conversion. The transmission spectrum of sensor is studied by experiment. Results shows that the peak power changes with respect to surrounding refractive index with good linearity. The sensitivity of the sensor is 142.537 dB/RIU in the range of 1.351-1.402 with linearity of 0.996, making it a good candidate for bio-chemical measurements. © 2013 Chinese Physical Society. (20 refs)
Main heading: Single mode fibers
Controlled terms: Refractometers - Mach-Zehnder interferometers - Liquids - Refractive index
Uncontrolled terms: Air bubbles - Core diameters - In-fiber - Liquid refractive index - Liquid refractive index sensors - Refractive index sensing - Standard single mode fibers - Surrounding refractive indices (SRI)
Classification Code: 741.1 Light/Optics - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941.3 Optical Instruments
Open Access type(s): All Open Access, Hybrid Gold
Database: Compendex
Data Provider: Engineering Village

68. The effects of multicomponent fuel droplet evaporation on the kinetics of strained opposed-flow diffusion flames

Wang, Chenguang (1); Dean, Anthony M. (1); Zhu, Huayang (2, 3); Kee, Robert J. (2)
Source: *Combustion and Flame*, v 160, n 2, p 265-275, February 2013; **ISSN:** 00102180, **E-ISSN:** 15562921; **DOI:** 10.1016/j.combustflame.2012.10.012; **Publisher:** Elsevier Inc.
Author affiliation: (1) Chemical and Biological Engineering, Colorado School of Mines, Golden, CO 80401, United States (2) Mechanical Engineering, Colorado School of Mines, Golden, CO 80401, United States (3) College of Petroleum Engineering, Xi'an Shiyou University, Shaanxi 710065, China
Abstract: With the increasing use of alternative fuels, it becomes important to understand the impacts of their different chemical and physical properties on combustion processes. The objective of this paper is to explore the impact of the

vaporization of a multicomponent liquid fuel on the combustion kinetics using an opposed-flow diffusion flame model. The model fuel consisted of a n-heptane, n-dodecane, and n-hexadecane mixture, selected to represent a Fischer-Tropsch fuel. A computational model is developed to describe the multicomponent vaporization process. Gas-phase chemical kinetics is modeled using a reduced mechanism containing 196 species. Results compare pre-vaporized fuel streams with those containing monodispersed initial droplet sizes of 20, 25 and 30μm. The separation distance between the fuel and air inlets is either 5 and 10mm. In all cases the fuel is carried in nitrogen, the pressure is 10atm, and the fuel and air inlet velocities are 1ms-1. The fuel loading is set to achieve an overall equivalence ratio of unity. Results show that the finite evaporation rate significantly impacts the chemical kinetics. In particular, if the combination of separation length, stream velocity, and fuel volatility is such that fuel droplets penetrate into the higher temperature region near the flame-front, the rapid increase in evaporation rate significantly enhances the local vapor phase fuel mole fraction. The high temperature increases reaction rates, leading to higher peak temperatures as well as increased pyrolysis in the pre-flame region. For example, the peak temperature predicted for 30μm droplets is 330K higher than that for the pre-vaporized case. This increase occurs in spite of an initial decrease in temperature as a consequence of fuel vaporization. A similar effect is observed for the pre-flame pyrolysis products; ethylene, acetylene, and butadiene all increase by about a factor of two for the 30μm droplet case. The implications of these findings regarding the use of alternative fuels is discussed. © 2012 The Combustion Institute. (25 refs)
Main heading: Evaporation
Controlled terms: Alternative fuels - Combustion - Air intakes - Heptane - Paraffins - Ethylene - Kinetics - Drops - Reaction rates
Uncontrolled terms: Chemical and physical properties - Fischer-tropsch fuels - Fuel pyrolysis - Multicomponent fuel - Multicomponent liquids - Multicomponent vaporization - Non-premixed flame - Opposed-flow diffusion flames
Classification Code: 631.1 Fluid Flow, General - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.1 Organic Compounds - 931 Classical Physics; Quantum Theory; Relativity
Funding Details: Number: N00014-08-1-0539, Acronym: ONR, Sponsor: Office of Naval Research;
Funding text: This effort was supported by the Office of Naval Research via Grant N00014-08-1-0539 .
Database: Compendex
Data Provider: Engineering Village

69. A new multi-period linguistic aggregation operator and its application to financial product selection

Xiaoli, Liu (1); Wei, Yang (2)
Source: *Proceedings of SPIE - The International Society for Optical Engineering*, v 8768, 2013, *International Conference on Graphic and Image Processing, ICGIP 2012*; **ISSN:** 0277786X, **E-ISSN:** 1996756X; **ISBN-13:** 9780819495662; **DOI:** 10.1117/12.2010524; **Article number:** 87687T; **Conference:** 4th International Conference on Graphic and Image Processing, ICGIP 2012, October 6, 2012 - October 7, 2012; **Sponsor:** Int. Assoc. Comput. Sci. Inf. Technol. (IACSIT); Wuhan University; **Publisher:** SPIE
Author affiliation: (1) Department of Mathematics, School of Science, Xi'an Shiyou University, 710065, Xi'an, Shaanxi, China (2) Department of Mathematics, School of Science, Xi'An University of Architecture and Technology, 710055, Xi'an, Shaanxi, China
Abstract: In this paper, we propose a new aggregation operator, dynamic 2-tuple linguistic weighted averaging (DTWA) operator, to aggregate linguistic information given in multiple periods. The properties of the new operator are studied and a new multiple attribute decision making method based on the new operator is proposed. Finally, financial product selection problem is provided to illustrate the the proposed method in financial decision making problem. © 2013 SPIE. (28 refs)
Main heading: Linguistics
Controlled terms: Mathematical operators - Image processing - Decision making - Finance
Uncontrolled terms: 2-Tuple - 2-tuple linguistic - Aggregation operator - Financial decisions - Financial products - Linguistic aggregation operators - Linguistic information - Multiple attribute decision making
Classification Code: 723.2 Data Processing and Image Processing - 912.2 Management
Database: Compendex
Data Provider: Engineering Village

70. Experimental study on the disposal of polymer flooding produced water of oilfield by microwave radiation

Jiang, Hua Yi (1); Xiong, Pan (1); Wei, Zhan Sheng (2); Ji, Cheng (3)

Source: *Advanced Materials Research*, v 807-809, p 1151-1154, 2013, *Environmental Protection and Resources Exploitation*; **ISSN:** 10226680; **ISBN-13:** 9783037858622; **DOI:** 10.4028/www.scientific.net/AMR.807-809.1151; **Conference:** 2013 International Conference on Advances in Energy and Environmental Science, ICAEES 2013, July 30, 2013 - July 31, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) The Sixth Oil Production Plant of Changqing Oilfield Company, Yan'an 716000, China (3) Zhuhai City Gas Pipeline Co. Ltd, Zhuhai 519000, China
Abstract: Microwave treating polymer flooding produced water of oilfield (PFPWO) is a new technology in the sewage treatments. Compare the effect of treating water samples by conventional water bath heating and microwave radiation, and analysis the microwave radiation power and time on the effect of treatment by experiment. The result shows that the disposed effect of microwave radiation is better than conventional water bath heating for PFPWO, and there exists a best power and time. It can be seen that microwave treatment has a good prospect for promoting. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Floods
Controlled terms: Produced Water - Microwaves - Sintering - Water treatment - Sewage treatment
Uncontrolled terms: Microwave treatment - PFPWO - Polymer flooding - Power - Produced water - Time - Water baths - Water samples
Classification Code: 445.1 Water Treatment Techniques - 452.2 Sewage Treatment - 452.3 Industrial Wastes - 711 Electromagnetic Waves
Database: Compendex
Data Provider: Engineering Village

71. Design of ultrasonic distance measurement system based on microcontroller

Xiao, Zhi Hong (1); Wu, Si Yu (2); An, Qi Yuan (3)
Source: *Applied Mechanics and Materials*, v 333-335, p 296-299, 2013, *Measurement Technology and Engineering Researches in Industry*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857502; **DOI:** 10.4028/www.scientific.net/AMM.333-335.296; **Conference:** 2013 2nd International Conference on Measurement, Instrumentation and Automation, ICMIA 2013, April 23, 2013 - April 24, 2013; **Sponsor:** Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Electronic Engineering, Xi'an Shiyou University, Xi'an, China (2) School of Instrument Science and Opto-electronics Engineering, Hefei University of Technology, Hefei, China (3) School of Software and Microelectronics, Northwest Polytechnic University, Xi'an, China
Abstract: The principle of an ultrasonic distance measurement system is introduced. The system adopts non-contact measurement method and it consists of signal generator, echo receiver circuit, microcontroller, time sequential logic control circuit, target distance detection circuit, temperature measurement circuit, RS-485 serial interface circuit, ultrasonic sensor and its driver circuit, etc. The results show that the system has high precision within measuring range from 20cm to 15m. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Microcontrollers
Controlled terms: Controllers - Signal receivers - Ultrasonic sensors - Ultrasonic applications - Distance measurement - Temperature measurement
Uncontrolled terms: Distance detection - High precision - Measuring ranges - Noncontact measurements - Receiver circuits - Serial interfaces - Time-sequential - Ultrasonic distance measurements
Classification Code: 732.1 Control Equipment - 753.2 Ultrasonic Devices - 753.3 Ultrasonic Applications - 943.2 Mechanical Variables Measurements - 944.6 Temperature Measurements
Database: Compendex
Data Provider: Engineering Village

72. Favorable reservoir characteristics of the Longmaxi shale in the southern Sichuan Basin and their influencing factors

Pu, Boling (1); Dong, Dazhong (2); Er, Chuang (3); Wang, Yuman (1, 2); Huang, Jinliang (1, 2)
Source: *Natural Gas Industry*, v 33, n 12, p 41-47, 2013; **Language:** Chinese; **ISSN:** 10000976; **Publisher:** Natural Gas Industry Journal Agency
Author affiliation: (1) Research Institute of Petroleum Exploration and Development, PetroChina, Beijing 100083, China (2) CNPC Research Institute of Science and Technology, Beijing 100083, China (3) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China

Abstract: Important source rocks were found in the Lower Silurian Longmaxi Fm which is also regarded as a shale gas exploration target in the southern Sichuan Basin. In order to understand its favorable reservoir characteristics and their influential factors, we observed the cores of 7 shale gas wells in Zhaotong, Changning and Weiyuan areas and made geologic investigation of outcrops. In addition, we also collected various data such as thin section test, SEM, specific surface area measurement and physical properties analysis. All these data were integrated to study the distribution, lithology combinations, mineral composition and reservoir space types of the Longmaxi shale in the study area. The following conclusions were obtained. First, the Longmaxi shale is strongly anisotropic in formation development, lithologic assemblage and organic abundance. The effective shale reservoirs are dominated by shale intervals with a high organic content. Second, the shale reservoirs are featured by high diagenesis, high thermal maturity, and multiple reservoir space types including inorganic pores, organic pores and microfractures. Third, the interlayer pores of clay minerals and organic pores with diameters in the range of 50 nm-2 μm are effective for shale gas storage and their formation is controlled by the content of clay minerals and organic matters, diagenesis and thermal evolution of organic matters. It is concluded that sedimentary environment, mineral composition and organic content are the major factors influencing shale reservoir quality, that the enrichment of organic matters is favorable for the generation and adsorption of shale gas, and that a high content of brittle minerals is favorable for reservoir stimulation. (25 refs)
Main heading: Shale gas
Controlled terms: Organic minerals - Digital storage - Clay minerals - Sedimentology - Biogeochemistry - Lithology - Biological materials - Petroleum prospecting - Geological surveys
Uncontrolled terms: Influential factors - Longmaxi Formation - Reservoir characteristic - Reservoir stimulations - Sedimentary environment - Sichuan Basin - Silurian - Specific surface area measurement
Classification Code: 461.2 Biological Materials and Tissue Engineering - 481.1 Geology - 481.2 Geochemistry - 482.2 Minerals - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 722.1 Data Storage, Equipment and Techniques - 801.2 Biochemistry - 804.1 Organic Compounds
Database: Compendex
Data Provider: Engineering Village

73. Autonomous fault tolerance technology of emergency community in wireless sensor network

Wei, Fan (1); Zhang, Liumei (1); Liu, Tianshi (1); Haquey, Md. Emadadul (2); Luz, Xiaodong (3); Morix, Kinji (4)
Source: *Proceedings - 2013 11th International Symposium on Autonomous Decentralized Systems, ISADS 2013*, 2013, *Proceedings - 2013 11th International Symposium on Autonomous Decentralized Systems, ISADS 2013*;
ISBN-13: 9781467350686; **DOI:** 10.1109/ISADS.2013.6513402; **Article number:** 6513402; **Conference:** 11th IEEE International Symposium on Autonomous Decentralized Systems, ISADS 2013, March 6, 2013 - March 8, 2013; **Sponsor:** IEEE Computer Society; The Institute of Electrical and Electronics Engineers (IEEE); Universidad Panamericana; **Publisher:** Institute of Electrical and Electronics Engineers Inc.
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an; 710065, China (2) Rajshahi University, Bangladesh (3) Electronic Navigation Research Institute, Japan (4) Green Computing System Center, Waseda University, 27 Waseda, Shinjuku, Tokyo; 162-0042, Japan
Abstract: Wireless Sensor Network is widely used in Emergency Management System to assure safety. If emergency appears, real-timely emergency information's transmission should be assured. However, if fault appears, emergency information's transmission is stopped until available route is constructed. Conventional approaches make efforts to improve fault tolerance such as retransmission based and replication based approaches. However, they could not apply to emergency situation as long interval. Thus, autonomous fault tolerance technology is proposed. Each community member will cooperate with each other to locally reconstruct community to continue transmitting. The evaluation results indicate improvement of fault tolerance performance. (11 refs)
Main heading: Wireless sensor networks
Controlled terms: Fault tolerance - Risk management
Uncontrolled terms: Community - Conventional approach - Emergency information - Emergency management systems - Emergency situation - Evaluation results - Fault tolerance performance - Fault tolerance technology
Classification Code: 716.3 Radio Systems and Equipment - 722.3 Data Communication, Equipment and Techniques
Funding Details: Number: -, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: ACKNOWLEDGMENT This work is supported by Doctor Scientific Research Foundation of Xi’an Shiyou University.
Database: Compendex
Data Provider: Engineering Village

74. Study on stability of the water quality of purified produced-water in the oilfield of Northern Shaanxi

Qu, Cheng-Tun (1, 2); Tian, Jing (1, 2); Yang, Xue (1, 2); Wang, Xin (1, 2); Su, Hongguang (1, 2)
Source: *Applied Mechanics and Materials*, v 295-298, p 815-820, 2013, *Progress in Environmental Protection and Processing of Resource*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856499; **DOI:** 10.4028/www.scientific.net/AMM.295-298.815; **Conference:** 2012 International Conference on Sustainable Energy and Environmental Engineering, ICSEEE 2012, December 29, 2012 - December 30, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an shiyou university, Key Lab. of Environmental Pollution Control Tech. and Reservoir Protection of Oilfield of Shaanxi, China (2) Shaanxi Xi'an, Research Institute of Yanchang Petroleum Group of Shaanxi, Xi'an, 710065, China
Abstract: By means of anglicizing the characteristics of oily-sewage, the treatment process, the sewage stability characteristic of each device, It is evaluated of the stability of treatment process and pointed out the problem in the systems of water treatment process. The results show that through the method of reducing the particle size of the filter media, optimizing the pharmaceutical system, as well as strengthen the management of the processing system. The suspended solids content, oil content, total iron content of sewage station effluent quality has reduced form 40mg/L~60mg/L, 150~170mg/L,15.56mg/L~17.44mg/L to 0.7~0.9mg/L (&le 1.0mg/L), 2.0~4.3mg/L (&le 5mg/L), 0.09~0.32mg/L (&le 0.5mg/L) fromexceed standard before improvement, reaching the reinjection standard. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Stability
Controlled terms: Sewage - Wastewater treatment - Produced Water - Particle size - Water quality - Effluents
Uncontrolled terms: Effluent quality - Pharmaceutical systems - Processing systems - Suspended solids - Treatment process - Wastewater treatment process - Water quality characteristics - Water treatment process
Classification Code: 445.2 Water Analysis - 452.1 Sewage - 452.3 Industrial Wastes - 452.4 Industrial Wastes Treatment and Disposal
Database: Compendex
Data Provider: Engineering Village

75. The researches on upgrading of heavy crude oil by catalytic aquathermolysis treatment using a new oil-soluble catalyst

Qin, Wenlong (1); Xiao, Zengli (1)
Source: *Advanced Materials Research*, v 608-609, p 1428-1432, 2013, *Progress in Renewable and Sustainable Energy*; **ISSN:** 10226680; **ISBN-13:** 9783037855492; **DOI:** 10.4028/www.scientific.net/AMR.608-609.1428; **Conference:** 2nd International Conference on Energy, Environment and Sustainable Development, EESD 2012, October 12, 2012 - October 14, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Provincial Key Laboratory of Unusual Well Stimulation in Xi'an Petroleum University, Xi'an, Shaanxi 710065, China
Abstract: The aquathermolysis of Shengli heavy oil during steam stimulation was studied by using a new oil-soluble catalyst for the reaction in this paper. The laboratory experiment shows that the viscosity reduction ratio of heavy oil is over 75% at the circumstances of 200 °C, 24 hs, 0.3% catalyst solution. The viscosity of upgraded heavy oil is changed from 25306mPa&middots to 6175mPa&middots at 50 °C. The chemical and physical properties of heavy oil both before and after reaction were studied by using column chromatography (CC) analysis and elemental analysis (EL). The percentage of saturated hydrocarbon, aromatic hydrocarbon and H/C increased, and resin, asphalt and the amount of element of S,O and N decreased after the aquathermolysis. The changes of the composition and structure of the heavy oil can lead to the viscosity reduction and the improvement the quality of heavy oil. The results are very useful for the popularization and application of the new technology for the in situ upgrading of heavy oil by aquathermolysis.© (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Crude oil
Controlled terms: Viscosity - Column chromatography - Aromatic hydrocarbons - Catalysts - Heavy oil production
Uncontrolled terms: Aquathermolysis - Heavy crude oil - Heavy oil - Laboratory experiments - Saturated hydrocarbons - Steam stimulation - Viscosity reduction
Classification Code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 631.1 Fluid Flow, General - 801 Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

76. Strength analysis of transitional segment of buckling tubing nearby the packer in vertical well

Zhang, Shaoli (1); Wang, Xinhe (2); Xu, Jiangwen (3); Dou, Yihua (4); Xia, Hui (4)
Source: *Advanced Materials Research*, v 634-638, n 1, p 3599-3602, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.3599; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) CNPC Exploration and Production Company, Beijing, China (2) CNPC Xibu Drilling Engineering Company Limited, Karamay, Xinjiang, 834000, China (3) CNPC Xinjiang Oilfield Company, Korla, Xinjiang, 841000, China (4) Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: The buckling deformation and stress distribution of the tubing nearby the packer would be seriously influenced by the packer constraints. This paper focused on the Strength analysis of transitional segment. The method to calculate the buckling deformation and the equivalent stress of transitional segment were derived considering the tubing boundary and continuity condition, adopting the fourth-order nonlinear ordinary differential equations and helical buckling strength method. This study makes up for the weakness of traditional stress analysis of the buckling tubing nearby the packer in vertical well, improves the pertinence and accuracy of stress analysis of buckling tubing. The results of analysis show that with the axial pressure increasing lead to the length of the transitional segment irregular fluctuations and the maximum equivalent stress increasing. The equivalent stress would gradually reduce and finally approach a constant. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Stress analysis
Controlled terms: Tubing - Deformation - Nonlinear equations - Buckling - Ordinary differential equations - Packers
Uncontrolled terms: Axial pressures - Buckling deformation - Buckling strength - Continuity conditions - Equivalent stress - Fourth-order - Irregular fluctuations - Nonlinear ordinary differential equation - Strength analysis - Transitional segment - Vertical wells
Classification Code: 511.2 Oil Field Equipment - 619.1 Pipe, Piping and Pipelines - 921.2 Calculus - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

77. Study on the relationships between Raman shifts and temperature range for a-plane GaN using temperature-dependent Raman scattering

Wang, Dang-Hui (1, 2); Xu, Sheng-Rui (1); Hao, Yue (1); Zhang, Jin-Cheng (1); Xu, Tian-Han (2); Lin, Zhi-Yu (1); Zhou, Hao (1); Xue, Xiao-Yong (1)
Source: *Chinese Physics B*, v 22, n 2, February 2013; **ISSN:** 16741056; **DOI:** 10.1088/1674-1056/22/2/028101; **Article number:** 028101; **Publisher:** IOP Publishing Ltd
Author affiliation: (1) State Key Laboratory of Fundamental Science on Wide Band-Gap Semiconductor Technology, School of Microelectronics, Xidian University, Xi'an 710071, China (2) School of Materials Science and Engineering, Xi'An Shiyou University, Xi'an 710065, China
Abstract: In this paper, Raman shifts of a-plane GaN layers grown on r-plane sapphire substrates by low-pressure metal - organic chemical vapor deposition (LPMOCVD) are investigated. We compare the crystal qualities and study the relationships between Raman shift and temperature for conventional a-plane GaN epilayer and insertion AlN/AlGaN superlattice layers for a-plane GaN epilayer using temperature-dependent Raman scattering in a temperature range from 83 K to 503 K. The temperature-dependences of GaN phonon modes (A1 (TO), E2 (high), and E1 (TO)) and the linewidths of E2 (high) phonon peak are studied. The results indicate that there exist two mechanisms between phonon peaks in the whole temperature range, and the relationship can be fitted to the pseudo-Voigt function. From analytic results we find a critical temperature existing in the relationship, which can characterize the anharmonic effects of a-plane GaN in different temperature ranges. In the range of higher temperature, the relationship exhibits an approximately linear behavior, which is consistent with the analyzed results theoretically. © 2013 Chinese Physical Society and IOP Publishing Ltd. (22 refs)
Main heading: Sapphire
Controlled terms: Organometallics - Phonons - Aluminum nitride - Epilayers - Raman scattering - Gallium nitride - Temperature distribution - III-V semiconductors - Organic chemicals - Metallorganic chemical vapor deposition
Uncontrolled terms: Anharmonic effect - Crystal qualities - Low-pressure metal-organic chemical vapor depositions - Metal organic - Pseudo-Voigt functions - Raman shift - Temperature dependence - Temperature dependent Raman scattering

Classification Code: 482.2.1 Gems - 641.1 Thermodynamics - 712.1 Semiconducting Materials - 741.1 Light/Optics - 802.2 Chemical Reactions - 804.1 Organic Compounds - 804.2 Inorganic Compounds
Database: Compendex
Data Provider: Engineering Village

78. Microstructure of matrix and wear resistance of ceramic layer of TiC/Fe surface gradient composites

Wang, Liangliang (1); Xu, Yunhua (1); Zhong, Lisheng (1, 2); Wang, Juan (1); Yan, Honghua (1)
Source: *Hanjie Xuebao/Transactions of the China Welding Institution*, v 34, n 5, p 49-53, May 2013; **Language:** Chinese; **ISSN:** 0253360X; **Publisher:** Harbin Research Institute of Welding
Author affiliation: (1) Institute of Wear-Resistance Materials, School of Mechanical and Electrical Engineering, Xi'an University of Architecture and Technology, Xi'an 710055, China (2) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In this paper, the joining of gray cast iron (HT300) and titanium plate with the thickness of 0.25 mm was performed by the method of pouring. The sample was isothermal-ly kept in vacuum tube furnace at 1 138°C for 8 h, and cooled in furnace to room temperature. TiC particulates reinforced surface gradient composite was prepared on the iron matrix of cast i-ron surface by the in-situ technology. Microstructure analysis, microhardness and wear-resistance test were carried out on the recombination region. The experimental results show that the TiC particulates reinforced surface gradient composite is composed of three layers. The difference between the three layers lies in the different sizes and different shapes of TiC particulates. The microhardness decreases gradually from composite layer (C region) to pearlite region. The maximum microhardness appears in the high density ceramic layer (C region). Therefore, wear experiment was further performed to study wear-resistance of the high density ceramic layer of the surface gradient composite. Apparently, the wear-resistance of high density ceramic layer is enhanced greatly in comparison with gray cast iron. (14 refs)
Main heading: Microhardness
Controlled terms: Ceramic materials - Wear resistance - Vacuum applications - Titanium carbide - Microstructure - Particle reinforced composites - Vacuum furnaces - Cast iron
Uncontrolled terms: Ceramic layer - Different shapes - Different sizes - High density ceramics - Microstructure analysis - Situ technology - Surface gradients - TiC particulate
Classification Code: 534.2 Foundry Practice - 545.2 Iron Alloys - 633.1 Vacuum Applications - 804.2 Inorganic Compounds - 812.1 Ceramics - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

79. Research on the mining personnel orientation method based on the Zigbee and GIS

Jia, Hui-Qin (1); Wang, Sheng-Zhe (2); Zhao, Xiao-Ping (2)
Source: *Advanced Materials Research*, v 760-762, p 1263-1268, 2013, *Optoelectronics Engineering and Information Technologies in Industry*; **ISSN:** 10226680; **ISBN-13:** 9783037857731; **DOI:** 10.4028/www.scientific.net/AMR.760-762.1263; **Conference:** 2nd International Conference on Opto-Electronics Engineering and Materials Research, OEMR 2013, October 19, 2013 - October 20, 2013; **Sponsor:** Computer Science and Electronic Technology; Trans tech publications inc.; National Cheng Kung University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Key Laboratory of Education Ministry for Photoelectric Logging and Detecting of Oil and Gas, Xi'an Shiyou University, Xi'an 710065, China (2) Patent Examination Cooperation Center of The Patent Office, SIPO, Zhengzhou 450000, China
Abstract: This paper presents a method to locate the personnel in the coal mine. ZigBee wireless transmission mode is used to transfer the person location information to the groud.location hardware system includes three components, first one is ZigBee terminal mobile node, which is installed on the body of miners, the left is ZigBee router and ZigBee coordinator, which can obtain the wireless power in the miners place, combined with the RSSI ranging algorithm, can obtain the miner location. The software is used to store the information about the historical location information and others, display the miner location on the underground using the GIS technology. The field application result shows the miner location accuracy of this system is about 3 meters, which is helpful for miner management and accident processing. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Miners
Controlled terms: Geographic information systems - Location - Coal mines - Zigbee
Uncontrolled terms: Accident processing - LabViEW - Location information - Personnel locations - Personnel orientations - Positioning algorithms - Zigbee coordinators - ZigBee wireless transmission

Classification Code: 502 Mines and Quarry Equipment and Operations - 503.1 Coal Mines - 722.3 Data Communication, Equipment and Techniques - 903.3 Information Retrieval and Use - 912.4 Personnel
Database: Compendex
Data Provider: Engineering Village

80. A new method to determine mud density in deflecting well

Li, Tian Tai (1, 2); Zhang, Ming (1, 2); Zhang, Han Lin (3); Tang, Li Ping (3)
Source: *Advanced Materials Research*, v 734-737, p 1338-1342, 2013, *Resources and Sustainable Development*; **ISSN:** 10226680; **ISBN-13:** 9783037857441; **DOI:** 10.4028/www.scientific.net/AMR.734-737.1338; **Conference:** 2013 2nd International Conference on Energy and Environmental Protection, ICEEP 2013, April 19, 2013 - April 21, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, Shanxi 710065, China (2) College of Petroleum Engineering, China University of Petroleum, Beijing, 102249, China (3) CCDC Drilling, Production Engineering Technology Research Institute, Xi'an, Shanxi 710018, China
Abstract: Because of the inclination of borehole, there is a significant difference about the borehole stability between deflecting and vertical well. Borehole stability has a relationship with not only trajectory of well, including deviation angle and azimuth, but also azimuth of earth stress. This paper will start from stress field of wall of borehole to study borehole stability in inclined well. And with suitable destruction model of wall of borehole, the reasonable dynamic model and determine the safe mud density of deflecting well can be obtained exactly. The new model is used so as to calculate and determine the safe range of mud density in penetration and round-trip operations. Based on the fundamental theories of dynamics, the state of stress in well wall surrounding is discussed in this paper. The expression of main component of stress in the wall of borehole is carried out. According to shear destruction and tensile failure criterions, the models of determining mud density are proposed and the safe range of mud density in round-trip and penetrating operations are calculated in well SU6 of Sulige Gas Field. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Dynamic models
Controlled terms: Boreholes - Natural gas fields - Gas industry - Stability - Stresses
Uncontrolled terms: Borehole stability - Destruction model - Deviation angles - Fundamental theory - Mud density - State of stress - Sulige gas field - Tensile failures
Classification Code: 512.2.1 Natural Gas Fields - 522 Gas Fuels - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

81. Paleogeomorphology characteristics and oil accumulation patterns of Chang 1 oil reservoir in the Yanchang Formation, Ordos Basin: A case study of W area in the northern of Shaanxi

Zhang, Fengqi (1); Yan, Xiaoyong (2); Wu, Fuli (1); Li, Zhao (3); Wang, Weixi (3); Bai, Erlin (3)
Source: *Oil and Gas Geology*, v 34, n 5, p 619-624, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130506; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) School of Geosciences, China University of Petroleum, Beijing 102249, China (3) Shaanxi Yanchang Petroleum (Group) Co. Ltd., Xi'an, Shaanxi 710075, China
Abstract: Revealing the accumulation patterns of Chang 1 oil reservoir of the Yangchang Formation in Ordos Basin is very significant for oil and gas exploration in this area. Based on stratigraphic division and correlation, the paleogeomorphology of Chang 1 oil reservoir is restored by using residual thickness methods combined with previous research of regional paleogeomorphology. On this basis, its relationship with the distribution of hydrocarbons is analyzed. The patterns of hydrocarbon accumulation of this formation in this region are summarized through a comprehensive analysis of various controlling factors on hydrocarbon accumulation such as structures, sedimentary facies, sandstone thickness, sealing conditions, and so on. Three geomorphic units are recognized in Chang 1 oil reservoir, namely erosion valley, erosion slope and erosion monadnock. The paleogeomorphology features in "one valley, two slopes and two monadnocks". The erosion monadnocks in relatively higher terrain, the ridges of nose-like uplift, channel sands with larger thickness and higher net-to-gross ratio all have significant controlling effects on distribution of hydrocarbons of this formation. Moreover, cyclical mudstone, tight sandstone, erosion unconformity surfaces and hydrodynamic force all have large contributions to the sealing of the Chang 1 oil reservoir. Structural-lithologic reservoir and lithologic reservoir are the primary reservoir types, while lithologic-hydrodynamic reservoir is the secondary reservoir type. The overlapping regions of the main factors, such as the higher paleogeomorphology and the

favorable sedimentary facies zones with larger sandstone thickness are the key exploration targets of this formation in Ordos Basin. (19 refs)
Main heading: Petroleum reservoirs
Controlled terms: Erosion - Hydrocarbons - Hydrodynamics - Landforms - Metamorphic rocks - Sandstone - Sedimentology - Stratigraphy
Uncontrolled terms: Chang 1 oil reservior - Comprehensive analysis - Controlling factors - Hydrocarbon accumulation - Lithologic reservoirs - Oil and gas exploration - Ordos Basin - Paleogeomorphology
Classification Code: 803 Chemical Agents and Basic Industrial Chemicals - 631.2 Hydrodynamics - 483 Soil Mechanics and Foundations - 482.2 Minerals - 481.1.2 Petrology (Before 1993, use code 482) - 481.1 Geology - 407 Maritime and Port Structures; Rivers and Other Waterways
Database: Compendex
Data Provider: Engineering Village

82. Synthesis and characterization of ZSM-5/MCM-41 composite molecular sieves

Zhang, Jun-Tao (1); Hao, Na-Na (2); Wang, Ni (3)
Source: *Ranliao Huaxue Xuebao/Journal of Fuel Chemistry and Technology*, v 41, n 10, p 1268-1273, October 2013;
Language: Chinese; **ISSN:** 2097213X, **E-ISSN:** 18725813; **Publisher:** Science Press
Author affiliation: (1) Research Center of Petroleum Processing and Petrochemicals, Xi'an Shiyou University, Xi'an 710065, China (2) Shanghai New-Unity Energy Technology Co., LTD, Shanghai 201210, China (3) Hanzhong Natural Gas Investment Development Co., LTD, Hanzhong 723000, China
Abstract: ZSM-5/MCM-41 composite molecular sieves with multiple micro-mesoporous structure were hydrothermally synthesized via self-assembly by using the alkali-treated ZSM-5 seriflux as the source of silica and aluminum. The as-synthesized molecular sieves were characterized by XRD, N2 adsorption, HRTEM, Py-IR, and hydrothermal treatment methods. The results showed that the crystallinity of the as-synthesized molecular sieves is dependent on the intensity of the alkali-treatment; the suitable alkali treatment conditions for ZSM-5 are 80°C for 1 h with a NaOH concentration of 1 mol/L. The composite molecular sieves obtained exhibit a typical MCM-41 structure, with a hierarchical micro-mesoporous structure and large specific surface area. Compared with MCM-41, the ZSM-5/MCM-41 composite molecular sieves show higher quantity of Bronsted acid sites (especially strong ones) and higher hydrothermal stability. (23 refs)
Main heading: Hydrothermal synthesis
Controlled terms: Mesoporous materials - Molecular sieves - Self assembly - Sieves - Silica - Sodium hydroxide
Uncontrolled terms: Alkali treatment - Composite molecular sieves - Hydrothermally synthesized - MCM-41 - Mesoporous composites - Mesoporous structures - Micro-mesoporous composite molecular sieve - Synthesis and characterizations - Synthesised - ZSM-5
Classification Code: 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804.2 Inorganic Compounds - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

83. Pitting resistance of domestic super martensitic stainless steel 00Cr13Ni5Mo2

Zhu, Shi Dong (1, 2); Li, Jin Ling (3); Ma, Hai Xia (1); Liu, Li (2)
Source: *Advanced Materials Research*, v 834-836, p 370-373, 2013, *Research in Materials and Manufacturing Technologies*; **ISSN:** 10226680; **ISBN-13:** 9783037859162; **DOI:** 10.4028/www.scientific.net/AMR.834-836.370;
Conference: 2013 3rd International Conference on Materials and Products Manufacturing Technology, ICMPMT 2013, September 25, 2013 - September 26, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Chemical Engineering, Northwest University, Xi'an 710069, China (2) Research Institute of Shaanxi Yanchang Petroleum (Group) Co. Ltd, Xi'an 710075, China (3) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Pitting resistance of super martensitic stainless steel 00Cr13Ni5Mo2 made in China has been investigated by employing electrochemical technology and chemical immersion methods. The results showed that pitting potential of super martensitic stainless steel decreased with the increasing of NaCl concentration and temperature, respectively. And corrosion rate of super martensitic stainless steel increased with the increasing of temperature. Furthermore, compared to super martensitic stainless steel made in Japan, the domestic one was better in terms of pitting potential, pitting corrosion rate and the density of the pits, but worse in terms of the depth of the pits. © (2014) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Pitting

Controlled terms: Corrosion rate - Molybdenum alloys - Chromium alloys - Sodium chloride - Sodium alloys - Martensitic stainless steel - Steel corrosion
Uncontrolled terms: Electrochemical technology - Immersion method - Made in China - NaCl concentration - Pitting potential - Pitting resistance
Classification Code: 539.1 Metals Corrosion - 543.1 Chromium and Alloys - 543.3 Molybdenum and Alloys - 545.3 Steel - 549.1 Alkali Metals
Database: Compendex
Data Provider: Engineering Village

84. Distribution characteristics and genesis of present formation pressure of the Upper Paleozoic in the eastern Ordos Basin

Wang, Xiaomei (1, 2); Zhao, Jingzhou (2); Liu, Xinshe (3); Zhao, Xiaohui (3); Cao, Qing (2)
Source: *Oil and Gas Geology*, v 34, n 5, p 646-651, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130510; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) State Key Laboratory of Continental Dynamics, Northwest University, Xi'an, Shaanxi 710069, China (2) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (3) PetroChina Changqing Oilfield Company, Xi'an, Shaanxi 710021, China
Abstract: Distribution of present formation pressure is the final result of joint action of many factors on pore fluid, such as basin tectonic evolution, sedimentary environment and thermal evolution of organic matter in source rock in geologic history. Analysis of pressure data obtained from pumping tests and well tests shows that both the Cretaceous and Triassic in the Ordos basin feature in lower pressure. In contrast, the Upper Paleozoic in the eastern Ordos Basin shows normal pressure, abnormal low pressure and abnormal high pressure in different places and intervals. The normal pressure type is dominated, accounting for 56.76%, followed by the abnormal low pressure type which accounts for 30.63%, while the abnormal high pressure type is the most rare. The pressure coefficients of the Lower Shihezi Formation, Shanxi Formation, Taiyuan Formation and Benxi Formation in the eastern Ordos Basin drop with increasing burial depth. Taken the Zizhou gas field as an example, several separated pressure systems are identified in the 2nd member of Shanxi Formation base on the pressure gradient method. These pressure systems are separated and disconnected. According to fluid inclusion analysis, the formation was over pressured with pressure coefficients ranging from 1.14 to 1.66 at the end of Early Cretaceous. Current normal pressure in the eastern Ordos Basin is the result of the last stage of pressure evolution. The formation temperature decreases due to basement uplift and subsequent erosion as well as regression of the tectonic-thermal event, leading to formation pressure reduction by 8.6-11.1 MPa, which accounts for 32%~40% of the total pressure drop. Pressure drop caused by gas dissipation accounts for 20%~30% of the total pressure drop. The higher pressure coefficients in the study area are mainly resulted from its shallower burial depth. The high-relief landform and difference of gas enrichment cause different pressure coefficients among different gas fields in the study area. (28 refs)
Main heading: Metamorphic rocks
Controlled terms: Gas industry - Tectonics - Well testing
Uncontrolled terms: Formation pressure - Ordos Basin - Pressure coefficients - Pressure system - Upper Paleozoic
Classification Code: 446.1 Water Supply Systems - 481.1 Geology - 481.1.2 Petrology (Before 1993, use code 482) - 522 Gas Fuels
Database: Compendex
Data Provider: Engineering Village

85. Electronic structures and optical properties of a SiC nanotube with vacancy defects

Song, Jiuxu (1, 2); Yang, Yintang (1); Wang, Ping (3); Guo, Lixin (3); Zhang, Zhiyong (4)
Source: *Journal of Semiconductors*, v 34, n 2, February 2013; **ISSN:** 16744926; **DOI:** 10.1088/1674-4926/34/2/022001; **Article number:** 022001; **Publisher:** Institute of Physics Publishing
Author affiliation: (1) Key Laboratory of Ministry of Education for Wide Band Gap Semiconductor Materials and Devices, School of Microelectronics, Xidian University, Xi'an 710071, China (2) School of Electronic Engineering, Xian Shiyou University, Xi'an 710065, China (3) School of Science, Xidian University, Xi'an 710071, China (4) Information Science and Technology Institution, Northwest University, Xi'an 710127, China
Abstract: Based on first-principle calculations, the electronic structures and optical properties of a single-walled (7, 0) SiC nanotube (SiCNT) with a carbon vacancy defect or a silicon vacancy defect are investigated. In the three silicon atoms around the carbon vacancy, two atoms form a stable bond and the other is a dangling bond. A similar structure is found in the nanotube with a silicon vacancy. A carbon vacancy results in a defect level near the top of the valence band, while a silicon vacancy leads to the formation of three defect levels in the band gap of the nanotube. Transitions

between defect levels and energy levels near the bottom of the conduction band have a close relationship with the formation of the novel dielectric peaks in the lower energy range of the dielectric function. © 2013 Chinese Institute of Electronics. (16 refs)
Main heading: Electronic structure
Controlled terms: Calculations - Optical properties - Energy gap - Nanotubes - Yarn - Silicon carbide - Structural properties - Vacancies
Uncontrolled terms: A-carbon - Carbon vacancy - Close relationships - Defect levels - Dielectric functions - Dielectric peaks - First principle calculations - First-principles study - Lower energies - SiC nanotubes - Silicon atoms - Silicon vacancies - Single-walled - Vacancy Defects
Classification Code: 408 Structural Design - 741.1 Light/Optics - 761 Nanotechnology - 804.2 Inorganic Compounds - 819.4 Fiber Products - 921 Mathematics - 933.1 Crystalline Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

86. Study on the methods of layer adjustment in gas dynamic reserve measurement

Yi, Zhang (1); Liu, Bang-Hua (2); Gan, Qing-Min (3); Shi, Hai-Xia (3); Liu, Jun-Feng (4)
Source: *Advanced Materials Research*, v 671-674, p 142-145, 2013, *Construction and Urban Planning*; **ISSN:** 10226680; **ISBN-13:** 9783037856611; **DOI:** 10.4028/www.scientific.net/AMR.671-674.142; **Conference:** 2013 International Conference on Structures and Building Materials, ICSBM 2013, March 9, 2013 - March 10, 2013;
Publisher: Trans Tech Publications
Author affiliation: (1) School of Petroleum engineering of Xi'an Shiyou University, Xi'an Shaanxi, China (2) The Second Gas-Plant of ChangQing Oilfield, Xi'an Shaanxi, China (3) Oil and Gas Technology Research Institute of ChangQing Oilfield, Xi'an Shaanxi, China (4) The Six Oil-Plant of ChangQing Oilfield, Xi'an Shaanxi, China
Abstract: To get the accurate gas pool dynamic measurement is the one of the basic work of oil field development. The geologic conditions, one of the aspects, limited the gas pool. It often appears reshooting another layer to commingled production or block off the seriously water producer in layer adjustment, calculation of reserves depends on the alteration of the model condition. Through the material balance and its further work, set the gas pool reserves calculation methods under the layer adjustment condition. The closed constant volume gas pool, its drawdown curve becomes the transition with the adjustment of the layer. Through the original formation pressure with two different slope straight lines before and after adjustment, Using linear extrapolation can get the reserves before and after adjusted. © (2013) Trans Tech Publications, Switzerland. (3 refs)
Main heading: Lakes
Controlled terms: Water levels - Gases - Oil field development - Proven reserves
Uncontrolled terms: Constant volumes - Dynamic measurement - Formation pressure - Gas reservoir - Geologic conditions - Layer adjustment - Linear extrapolation - Material balance
Classification Code: 512.1.2 Petroleum Deposits : Development Operations
Database: Compendex
Data Provider: Engineering Village

87. Quantitative evaluation of micro-pore throat characteristics in extra-low permeability sandstone of Yanchang group, Ordos basin

Gao, Hui (1); Ren, Guofu (2, 3); Mu, Qianyi (2, 3)
Source: *Yanshilixue Yu Gongcheng Xuebao/Chinese Journal of Rock Mechanics and Engineering*, v 32, n SUPPL.2, p 3116-3122, July 2013; **Language:** Chinese; **ISSN:** 10006915; **Publisher:** Academia Sinica
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Petroleum Technology Research Institute, Changqing Oilfeild Company, Xi'an, Shaanxi 710021, China (3) The National Engineering Laboratory of Low Permeability Exploratory Development, Changqing Oilfeild Company, Xi'an, Shaanxi 710021, China
Abstract: The samples of Yanchang group in Ordos basin are tested with constant rate mercury penetration technique, pore throat characteristics parameters are characterized quantitatively in order to recognize the micro-pore throat characteristics and to make definite the key factors controlling reservoir quality and development effect. The results show that difference of pore is little, pore radius distributes in 70-225 μm, peak value is about 110 μm. When the permeability is low, the throat distributes assembly, the content of small throat is high, the contribution of throat to permeability also distributes intensively and contribution of peak value is big. Distribution range of throat radius will become wide, large pore content will increase and its contribution will broaden with the increasing permeability. Average pore radius and permeability present good correlation. Fluctuation amplitude of average pore radius is great

when the permeability is less than 1.0×10-3 μm2. Sensibility of extra-low permeability sandstone roots in particular throat characteristics. The poor physical properties(especially permeability) lie in the high content of small throat. The well the physical property is, the more the effective pore and throat develop. Difference of micro-pore throat mainly is presented in the pore size and its distribution. The pore controls the reservoir quality and affects development effect. (25 refs)
Main heading: Rock mechanics
Controlled terms: Metamorphic rocks - Pore size - Quality control - Mercury (metal) - Sandstone - Petroleum reservoir engineering
Uncontrolled terms: Constant rate - Effective pores - Extra low-permeability - Ordos Basin - Pore characteristics - Throat distribution
Classification Code: 482.2 Minerals - 483.1 Soils and Soil Mechanics - 512.1.2 Petroleum Deposits : Development Operations - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 913.3 Quality Assurance and Control - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

88. Oil accumulation patterns of Chang 4+5 and Chang 6 in Yan'an delta, Ordos Basin

Li, Airong (1, 2); Wang, Weixi (3); Wu, Fuli (2); Zhao, Jingzhou (2); Zhang, Hui (2)
Source: *Oil and Gas Geology*, v 34, n 5, p 667-671, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130513; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) State Key Laboratory of Continental Dynamics, Northwest University, Xi'an, Shaanxi 710069, China (2) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (3) Yangchang Petroleum (Group) Co. Ltd., Yan'an, Shaanxi 716000, China
Abstract: Yan'an Delta is located in the southeastern part of Shanbei slope in Ordos Basin and contains several oil reservoirs. Chang 4+5 and Chang 6 are the main pay zones. According to sedimentary facies, reservoir-seal assemblage and distance from source, this paper established several hydrocarbon accumulation patterns. The superimposed channel sandbodies in the delta are the major migration pathways for the hydrocarbon, and they provided conditions for long distance lateral and vertical migration of hydrocarbons. According to the distance between source and reservoir and the ability of oil accumulation, the reservoirs can be divided into three types, i.e, proximal accumulation, distal accumulation and pro-ximal dissipation. The former two types of accumulation areas have better oil enrichment conditions as the hydrocarbon migration and/or sealing conditions are favorable, while the later is limited in hydrocarbon accumulation capacity despite its shortest distance to oil source due to the migration of hydrocarbons to structural high. According to the migration pathways'quality and reservoir location, the accumulation pattern of Yan'an Delta are divided into five types, i.e. the proximal accumulation pattern with main migration pathways, the distal accumulation pattern with main migration pathways, the proximal accumulation pattern with sub-migration pathways, the distal accumulation pattern with sub-migration pathways and the proximal dissipation pattern. (19 refs)
Main heading: Petroleum reservoir engineering
Controlled terms: Hydrocarbons - Metamorphic rocks - Oil wells - Petroleum reservoirs
Uncontrolled terms: Hydrocarbon accumulation - Hydrocarbon migration - Migration pathway - Ordos Basin - Sealing conditions - Sedimentary facies - Vertical migration - Yan'an delta
Classification Code: 481.1 Geology - 481.1.2 Petrology (Before 1993, use code 482) - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 803 Chemical Agents and Basic Industrial Chemicals
Database: Compendex
Data Provider: Engineering Village

89. Identification of tight gas play fairways according to flow unit sweet spots of petrophysical facies: A case study from the eastern Sulige Gas Field

Song, Ziqi (1, 2); Cheng, Zhigang (2); Sun, Di (3); Pang, Yudong (1, 2); Tian, Xin (1, 2)
Source: *Natural Gas Industry*, v 33, n 1, p 41-48, January 25, 2013; **Language:** Chinese; **ISSN:** 10000976; **DOI:** 10.3787/j.issn.1000-0976.2013.01.006; **Publisher:** Natural Gas Industry Journal Agency
Author affiliation: (1) Petroleum Engineering Institute, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Oil and Gas Evaluation Center, CNPC Logging Co., Ltd., Xi'an, Shaanxi 710077, China (3) Oil Development Center, Sinopec Shengli Oilfield Company, Dongying, Shandong 257000, China
Abstract: Influenced by multiple-stage deposition and diagenesis of various types, the tight reservoirs in the eastern Sulige Gas Field are featured by tiny pore space, complex pore structure and logging response. In view of this, this paper classified petrophysical facies of tight reservoirs and identified tight gas play fairways according to flow unit

sweet point of petrophysical facies. Various parameters reflecting the tight reservoir features were first selected, including flow zone index, reservoir capacity, single sand layer thickness, net gas pay, gross thickness, permeability, porosity and gas saturation, and then the grey theory was applied to analyze seepage flow, poroperm and gas-bearing characteristics of the reservoirs. Type-I and II sweet spots of petrophysical facies were selected and used to identify 97 play fairways, among which 26 were identified in the 2nd member of the Shanxi Fm, 27 in the 1 st member of the Middle Permian Shanxi Fm, 30 in the lower 8 th member of the Shihezi Fm and 14 in the upper 8th member of the Middle Permian Shihezi Fm. The results reveal the pervasiveness of gas generation and the adequateness of gas preservation in the Ordos Basin. (17 refs)
Main heading: Gases
Controlled terms: Gas permeability - Metamorphic rocks - Natural gas fields - Petroleum reservoir engineering - Gas industry - Petroleum reservoirs - Tight gas
Uncontrolled terms: Distribution patterns - Ordos Basin - Petro-physical facies - Sulige gas field - Sweet spot - Tigh treservoirs
Classification Code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 512.2.1 Natural Gas Fields - 522 Gas Fuels - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

90. Deep-hole precision honing of difficult-to-cut materials

Xu, Xu Song (1); Sun, Zhi Ying (2); Liu, Zhan Feng (3); Peng, Hai (3)
Source: *Advanced Materials Research*, v 690 693, p 3218-3221, 2013, *Materials Design, Processing and Applications*; **ISSN:** 10226680; **ISBN-13:** 9783037856925; **DOI:** 10.4028/www.scientific.net/AMR.690-693.3218; **Conference:** 4th International Conference on Manufacturing Science and Engineering, ICMSE 2013, March 30, 2013 - March 31, 2013; **Sponsor:** Northeastern University, China; Harbin Institute of Technology; Jilin University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Mechanical Engineering, Jiangsu Teachers University of Technology, Changzhou, 213001, China (2) Surface Technology Research Institute, Shengli Engineering and Consulting Co., Ltd, Dongying, 257026, China (3) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China
Abstract: For the deep-hole drilling is in closed or half-closed condition and the cutting situation can't be controlled directly, it brings a big challenge to attain the machining precision. Deep-hole honing is an effective process method that can ensure the precision of size, geometry shape and surface quality. A new machining technologies of finishing honing on precision deep-hole are discussed. Two typical machining examples were illustrated, and the machining effection were also discussed. The key technology and chief feature of strong honing were analyzed through honing experiment of titanium alloy and PH stainless steel. The experiments indicate that strong honing is one effective method to solve the problem of precision deep-hole machining of difficult-to-cut materials and the honing tools which was used in the experiments have the feature of good rigidity, high cutting efficiency. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Stainless steel
Controlled terms: Honing - Cutting tools - Titanium alloys
Uncontrolled terms: Abrasive machining - Cutting efficiency - Deep-hole drilling - Difficult-to-cut materials - Key technologies - Machining precision - Machining technology - Process methods
Classification Code: 542.3 Titanium and Alloys - 545.3 Steel - 603.2 Machine Tool Accessories
Database: Compendex
Data Provider: Engineering Village

91. Drilling cost prediction based on self-adaptive differential evolution and support vector regression

Pan, Huaxian (1); Cheng, Guojian (2); Ding, Jian (3)
Source: *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, v 8206 LNCS, p 67-75, 2013, *Intelligent Data Engineering and Automated Learning - 14th International Conference, IDEAL 2013, Proceedings*; **ISSN:** 03029743, **E-ISSN:** 16113349; **ISBN-13:** 9783642412776; **DOI:** 10.1007/978-3-642-41278-3_9; **Conference:** 14th International Conference on Intelligent Data Engineering and Automated Learning, IDEAL 2013, October 20, 2013 - October 23, 2013; **Publisher:** Springer Verlag
Author affiliation: (1) Xingzhi College, Xi'an University of Finace and Economics, Xi'an 710038, Shaanxi, China (2) School of Computer Science, Xi'an Shiyou University, Xi'an 710065, Shaanxi, China (3) Xinjiang Oil Field Company Shixi Field Operational Zone, Karamay, 834000, Xinjiang, China

Abstract: Prediction of drilling cost in oil and gas field has an important impact on correct economic decision-making and economic efficiency of oilfield enterprises. Support Vector Machine (SVR) is used to predict the drilling cost of oil and gas in this paper. In order to overcome problem of easy to cause local optimum of SVR, this paper uses self-adaptive differential evolution (SaDE) to train SVR to accelerate the speed of parameters optimization and improve the predictive accuracy of the model. The proposed model is applied to predict the drilling costs in one of the Chinese oil company. SaDE is also compared with three parameter optimization methods, Differential Evolution(DE), Grid Search(GS) and Genetic Algorithms(GA). The experimental results show that, SaDE-SVR model is better than DE-SVR, GS-SVR and GA-SVR in terms of accuracy and convergence speed in predicting the drilling cost. It validates the effectiveness of SaDE-SVR applied in prediction of drilling cost of oil and gas field. © 2013 Springer-Verlag. (8 refs)
Main heading: Gas industry
Controlled terms: Natural gas fields - Genetic algorithms - Costs - Decision making - Forecasting
Uncontrolled terms: Differential Evolution - Drilling cost - Economic decision-making - Oil and gas - Parameters optimization - SaDE - Self-adaptive differential evolutions - Self-Adaptive differential evolutions (SADE)
Classification Code: 512.2.1 Natural Gas Fields - 522 Gas Fuels - 911 Cost and Value Engineering; Industrial Economics - 912.2 Management
Funding Details: Number: 40872087, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Database: Compendex
Data Provider: Engineering Village

92. Theoretical study of the regioselectivity of the Huisgen reaction

Chen, Gang (1, 2); Yang, Jing (1); Gao, Suo (1); Zhang, Yu (1); Hao, Xiao-Jiang (1)
Source: *Research on Chemical Intermediates*, v 39, n 3, p 1245-1250, March 2013; **ISSN:** 09226168, **E-ISSN:** 15685675; **DOI:** 10.1007/s11164-012-0680-0; **Publisher:** Kluwer Academic Publishers
Author affiliation: (1) State Key Laboratory of Phytochemistry and Plant Resources in West China, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650201, China (2) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: From the structure of a series of spiro (pyrrolidine-2,3#-oxindole) derivatives synthesized by Huisgen reaction of isatin, α–amino acids, and different olefins, different regioselectivities were found. The possible mechanism of the Huisgen reaction of oxindole azomethine ylide and the substituent of olefins was investigated using a B3LYP/6-311G*level of theory, and the results show that the regioselection depends on the energy barrier between the stacking state and the regioisomer. This mechanism can also be applied to the illumination of other Huisgen reactions. © 2012 Springer Science+Business Media B.V. (15 refs)
Main heading: Regioselectivity
Controlled terms: Olefins - Synthesis (chemical)
Uncontrolled terms: Alpha-amino acids - Azomethine ylides - Huisgen reaction - Possible mechanisms - Pyrrolidines - Regioisomers - Theoretical study
Classification Code: 802.2 Chemical Reactions - 804.1 Organic Compounds
Funding Details: Number: 2010ZDKG-46, Acronym: -, Sponsor: -; Number: 2009CB522303, Acronym: MOST, Sponsor: Ministry of Science and Technology of the People's Republic of China; Number: 12JK0582,12JK0589, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: 2012KJXX-40, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department;
Funding text: Innovative Program of Shaanxi Province (2010ZDKG-46), Scientific and Technological Plan Projects of Shaanxi Province of China (2012KJXX-40) and Scientific Research Program Funded by Shaanxi Provincial Education Department (12JK0582, 12JK0589).Acknowledgments This work was financially supported by the grants from Chinese Ministry of Science and Technology (2009CB522303), Important Science & Technology Specific Projects of
Database: Compendex
Data Provider: Engineering Village

93. Experimental research on proppant transport performance of GRF-CO2 fracturing fluid

Luo, Xiang Rong (1); Wang, Shu Zhong (1); Sun, Xiao (2); Ren, Xiao Juan (3)
Source: *Advanced Materials Research*, v 807-809, p 2583-2588, 2013, *Environmental Protection and Resources Exploitation*; **ISSN:** 10226680; **ISBN-13:** 9783037858622; **DOI:** 10.4028/www.scientific.net/AMR.807-809.2583;
Conference: 2013 International Conference on Advances in Energy and Environmental Science, ICAEES 2013, July 30, 2013 - July 31, 2013; **Publisher:** Trans Tech Publications Ltd

Author affiliation: (1) State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an 710049, China (2) Research Institute of Shaanxi Yanchang Petroleum LLC, Xi'an 710075, China (3) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In this article, the experimental study on proppant transport performance of GRF-CO2 system is performed by using the large-scale foam fracturing fluid test system of high temperature and high pressure, and critical settling velocity and proppant settling velocity are obtained.Research results show that the critical settling velocity increases with the temperature rising, in foaming cases,decreases with the foam quality and sand ratio rising.The correlations for GRF-CO2 fracturing final proppant settling velocity within solution and the critical settling velocity have been obtained, all kinds of average error is less than 14%. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Carbon dioxide
Controlled terms: Proppants - Fracturing fluids - Transport properties - Velocity
Uncontrolled terms: Average errors - Experimental research - Foam-fracturing fluids - High temperature and high pressure - Proppant transports - Sand ratios - Settling velocity - Temperature rising
Classification Code: 511.1 Oil Field Production Operations - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

94. Seismic geomorphology and sedimentary architectures of mass transport deposits: Cases from Pearl River Mouth Basin and Niger Delta Basin

Li, Lei (1); Li, Bin (2); Wang, Yingmin (3); Li, Dong (4)
Source: *Zhongnan Daxue Xuebao (Ziran Kexue Ban)/Journal of Central South University (Science and Technology)*, v 44, n 6, p 2410-2416, June 2013; **Language:** Chinese; **ISSN:** 16727207; **Publisher:** Central South University of Technology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) GWDC Well Logging Company, CNPC, Panjin 124011, China (3) College of Geosciences, China University of Petroleum, Beijing 102249, China (4) CNOOC Research Institute, Beijing 100027, China
Abstract: Based on the study of Pearl River Mouth basin and Niger Delta Basin, making use of high-resolution 3-D seismic data, drilling and logging data as well as regional geological data, the sedimentary architectures of the MTDs were discussed. The results show that three type MTDs are identified; slide blocks originated from the failures of continental slope (type-I), slide blocks of submarine channel wall (type-II) and slide-debris flow deposits complex (type-III). The same type MTDs have certain similarities in geometry, internal texture, physical property, and stacking pattern. Type-I displays a lobate form. There is listric slump escarpment at the tail of the slide. Rotated blocks lie above a detachment surface. Listric fans are observed within the rotated blocks. The geometry and internal texture of the type-II are same with the type-II. But they have different distribution range, slide direction, and strike of the slump escarpment. The linear basal scars of the type-II represent the stronger erosion capability. The rough topography of the MTDs is caused by the inner deformation which is indicated by thrust faults. (19 refs)
Main heading: Rivers
Controlled terms: Architecture - Deposits - Landforms - Seismology - Sedimentology - Faulting - Gems - Geomorphology
Uncontrolled terms: Mass transport deposit - Niger Delta - Pearl River Mouth basin - Sedimentary architecture - Seismic geomorphology
Classification Code: 402 Buildings and Towers - 481.1 Geology - 481.1.1 Geomorphology - 482.2.1 Gems - 484.1 Earthquake Measurements and Analysis
Database: Compendex
Data Provider: Engineering Village

95. Hydrocarbon accumulation period and its carrier systems in Ordovician reservoir of Yubei Area, markit slope Tarim Basin

Si, Shang-Hua (1); Chen, Hong-Han (2); Tan, Xian-Feng (3); Li, Chun-Quan (2); Wu, You (2); Li, Nan (2)
Source: *Diqiu Kexue - Zhongguo Dizhi Daxue Xuebao/Earth Science - Journal of China University of Geosciences*, v 38, n 6, p 1271-1280, November 2013; **Language:** Chinese; **ISSN:** 10002383; **DOI:** 10.3799/dqkx.2013.124; **Publisher:** China University of Geosciences
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Faculty of Earth Resources, China University of Geosciences, Wuhan 430074, China (3) School of Petroleum Engineering, Chongqing University of Science and Technology, Chongqing 401331, China

Abstract: Three types of basic carrier systems are identified for analyzing the hydrocarbon migration and accumulation process of Ordovician reservoir in Yubei area, Southwest Tarim Basin, which are known as fault type, unconformity type and carrier layer type, where the carrier ability is strong in the Middle Part of Yubei area but weak in the Eastern Part. The organic and inorganic fluid inclusion analyses of 25 Ordovician samples from 3 wells in Yubei area indicate that there were two phases of hydrocarbon charging in Ordovician. In the period from 262 Ma to 252 Ma before present (in Late Hercynian), low-mature oil with yellow fluorescence was charged. In the second period from 12.5 Ma to 0 Ma before present (in Late Himalayan), high-maturity oil with blue-white fluorescence was charged. Two groups of hydrocarbon source rocks, namely, the Lower Cambrian source rock and the Upper Cambrian-Lower Ordovician source rock, are developed in Yubei area. The cover is the mudstone and marl of Lower Carboniferous Bachu Formation Strata. The reservoir is the karst weathering of Lower-Middle Ordovician Strata. The cover and reservoir are composed of discontinuous interlayer combinations. (20 refs)
Main heading: Hydrocarbons
Controlled terms: Fertilizers - Weathering - Fluorescence - Oil bearing formations
Uncontrolled terms: Carrier systems - Hydrocarbon accumulation period - Hydrocarbon migration - Hydrocarbon source rocks - Ordovician - Ordovician reservoir - White fluorescence - Yubei area
Classification Code: 512.1.1 Oil Fields - 741.1 Light/Optics - 804 Chemical Products Generally - 804.1 Organic Compounds - 821.2 Agricultural Chemicals
Database: Compendex
Data Provider: Engineering Village

96. Using the formation mechanics characters parameter in SuLiGe of ChangQing oilfield

Yi, Zhang (1); Liu, Bang-hua (2); Gan, Qing-ming (3); Shi, Hai-xia (3); Tian, Wan-ling (4)
Source: *Energy Education Science and Technology Part A: Energy Science and Research*, v 31, n 1, p 425-428, 2013; **ISSN:** 1308772X; **Publisher:** Sila Science
Author affiliation: (1) Xi'an ShiYou University, School of petroleum engineering, Xi'an, Shaanxi, 710065, China (2) The Second Gas Production, ChangQing oilfield, Yu Lin, Shaanxi, 719000, China (3) Oil and Gas Technology Research Institute, ChangQing oilfield, Yu Lin, Shaanxi, 719000, China (4) The First Gas Production, ChangQing oilfield, Yu Lin, Shaanxi, 719000, China
Abstract: In order to accuracy calculate the pressure situation of side wall by use the logging data and other data, the caving pressure and use that help us design the safe density limit of drilling fluid to make sure that the side wall is stability during the drilling and open hole completion. After deep study on the problem of side wall stability with the logging data, the fracture pressure test and the often used experience formula, we can get the method and model that can calculate the three press profile and formation mechanics characteristic parameters.the three pressure profile and the formation physical mechanics parameter of su4 and su6 well in ChangQing Sulige oilfield are calculated according to its logging data by using the methods.The results are identical to the used data in field, which proves that the formation's three pressure, the characteristic mechanics parameter and the safe density limit of drilling fluid is reliable, the methods and calculated results can provide a reliable technological basis for high-speed safe drilling in Sulige. © Sila Science. (8 refs)
Main heading: Pressure
Controlled terms: Drilling fluids - Oil well flooding
Uncontrolled terms: Changqing oilfield - Formation pressure - Fracture pressures - Fracturing pressure - Mechanics characteristics - Physical mechanics parameters - Pressure situation - Side walls
Classification Code: 511.1 Oil Field Production Operations - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

97. Structural, electronic, and magnetic properties of the period vacancy in zigzag GaN nanoribbons

Chen, Guo-Xiang (1, 2); Wang, Dou-Dou (3); Zhang, Jian-Min (2); Xu, Ke-Wei (4)
Source: *Physica Status Solidi (B) Basic Research*, v 250, n 8, p 1510-1518, August 2013; **ISSN:** 03701972, **E-ISSN:** 15213951; **DOI:** 10.1002/pssb.201349124; **Publisher:** Wiley-VCH Verlag
Author affiliation: (1) College of Sciences, Xian Shiyou University, Xian 710065, Shaacny, China (2) College of Physics and Information Technology, Shaanxi Normal University, Xian 710062, Shaanxi, China (3) College of Sciences, Xi'an University of Science and Technology, Xi'an 710054, Shaanxi, China (4) State Key Laboratory for Mechanical Behavior of Materials, Xian Jiaotong University, Xian 710049, Shaanxi, China

Abstract: We have performed the first-principles calculations on the structural, electronic, and magnetic properties of zigzag GaN nanoribbon (ZGaNNR) with period vacancy located at different sites across the ribbon width. The results show that, the formation of the N-vacancy is easier than that of the Ga-vacancy at each equivalent geometrical site and both of them are endothermic. An inward relaxation of the three nearest Ga atoms around a N-vacancy occurs, while for the three nearest-neighbor N atoms around the Ga-vacancy, an outward relaxation occurs. Except for a typical nonedge N-vacancy, the N-, or Ga-vacancies at other sites induce magnetic moment and spin polarization implying such vacancy-defective ZGaNNRs can be useful in spintronics and nanomagnets. The magnetic moment of the N-vacancy is dependent on defect sites, while for the Ga-vacancy, it is less dependent on the defect sites. The net magnetic moment of the vacancy defective 8-ZGaNNR is mainly contributed by the atoms around a vacancy. © 2013 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim. (50 refs)
Main heading: Electronic properties
Controlled terms: Calculations - III-V semiconductors - Nanoribbons - Atoms - Vacancies - Gallium nitride - Magnetic moments - Spin polarization - Magnetic properties
Uncontrolled terms: Defect sites - First-principles calculation - GaN nanoribbon - N vacancy - Nanomagnets - Nearest neighbors
Classification Code: 701.2 Magnetism: Basic Concepts and Phenomena - 712.1 Semiconducting Materials - 761 Nanotechnology - 921 Mathematics - 931.3 Atomic and Molecular Physics - 932.1 High Energy Physics - 933.1 Crystalline Solids
Database: Compendex
Data Provider: Engineering Village

98. Experimental research on oxygen-enriched air supply system for gasoline engine

Li, Yahong (1, 2); Zhang, Lixi (3); Sun, Zelu (1)
Source: *Sensors and Transducers*, v 21, n SPEC.ISS.5, p 159-163, 2013; **E-ISSN:** 17265479; **Publisher:** International Frequency Sensor Association
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) School of Materials Science and Engineering, Xi'an Jiaotong University, Xi'an 710049, China (3) Institute of Air-Conditioning and Solar Energy, Northwestern Polytechnical University, Xi'an 710068, China
Abstract: The paper designs and establishes a set of membrane oxygen-enriched air supply system. Experimental research is conducted for LTV-PS roll-type oxygen-enriched membrane module, results of which show that oxygen-enriched concentration is on the rise with the increase of pressure and air flow. Under normal operating temperature, the concentration of O2 in membrane enriched air can reach 28.3 % when the operating pressure and air flow are respectively 102.7 kPa and 24 m3/h. © 2013 IFSA. (8 refs)
Main heading: Air
Controlled terms: Oxygen supply
Uncontrolled terms: Air-supply system - Experimental research - Gasoline engines - Membrane separation - Operating pressure - Operating temperature - Oxygen enrichment - Oxygen-enriched air
Classification Code: 804 Chemical Products Generally
Database: Compendex
Data Provider: Engineering Village

99. Electronic structure and optical properties of SiC nanotubes with antisite defects

Song, Jiu-Xu (1, 2); Yang, Yin-Tang (3); Wang, Ping (1); Guo, Li-Xin (1)
Source: *Rengong Jingti Xuebao/Journal of Synthetic Crystals*, v 42, n 6, p 1098-1103, June 2013; **ISSN:** 1000985X; **Publisher:** Chinese Ceramic Society
Author affiliation: (1) School of Science, Xidian University, Xi'an 710071, China (2) School of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China (3) Key Laboratory of Ministry of Education for Wide Band Gap Semiconductor Materials and Devices, School of Microelectronics, Xidian University, Xi'an 710071, China
Abstract: Based on first-principles investigation, electronic structure and optical properties of a single-walled (9,0) SiC nanotube (SiCNT) with a SiC antiste defect or a CSi antisite defect are investigated. A SiC defect leads to the formation of a bump in the surface of the nanotube. Nevertheless, a CSi defect forms a depression. Both SiC defect and CSi defect induce a defect level near the bottom of the conduction band, which results in an n-type conductivity for the SiCNT. Electron transitions between the top of the valence band and the defect level narrows the optical band gap of the nanotube. These results are meaningful for investigations on SiCNT electronic devices and optical devices. (16 refs)
Main heading: Optical properties

Controlled terms: Point defects - Defect states - Nanotubes - Yarn - Electron transitions - Silicon carbide - Surface defects - Electronic structure
Uncontrolled terms: Anti-site defect - Defect levels - Electronic device - Electronic structure and optical properties - First-principles investigations - N-type conductivity - SiC nanotubes - Single-walled
Classification Code: 712.1 Semiconducting Materials - 741.1 Light/Optics - 761 Nanotechnology - 804.2 Inorganic Compounds - 819.4 Fiber Products - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

100. Biodiesel production from vegetable oil by using modified CaO as solid basic catalysts

Tang, Ying (1); Xu, Jingfang (1); Zhang, Jie (1); Lu, Yong (2)
Source: *Journal of Cleaner Production*, v 42, p 198-203, 2013; **ISSN:** 09596526; **DOI:** 10.1016/j.jclepro.2012.11.001;
Publisher: Elsevier Ltd
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Second Dianzi Road No. 18, Xi'an, Shaanxi 710065, China (2) Shanghai Key Laboratory of Green Chemistry and Chemical Processes, Department of Chemistry, East China Normal University, Shanghai 200062, China
Abstract: A high efficient production of fatty acid methyl ester (FAME) from soybean oil and rapeseed oil was carried out using modified CaO as solid basic catalyst by connecting bromooctane to the surface of CaO chemically in a simple way. It was found that 99.5% yield of the FAME over modified CaO was obtained from soybean oil using 15:1 molar ratio of methanol to oil after 3 h at reaction temperature of 65 °C, which is much higher than the yield of 35.4% over commercial CaO at the same reaction conditions. For the transesterification between rapeseed oil and methanol, the reaction time to its highest yield, 99.8%, was shortened to 2.5 h. The physical and chemical properties of catalysts were characterized by using techniques of X-ray diffraction (XRD), scanning electron microscope (SEM), BET surface area measurement (BET), Fourier transform-infrared (FT-IR) spectroscopy and thermogravimeter (TG). The results indicated that well dispersed CaO with relatively small particle sizes and high surface areas were obtained after modification. Furthermore, the thermal stability of modified CaO is improved and the amount of Ca(OH)2 formed during the modifying process is very little. Influence of the amount of modifier and various reaction conditions, such as mass ratio of catalyst to oil, reaction temperature and molar ratio of methanol to oil, were investigated in detail. Furthermore, water-tolerance of the modified CaO was tested by adding water in the reaction system. © 2012 Elsevier Ltd. All rights reserved. (29 refs)
Main heading: Biodiesel
Controlled terms: Oilseeds - X ray diffraction - Soybean oil - Hydrated lime - Scanning electron microscopy - Thermodynamic stability - Methanol - Catalysts - Fatty acids - Fourier transform infrared spectroscopy
Uncontrolled terms: Basic catalysts - BET surface area measurement - Biodiesel production - Fatty acid methyl ester - Fourier transform infra red (FTIR) spectroscopy - Modification - Physical and chemical properties - Reaction temperature
Classification Code: 523 Liquid Fuels - 641.1 Thermodynamics - 801 Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 821.4 Agricultural Products - 822.3 Food Products
Funding Details: Number: 2012D-5006-0405, Acronym: -, Sponsor: PetroChina Innovation Foundation; Number: 11JK0591, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department; Number: 2011JQ2014, Acronym: -, Sponsor: Science and Technology Innovation as a Whole Plan Projects of Shaanxi Province;
Funding text: This work was financially supported by grants from, Natural Science Research Plan Projects of Shaanxi Science and Technology Department (No. 2011JQ2014), Scientific Research Plan Projects of Shaanxi Education Department (No. 11JK0591) and PetroChina Innovation Foundation (2012D-5006-0405).
Database: Compendex
Data Provider: Engineering Village

101. A framework for diagnosing the out-of-control signals in multivariate process using optimized support vector machines (*Open Access*)

Li, Tai-Fu (1); Hu, Sheng (2); Wei, Zheng-Yuan (2); Liao, Zhi-Qiang (3)
Source: *Mathematical Problems in Engineering*, v 2013, 2013; **ISSN:** 1024123X, **E-ISSN:** 15635147; **DOI:** 10.1155/2013/494626; **Article number:** 494626; **Publisher:** Hindawi Limited
Author affiliation: (1) School of Electrical and Information Engineering, Chongqing University of Science and Technology, Chongqing 401331, China (2) School of Mathematics and Statistics, Chongqing University of Technology, Chongqing 400054, China (3) School of Electronic Engineering, Xi'An Shiyou University, Xi'an 710065, China

Abstract: Multivariate statistical process control is the continuation and development of unitary statistical process control. Most multivariate statistical quality control charts are usually used (in manufacturing and service industries) to determine whether a process is performing as intended or if there are some unnatural causes of variation upon an overall statistics. Once the control chart detects out-of-control signals, one difficulty encountered with multivariate control charts is the interpretation of an out-of-control signal. That is, we have to determine whether one or more or a combination of variables is responsible for the abnormal signal. A novel approach for diagnosing the out-of-control signals in the multivariate process is described in this paper. The proposed methodology uses the optimized support vector machines (support vector machine classification based on genetic algorithm) to recognize set of subclasses of multivariate abnormal patters, identify the responsible variable(s) on the occurrence of abnormal pattern. Multiple sets of experiments are used to verify this model. The performance of the proposed approach demonstrates that this model can accurately classify the source(s) of out-of-control signal and even outperforms the conventional multivariate control scheme. © 2013 Tai-fu Li et al. (36 refs)
Main heading: Support vector machines
Controlled terms: Multivariant analysis - Flowcharting - Genetic algorithms - Statistical process control - Control charts
Uncontrolled terms: Abnormal patterns - Control schemes - Multivariate control charts - Multivariate process - Multivariate statistical process control - Out-of-control signals - Statistical quality control - Support vector machine classification
Classification Code: 723 Computer Software, Data Handling and Applications - 723.1 Computer Programming - 731.1 Control Systems - 922 Statistical Methods
Funding Details: Number: 51075418, Acronym: NSF, Sponsor: National Science Foundation; Number: 61174015, Acronym: NSF, Sponsor: National Science Foundation;
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

102. Rheological Properties of Zwitterionic Wormlike Micelle in Presence of Solvents and Cosurfactant at High Temperature

Yang, Jiang (1, 2); Yang, Zhen (1); Lu, Yongjun (2); Chen, Junbin (1); Qin, Wenlong (1)
Source: *Journal of Dispersion Science and Technology*, v 34, n 8, p 1124-1129, August 2013; **ISSN:** 01932691, **E-ISSN:** 15322351; **DOI:** 10.1080/01932691.2012.738125; **Publisher:** Bellwether Publishing, Ltd.
Author affiliation: (1) Department of Petroleum Engineering, Xi'an Petroleum University, Xi'an, Shaanxi, China (2) Fracturing and Acidizing Technical Center, RIPED-Lanfang, PetroChina, China
Abstract: Rheological properties of wormlike micelle solutions of zwitterionic surfactant were studied as a function of cosurfactant, organic salt, and solvents at high temperature. Addition of cosurfactant and organic salt increases the viscoelasticity at high temperature. Addition of isopropanol as solvent shifts the maximum viscosity of wormlike micelle to lower temperature. Addition of propylene glycol as solvent has less effect on the viscoelasticity of the wormlike micelle solution. An analysis based on the polarity of the solvent and phase behavior in concentrate region explains the effect of solvents on worm-like micelle. © 2013 Copyright Taylor and Francis Group, LLC. (22 refs)
Main heading: Solvents
Controlled terms: Biophysics - Micelles - Rheology - Anionic surfactants - Viscoelasticity
Uncontrolled terms: Effect of solvents - High temperature - Lower temperatures - Organic salt - Propylene glycols - Rheological property - Worm-like micelles - Zwitterionic surfactants
Classification Code: 461.9 Biology - 801.3 Colloid Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids
Funding Details: Number: 2010JK784, Acronym: -, Sponsor: -; Number: 51174163, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: Received 11 September 2012; accepted 17 September 2012. The authors acknowledge support of the projects by National Natural Science Foundation of China (Grant No. 51174163), and Shaanxi Province Research Fund No. 2010JK784. Address correspondence to Jiang Yang, Xi’an Petroleum University, Xi’an, Shaanxi, P. R. China. E-mail: jyang98@yahoo.com
Database: Compendex
Data Provider: Engineering Village

103. Reservoir characteristics of Chang 8 and single-well productivity prediction of M wellblock in Huanxian oil district, Longdong area

Zhao, Junlong (1); Yan, Bo (1); Zhao, Jingzhou (1); Wang, Yiping (2); Xu, Dengcai (3); Gao, Xiuli (1)
Source: *Oil and Gas Geology*, v 34, n 5, p 694-699, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130517; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) No.2 Production Plant, PetroChina Changqing Oilfield Company, Qingyang, Gansu 745100, China (3) Coal Bureau of Shuicheng County of Guizhou Province, Shuicheng, Guizhou 553000, China
Abstract: For the purpose of making rational single-well production programs for Chang 8 reservoir of M wellblock in Huanxian oil district area, Longdong and optimizing productivity of M wellblock, we performed a comprehensive study through integrating static geologic features of the reservoir such as lithologies, physical properties, oil-bearing properties with dynamic features like seepage flow patternss and production performance. Based on the geological data, core data, logging data and phase permeability data of the M wellblock, we carried out the research on reservoir characteristics, residual oil distribution and single-well productivity, and predicted the reasonable single-well production of this area. Chang 8 reservoir of M wellblock shows typical ultra-low permeability, significant logging response features and double wettability to oil and water. The reservoirs in M wellblock are structural-lithological reservoirs and the oil-water distribution is controlled by lithology. Oil-bearing properties are good in reservoirs with good poroperm characteristics along the main channel and in reservoirs on relative structural highs. Current production of M wellblock is mainly from southeastern-central part of M wellblock, with residual oil mainly occurring in the northern part and local southern-central part. The physical parameter method, test data conversion method and production test method are suitable for the prediction of single-well production in the study area. The rational single-well production is 3.5~4.0 t/d. These results provide important data-base for the further development of Chang 8 reservoir. (14 refs)
Main heading: Petroleum reservoir engineering
Controlled terms: Forecasting - Lithology - Oil wells - Petroleum reservoirs - Testing - Water supply systems - Well stimulation
Uncontrolled terms: Huanxian oil district - Longdong area - M wellblock - Reservoir characteristic - Single well
Classification Code: 423.2 Non Mechanical Properties of Building Materials: Test Methods - 446.1 Water Supply Systems - 481.1 Geology - 512 Petroleum and Related Deposits - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

104. The application of improved NeuroEvolution of Augmenting Topologies neural network in Marcellus Shale lithofacies prediction

Wang, Guochang (1, 2); Cheng, Guojian (3); Carr, Timothy R. (1)
Source: *Computers and Geosciences*, v 54, p 50-65, April 2013; **ISSN:** 00983004; **DOI:** 10.1016/j.cageo.2013.01.022; **Publisher:** Elsevier Ltd
Author affiliation: (1) Department of Geology and Geography, West Virginia University, Morgantown, WV 26506, United States (2) College of Earth Science, University of Chinese Academy of Sciences, Beijing 100049, China (3) School of Computer Science, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: The organic-rich Marcellus Shale was deposited in a foreland basin during Middle Devonian. In terms of mineral composition and organic matter richness, we define seven mudrock lithofacies: three organic-rich lithofacies and four organic-poor lithofacies. The 3D lithofacies model is very helpful to determine geologic and engineering sweet spots, and consequently useful for designing horizontal well trajectories and stimulation strategies. The NeuroEvolution of Augmenting Topologies (NEAT) is relatively new idea in the design of neural networks, and shed light on classification (i.e., Marcellus Shale lithofacies prediction). We have successfully enhanced the capability and efficiency of NEAT in three aspects. First, we introduced two new attributes of node gene, the node location and recurrent connection (RCC), to increase the calculation efficiency. Second, we evolved the population size from an initial small value to big, instead of using the constant value, which saves time and computer memory, especially for complex learning tasks. Third, in multiclass pattern recognition problems, we combined feature selection of input variables and modular neural network to automatically select input variables and optimize network topology for each binary classifier. These improvements were tested and verified by true if an odd number of its arguments are true and false otherwise (XOR) experiments, and were powerful for classification. © 2013 Elsevier Ltd. (18 refs)
Main heading: Forecasting
Controlled terms: Horizontal wells - Population statistics - Shale - Efficiency - Pattern recognition - Network topology - Biology
Uncontrolled terms: Lithofacies - Marcellus shales - NEAT - Node location - Population sizes
Classification Code: 461.9 Biology - 512.1.1 Oil Fields - 703.1 Electric Networks - 913.1 Production Engineering
Funding Details: Number: 4.605.920.007, Acronym: NETL, Sponsor: National Energy Technology Laboratory; Number: 698796867, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;

Funding text: This research was supported by the U.S. Department of Energy National Energy Technology Laboratory (Activity 4.605.920.007) and National Natural Science Foundation of China (No. 698796867). Special thanks to Energy Corporation of America, Consol Energy, EQT Production and Petroleum Develop Corporation for providing data.
Database: Compendex
Data Provider: Engineering Village

105. Influence of graphene oxide on the tribological and electrical properties of PMMA composites (*Open Access*)

Song, Jiale (1); Zhang, Jiaoxia (2); Lin, Chunling (3)
Source: *Journal of Nanomaterials*, v 2013, 2013; **ISSN:** 16874110, **E-ISSN:** 16874129; **DOI:** 10.1155/2013/846102; **Article number:** 846102; **Publisher:** Hindawi Limited
Author affiliation: (1) School of Materials Science and Engineering, Chang'an University, Xian 710064, China (2) School of Materials Science and Engineering, Jiangsu University of Science and Technology, Zhenjiang 212003, China (3) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The graphene oxide (GO) was obtained by Hummers' method using natural graphite as raw materials. Then, the GO/poly(methyl methacrylate) (PMMA) nanocomposites were prepared by in situ polymerization. The tribological and electrical properties of nanocomposites were studied. As a result, the frictional coefficient of GO/PMMA nanocomposites was prominently improved with the content of the graphene oxide increasing. The electrical properties of nanocomposites were slightly increased when adding the graphene oxide. © 2013 Jiale Song et al. (13 refs)
Main heading: Nanocomposites
Controlled terms: Acrylic monomers - Graphene - Esters - Friction - Tribology
Uncontrolled terms: Frictional coefficients - In-situ polymerization - Methyl methacrylates - Natural graphite
Classification Code: 761 Nanotechnology - 804 Chemical Products Generally - 804.1 Organic Compounds - 931 Classical Physics; Quantum Theory; Relativity - 933 Solid State Physics
Open Access type(s): All Open Access, Gold, Green
Database: Compendex
Data Provider: Engineering Village

106. Blue-green emission mechanism and spectral shift of Al-doped ZnO films related to defect levels

Chen, Haixia (1); Ding, Jijun (2); Guo, Wenge (1); Chen, Guoxiang (1); Ma, Shuyi (3)
Source: *RSC Advances*, v 3, n 30, p 12327-12333, August 14, 2013; **E-ISSN:** 20462069; **DOI:** 10.1039/c3ra40750k; **Publisher:** Royal Society of Chemistry
Author affiliation: (1) School of Science, Xi'An Shiyou University, Xi'an Shanxi, 710065, China (2) Electronic Materials Research Laboratory, Key Laboratory of Ministry of Education, Xi'An Jiaotong University, Xi'an, 710049, China (3) College of Physics and Electronics Engineering, Northwest Normal University, Lanzhou, 730070, China
Abstract: The crystal structure, surface morphology, chemical state and optical properties of Al-doped ZnO films grown at different sputtering powers are studied. Results indicated that compressive stress related to defects exists in all the samples measured by X-ray diffraction. Blue-green emission mechanisms and a blue-shift were explored based on defects sites. The peak at 458 nm comes from the electron transition from interstitial Zn to the top of the valence band and transition from the conduction band to misplaced oxygen defects. The peak at 490 nm comes from the electron transition from interstitial Zn to Zn vacancies or interstitial O and transition from a complex defect level of O vacancies and interstitial Zn to the valence band. The existence of compressive stress related to the defects in Al-doped ZnO plays a significant role in the blue-green emission and blue-shift. © The Royal Society of Chemistry 2013. (40 refs)
Main heading: Electron transitions
Controlled terms: Compressive stress - Crystal structure - Optical properties - X ray diffraction - Aluminum compounds - II-VI semiconductors - Zinc oxide - Valence bands - Metallic films - Zinc
Uncontrolled terms: Al-doped zno films - Blue-green emissions - Chemical state - Complex defects - Oxygen defect - Properties of Al - Spectral shift - Sputtering power
Classification Code: 546.3 Zinc and Alloys - 712.1 Semiconducting Materials - 741.1 Light/Optics - 804.2 Inorganic Compounds - 933.1.1 Crystal Lattice
Database: Compendex
Data Provider: Engineering Village

107. Travelling wave deflecting characteristics of streak-tube

Li, Hao (1, 2); Tian, Jin-Shou (1); Li, Yan (3); Wang, Chao (1); Wen, Wen-Long (1); Wang, Jun-Feng (1); Wang, Xing-Chao (1)
Source: *Guangzi Xuebao/Acta Photonica Sinica*, v 42, n 7, p 792-796, July 2013; **Language:** Chinese; **ISSN:** 10044213; **DOI:** 10.3788/gzxb20134207.0792; **Publisher:** Chinese Optical Society
Author affiliation: (1) State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, Xi'an 710119, China (2) Graduate University of Chinese Academy of Sciences, Beijing 100049, China (3) Xi'an Shiyou University, Xi'an 710065, China
Abstract: In order to obtain deflection device having wide bandwidth, small dispersion and high deflection sensitivity, a kind of traveling wave deflector is designed. Using commercial electromagnetic simulation software CST finite element method, bandwidth of traveling wave deflector in streak camera is studied, and the travelling wave deflector characteristics of dispersion curves, characteristic impedance changing with frequency and electron beam deflecting function are studied numerically using finite integration method. The comparison of deflecting sensitivity between traveling wave deflector and traditional plating deflector is made. Moreover, the electric field distribution in traveling wave deflector with sinewave scanning voltage signal is simulated. The results show that bandwidth of sharp top deflector is bigger than that of round top deflector and that bandwidth becomes smaller when legs of deflector become longer, with the biggest bandwidth of 7 GHz; phase velocity and group velocity decrease with the increasing of frequency; when frequency increases, a peak value exists for characteristic impedance; under the same dimensions, the deflecting sensitivity of travelling wave detector is two times higher than that of plating deflector; the electric field produced by sinewave scanning voltage appears periodic; the designed traveling wave deflector has wide bandwidth, of which dispersion is small in wide frequency range, and it can effectively make electron beam deflect. (17 refs)
Main heading: Bandwidth
Controlled terms: Slow wave structures - Dispersion (waves) - Electromagnetic simulation - Electron beams - Finite element method - Wave transmission - Computer software - Electric fields
Uncontrolled terms: Characteristic impedance - Deflection sensitivities - Dispersion characteristics - Dispersion curves - Electric field distributions - Finite integration method - Travelling waves - Wide frequency range
Classification Code: 701.1 Electricity: Basic Concepts and Phenomena - 714.3 Waveguides - 716.1 Information Theory and Signal Processing - 723 Computer Software, Data Handling and Applications - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

108. Thermal shock resistance of a 2D-C/SiC composite and its damage mechanisms

Zhang, C. (1); Wang, H. (1); Liu, Y. (1); Qiao, S. (1); Li, M. (1); Han, D. (1); Zhang, J. (2); Guo, Y. (3)
Source: *Advances in Applied Ceramics*, v 112, n 8, p 499-504, November 2013; **ISSN:** 17436753, **E-ISSN:** 17436761; **DOI:** 10.1179/1743676113Y.0000000120; **Publisher:** Maney Publishing
Author affiliation: (1) Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University, Xi'an 710072, China (2) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (3) School of Chemistry and Chemical Engineering, Shanxi Datong University, Datong 037009, China
Abstract: The present work investigates the thermal shock properties of a two-dimensional carbon fibre reinforced silicon carbide composite (2D-C/SiC) in air. The 2D-C/SiC specimens were thermally shocked up to 60 cycles between 900 and 300°C. The thermal shock resistance was characterised by the residual ultimate tensile strength (UTS) and interlaminar shear strength (ILSS). The surface morphology and microstructure of the thermally shocked specimens were examined by a scanning electron microscope and an X-ray diffractometer. It is found that ILSS is more sensitive to the damage caused by thermal shock. The composite retains its UTS within 20 thermal shock cycles. However, the ILSS of 2D-C/SiC decreases gradually with increasing thermal shock cycles. The damage mechanisms involve matrix cracking, weakening of the bonding strength of coating/composite and/or fibre/matrix interface, as well as oxidation of PyC interface and carbon fibres. © 2013 Institute of Materials. (29 refs)
Main heading: Silicon carbide
Controlled terms: Carbon fibers - Scanning electron microscopy - Shear strength - Tensile strength - Thermal shock - Failure (mechanical) - Reinforcement
Uncontrolled terms: Damage - Fibre/matrix interfaces - Interlaminar shear strength - Strength - Thermal shock properties - Thermal shock resistance - Ultimate tensile strength - X ray diffractometers
Classification Code: 804 Chemical Products Generally - 804.2 Inorganic Compounds - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

109. Density functional theory study of p-type transparent conducting 2H-CuAlo2 oxide

Liu, Wenting (1); Luo, Yuanyuan (1); Liu, Zhengtang (2); Wei, Zhimin (3)
Source: *Applied Mechanics and Materials*, v 252, p 263-266, 2013, *Advanced Research on Applied Mechanics and Manufacturing System*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855621; **DOI:** 10.4028/www.scientific.net/AMM.252.263; **Conference:** 2012 International Conference on Applied Mechanics and Manufacturing System, AMMS 2012, November 24, 2012 - November 25, 2012; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) State Key Lab of Solidification Processing, School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an 710072, China (3) The Fourth Academy of CASC, Xi'an 710025, China
Abstract: CuAlO2 is an important p-type transparent conductive oxide (TCO) material. Thus, in this paper, the structure and properties of 2H-CuAlO2 are calculated using the plane-wave ultrasoft pseudopotential technique based on the first-principles density functional theory. The calculated equilibrium lattice parameters is in good agreement with experimental and reported values. The energy band gap of 2H-CuAlO2 has been calculated and the results shows that 2H-CuAlO2 has an indirect band gap. The density of state for 2H-CuAlO2 has also been calculated. © (2013) Trans Tech Publications, Switzerland. (19 refs)
Main heading: Density functional theory
Controlled terms: Energy gap - Aluminum compounds - Copper oxides - Transparent conducting oxides
Uncontrolled terms: 2H-CuAlo2 - Density of state - First-principles density functional theory - Indirect band gap - P-type - Plane wave - Structure and properties - Transparent conducting oxide - Transparent conductive oxides - Ultrasoft pseudopotentials
Classification Code: 708.2 Conducting Materials - 804.2 Inorganic Compounds - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics
Database: Compendex
Data Provider: Engineering Village

110. Study of horizontal well fracture initiation pressure based on nonlinear constraint model (*Open Access*)

Wang, Liupeng (1, 2); Li, Qi (1, 2); Wang, Zhiyue (2)
Source: *Journal of Applied Sciences*, v 13, n 11, p 1984-1987, 2013; **ISSN:** 18125654, **E-ISSN:** 18125662; **DOI:** 10.3923/jas.2013.1984.1987; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) Key Laboratory of Petroleum Engineering of the Ministry of Education, Department of Oil-Gas Development Engineering, Collage of Petroleum Engineering, China University of Petroleum-Beijing, P.O. Box 102249,Changping Fuxue Road 18, Beijing, China (2) Department of Oil-Field Development, Collage of Petroleum Engineering, Xian Shiyou University, Box 710065, Dian zi 2nd Road 18, Xian, China
Abstract: Hydraulic fracturing of horizontal well has been a principal stimulation treatment for low permeable reservoirs. Accurately calculate Fracture Initiation Pressure (FIP) is a key factor to the success of hydraulic fracturing operation for horizontal well. Conventional FIP solution model of horizontal well utilize well-bore pressure increment as the iteration step. Therefore, it has disadvantages such as slow convergence speed and lower computational precision. In this paper, a new optimization solution model is proposed for horizontal well FIP calculation. The model transforms the solving process of FIP into the searching problem of minimum objective function under nonlinear constraint condition. Optimization calculation equations for FIP for horizontal well under open hole and perforation completion is established based on the model. The solving flow chart by using outer-point-penalty function method is devised. Verification of the model is completed through calculation of an actual horizontal well data. The results show that proposed model has superiority of faster computational convergence speed and higher calculation precision than the convention models. © 2013 Asian Network for Scientific Information. (12 refs)
Main heading: Hydraulic fracturing
Controlled terms: Mathematical transformations - Nonlinear analysis - Fracture - Computation theory - Iterative methods - Horizontal wells - Site selection
Uncontrolled terms: Computational convergence - Computational precision - Fracture initiation pressures - Low permeable reservoirs - Non-linear constraints - Optimization calculation - Optimization theory - Outer point penalty function method
Classification Code: 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 921.3 Mathematical Transformations - 921.6 Numerical Methods - 951 Materials Science
Open Access type(s): All Open Access, Bronze

Database: Compendex
Data Provider: Engineering Village

111. Dynamic prediction model based on FNN-UKF neural networks for alumina concentration

Yi, Jun (1); Li, Tai-Fu (1, 2); Hou, Jie (2); Yao, Li-Zhong (3); Tian, Ying-Fu (4)
Source: *Sichuan Daxue Xuebao (Gongcheng Kexue Ban)/Journal of Sichuan University (Engineering Science Edition)*, v 45, n 1, p 169-174, January 2013; **Language:** Chinese; **ISSN:** 10093087; **Publisher:** Sichuan University
Author affiliation: (1) College of Electronic and Info. Eng., Chongqing Univ. of Sci. and Technol., Chongqing 401331, China (2) College of Automation, Chongqing Univ., Chongqing 400044, China (3) College of Electronic Eng., Xi'an Shiyou Univ., Xi'an 710065, Shan'xi, China (4) Chongqing Tiantai Aluminum Co. Ltd., Chongqing 401328, China
Abstract: Based on false nearest neighbors and unscented kalman filter (FNN-UKF), a dynamic prediction method for alumina concentration was proposed. In the new KPCA feature subspace, it was inspired by FNN that interpretation of alumina concentration would be estimated by calculating the variables mapping distance in the KPCA space to select secondary variables. Selected variables were introduced into BP neural networks as input vector. UKF algorithm, in which estimated value and variance matrix of state were updated to improve the generalization capability of the networks, was used to train weight values and threshold values. By using 247 samples of 160KA operating aluminum cell from a factory, experimental results demonstrated that the forecast error of 228 samples was ±1%, the computation was decreased to 52.07%. The method in which the computation time was reduced effectively can surely accuracy of parameter estimation. (16 refs)
Main heading: Neural networks
Controlled terms: Aluminum oxide - Principal component analysis - Forecasting - Alumina
Uncontrolled terms: Accuracy of parameters - Alumina concentration - Dynamic prediction - False nearest neighbor - Generalization capability - Kernel principal component - Secondary variables - Unscented Kalman Filter
Classification Code: 804.2 Inorganic Compounds - 922.2 Mathematical Statistics
Database: Compendex
Data Provider: Engineering Village

112. The state estimation of oil pipeline based on UKF

Xiao, Rong-Ge (1, 2); Wang, Yong-Hong (2); Wei, Bing-Qian (1); Chen, Gang (1)
Source: *Energy Education Science and Technology Part A: Energy Science and Research*, v 31, n 4, p 2609-2612, 2013; **ISSN:** 1308772X; **Publisher:** Sila Science
Author affiliation: (1) Xi'an University of Technology, College of Hydraulic and Hydropower, Xi'an 710048, China (2) Xi'an petroleum University, College of Petroleum Engineering, Xi'an, 710065, China
Abstract: From the perspective of active optimization to consider the problem of the pipeline control, the first is to solve the problem of reconstruction of pipeline state, that is, to build the state estimator, lied the foundation for optimal control of the pipeline. In this passage, several typical data filtering methods are introduced, discussed the Kalman filter theory, based on inverse problem analysis method to construct adaptive unscented Kalman filter (UKF), on state estimation for the pipeline, in order to get the value of state parameters of pipeline. © Sila Science. All Rights Reserved. (6 refs)
Main heading: Kalman filters
Controlled terms: Problem solving - Bandpass filters - Inverse problems - State estimation
Uncontrolled terms: Kalman filter theory - Oil pipelines - Optimal controls - Pipeline controls - Problem analysis - State Estimators - State parameters - Unscented Kalman Filter
Classification Code: 703.2 Electric Filters - 731.1 Control Systems
Database: Compendex
Data Provider: Engineering Village

113. Synthesis and evaluation of isatin derivatives as corrosion inhibitors for Q235A steel in highly concentrated HCl

Chen, Gang (1); Su, Hui-Jun (1); Song, Ying-Pan (1); Gao, Yu (1); Zhang, Jie (1); Hao, Xiao-Jiang (2); Zhao, Jing-Rui (3)
Source: *Research on Chemical Intermediates*, v 39, n 8, p 3669-3678, October 2013; **ISSN:** 09226168, **E-ISSN:** 15685675; **DOI:** 10.1007/s11164-012-0870-9; **Publisher:** Kluwer Academic Publishers

Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an 710065 Shaanxi, China (2) State Key Laboratory of Phytochemistry and Plant Resources in West China, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650204, China (3) Shannxi hai'An Industry Co. Ltd., Xi'an 710065, China
Abstract: A series of inhibitors - isatin derivatives aimed at anticorrosion of Q235A steel - was synthesized. The molecule structures were analyzed by NMR and MS. The inhibition on the corrosion in a concentrated HCl solution as high as 3 M was studied by weight loss, molecular simulation, and potentiodynamic polarization. The results indicate that isatin derivatives act as mixed type (cathodic/anodic) inhibitors. Several compounds were investigated in the formulations, during which compound 6 shows 95.5 % inhibition efficiency under the concentration of 100 mg/L accompanied by urotropine and 1,4-dihydroxy-2- butyne. © 2012 Springer Science+Business Media Dordrecht. (28 refs)
Main heading: Corrosion inhibitors
Controlled terms: Chlorine compounds - Steel corrosion
Uncontrolled terms: Anti-corrosion - Formulation - HCl solution - Inhibition efficiency - Isatin derivatives - Molecular simulations - Urotropine - Weight loss
Classification Code: 539.1 Metals Corrosion - 539.2.1 Protection Methods - 545.3 Steel - 803 Chemical Agents and Basic Industrial Chemicals
Funding Details: Number: 2012KJXX-40, Acronym: -, Sponsor: Scientific Research Plan Projects of Shaanxi Education Department; Number: 50874092, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: Acknowledgment This work was financially supported by the grants from National Science Foundation of China (50874092), Scientific and Technological Plan Projects of Shaanxi Province of China (2012KJXX-40).
Database: Compendex
Data Provider: Engineering Village

114. Applied research on the closed-loop control of oil production system with progressing cavity pump

Zhu, Duanyin (1); Xu, Jianning (1); Gao, Yanxiong (1); Lv, Wenjie (1)
Source: *Applied Mechanics and Materials*, v 248, p 119-123, 2013, *Mechanical Materials and Manufacturing Engineering II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855560; **DOI:** 10.4028/www.scientific.net/AMM.248.119; **Conference:** 2012 International Conference on Mechanical Materials and Manufacturing Engineering, ICMMME 2012, October 5, 2012 - October 6, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi province, 710065, China
Abstract: It aimed to dynamic change of oilfield productivity, maked sure that the progressing cavity pump is working in a highly efficient region. It combined variable frequency conversion technology and dynamic liquid level height control technology, the closed-loop control of oil production system with progressing cavity pump is made up of rotation-speed and torsion sensor, stepless motor, frequency converter, PLC and progressing cavity pump. The result show that the system can control the pump submergence depth by adjusting the rotation-speed and torsion of polish rod, and make sure the pump working in a highly efficient region finally. This system also can increase recovery efficiency and pump service life. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Pumps
Controlled terms: Closed loop control systems - Oil fields - Torsional stress - Stepping motors - Manufacture
Uncontrolled terms: Applied research - Closed-loop control - Dynamic changes - Height control - Liquid level - Oil production - Progressing cavity pumps - Recovery efficiency - Submergence depth - Variable frequencies
Classification Code: 512.1.1 Oil Fields - 537.1 Heat Treatment Processes - 618.2 Pumps - 705.3 Electric Motors - 731.1 Control Systems - 913.4 Manufacturing - 961 Systems Science
Database: Compendex
Data Provider: Engineering Village

115. Development of a new adjustable water injection faucet

Han, Chengcai (1); Feng, Peng (1)
Source: *Applied Mechanics and Materials*, v 303-306, p 2762-2768, 2013, *Sensors, Measurement and Intelligent Materials*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856529; **DOI:** 10.4028/www.scientific.net/AMM.303-306.2762; **Conference:** 2012 International Conference on Sensors, Measurement and Intelligent Materials, ICSMIM 2012, December 26, 2012 - December 27, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering of Xi'an shiyou University, Xian, Shanxi 710065, China

Abstract: Based on the analysis of the structure and the characteristic of the existing water injection faucet, a new type of adjustable water injection faucet is developed this article. The article introduces the structure, principle of the new adjustable water injection faucet and analysis and establishes the design calculation model with the relevant performance tests. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Water injection
Controlled terms: Fluid mechanics - Oil well flooding - Structural design
Uncontrolled terms: Adjustable - Design calculations - Performance tests
Classification Code: 408.1 Structural Design, General - 511.1 Oil Field Production Operations - 612.1 Internal Combustion Engines, General - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

116. An analysis on the characteristics of the Shan-2 Formation gas pools in Yulin-Zizhou area of Ordos basin

Zhao, Dan-Feng (1); Zhao, Jing-Zhou (1); Chen, Ying (1)
Source: *Natural Gas Geoscience*, v 24, n 2, p 320-328, April 2013; **Language:** Chinese; **ISSN:** 16721926; **Publisher:** Science Press
Author affiliation: (1) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Yulin and Zizhou gas fields are two upper Paleozoic large gas fields, and locate in the east of the Ordos basin. Both gas fields have geological reserves more than 1000×108m3. The Permian Shan-2 Formation is the main reservoir for these two gas fields. Source rocks of the gas pools in the Shan-2 Formation are widely distributed and have high maturity. The reservoir is tight and near to the source, the source-reservoir-seal combination of which is rather good. A lot of lithologic trap groups exist, and the boundary of the gas pools is hard to judge. Gas generally exist in the whole area, but the gas-water inversion phenomena is unobvious. Sand bodies have bad conjunction and high heterogeneity. The distribution of gas and water is complicated, and the differentiation is not obvious, and the current tectonics play little role in the gas-water distribution. The accumulation of gas reservoirs is mainly controlled by hydrocarbon-generation intensity of source rocks, reservoir property and effective sand body thickness. In view of the accumulation characteristics and mode, it suggests that the gas reservoirs in Shan-2 Formation of Yulin-Zizhou area in the Ordos basin conform to the characteristics of quasi-continuous gas reservoirs, as is characterized by that the reservoir is tight, and accumulate outside but is maintained near to the source, and the gas is distributed in quasi-continuous pattern, while the trap is between visible and invisible. (25 refs)
Main heading: Gases
Controlled terms: Petroleum reservoirs - Lakes - Tight gas - Geochronology - Metamorphic rocks - Proven reserves - Natural gas fields - Water supply systems - Gas industry
Uncontrolled terms: Accumulation characteristics - Gas reservoir - Ordos Basin - Tight sandstone gas - Upper Paleozoic
Classification Code: 446.1 Water Supply Systems - 481.1 Geology - 481.3 Geophysics - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 512.2.1 Natural Gas Fields - 522 Gas Fuels
Database: Compendex
Data Provider: Engineering Village

117. Modified calcium oxide as stable solid base catalyst for Aldol condensation reaction (*Open Access*)

Tang, Ying (1); Xu, Jingfang (1); Gu, Xuefan (1)
Source: *Journal of Chemical Sciences*, v 125, n 2, p 313-320, March 2013; **ISSN:** 09743626, **E-ISSN:** 09737103; **DOI:** 10.1007/s12039-013-0362-5; **Publisher:** Springer
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an, Shaanxi, China
Abstract: A highly efficient and stable solid-base catalyst for Aldol condensation was prepared by modifying commercial CaO with benzyl bromide in a simple way. It was found that modified CaO can effectively catalyse the Aldol condensation of cyclohexanone and benzaldehyde, as well as various benzaldehydes, to produce 2-benzylidenecyclohexanone with a good selectivity and high yield. Higher yield of 95.8% was obtained over modified CaO after 3 h, which is short compared with the yield of 92.1% after 12 h over commercial CaO. The influence of several reaction parameters, such as temperature, catalyst loading, was investigated. The humidity test over modified CaO reveals that the basic centres of modified CaO are stable for CO2 and moisture. From the results of Fourier transform-infrared (FT-IR) and Thermogravity analysis (TG) characterization, the modifier was bonded on surface

of CaO chemically and almost no Ca(OH) 2 formed during the modification process. The type of aldehyde has great influence on the yield of aldol condensation. © 2013 Indian Academy of Sciences. (17 refs)
Main heading: Surface treatment
Controlled terms: Condensation reactions - Catalysts - Condensation - Hydrated lime - Lime - Ketones
Uncontrolled terms: Aldol condensation - Catalyst loadings - Fourier transform infrared - Humidity tests - Modification process - Reaction parameters - Solid base catalysts - Thermogravity analysis
Classification Code: 802.2 Chemical Reactions - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 804.2 Inorganic Compounds
Funding Details: Number: 2011JQ2014, Acronym: -, Sponsor: -; Number: -, Acronym: -, Sponsor: PetroChina Innovation Foundation;
Funding text: This work was financially supported through grants from Scientific Research Program Funded by Natural Science Research Plan Projects of Shaanxi Science and Technology Department (No. 2011JQ2014) and PetroChina Innovation Foundation.
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

118. Corrosion behavior of ultra-fine grain chromium bronze prepared by equal-channel angular pressing in HCl solution

Zhang, Y.N. (1); Xu, T.H. (1); Wang, D.H. (1)
Source: *Advanced Materials Research*, v 662, p 258-261, 2013, *Nanotechnology and Precision Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037856406; **DOI:** 10.4028/www.scientific.net/AMR.662.258; **Conference:** 2012 International Conference on Nanotechnology and Precision Engineering, ICNPE 2012, December 26, 2012 - December 27, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xian 710065, China
Abstract: The corrosion resistance of Ultra-fine grain (UFG) chromium bronze, prepared by Equal-channel angular pressing (ECAP) processing, was investigated in HCl solution at room temperature and atmospheric pressure by electrochemistry technique and immersion experiment. The results shows that the corrosion potential of chromium bronze is decreased with ECAP processing. But the corrosion resistance is deteriorated slightly. According to the immersion tests, the weight-loss of UFG chromium bronze, compared with its counterpart, is higher in the initial stage and lower in the later stage, and the gap is in the range of 5%-15%. The corrosion mechanism on the UFG chromium bronze is deduced from the experiment data and corrosion morphology. © (2013) Trans Tech Publications, Switzerland. (10 refs)
Main heading: Corrosion resistance
Controlled terms: Atmospheric pressure - Grain size and shape - Atmospheric corrosion - Corrosive effects - Equal channel angular pressing - Bronze - Chlorine compounds
Uncontrolled terms: Chromium-bronze - Corrosion behavior - Corrosion mechanisms - Corrosion morphology - Corrosion potentials - HCl solution - Room temperature - Ultra fine grain
Classification Code: 443.1 Atmospheric Properties - 535.2 Metal Forming - 539.1 Metals Corrosion - 544.2 Copper Alloys - 546.2 Tin and Alloys
Database: Compendex
Data Provider: Engineering Village

119. The finite element thermal analysis for lubricating oil transfer pump in different convection heat transfer coefficient with special material properties

Xu, JianNing (1); Lv, Wei (1); Lv, WenJie (1); Zhu, DuanYin (1)
Source: *Advanced Materials Research*, v 625, p 167-170, 2013, *Research on Mechanics, Dynamic Systems and Material Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855690; **DOI:** 10.4028/www.scientific.net/AMR.625.167; **Conference:** 2012 International Conference on Mechanics, Dynamic Systems and Material Engineering, MDSME 2012, November 24, 2012 - November 25, 2012; **Sponsor:** Wuhan institute of technology; Beijing Material Research Center; International Material Research Society, Hong Kong; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi province, 710065, China
Abstract: Lubricating oil transfer pump is important functional subsystem in two-screw pump system, and all moving parts works very fast, it is easy to generate heat, that not only affect the lubricating oil transfer pump's temperature field, but also make transmission failure by the thermal deformation which caused by high temperature of parts in

contact. This paper established a finite element thermal analysis model and boundary conditions of lubricating oil transfer pump, and calculated the temperature field and thermal deformation for it during the process of oil extraction in different coefficient of convective heat transfer, analysis the change rule of the steady state temperature field and thermal deformation, proved that lubricating oil transfer pump can normal work in certain conditions. © (2013) Trans Tech Publications, Switzerland. (3 refs)
Main heading: Screw pumps
Controlled terms: Lubricating oils - Deformation - Temperature - Finite element method - Screws - Heat convection - Lubrication - Thermoanalysis
Uncontrolled terms: Convective heat transfer - Finite Element - Functional subsystems - High temperature - Material property - Moving parts - Oil extraction - Pump system - Steady-state temperature - Thermal deformation - Transfer pumps - Transmission failures
Classification Code: 605 Small Tools and Hardware - 607.1 Lubricants - 607.2 Lubrication - 618.2 Pumps - 641.1 Thermodynamics - 641.2 Heat Transfer - 801 Chemistry - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

120. Study on treatment to methanol wastewater by UV/Fenton

Xie, Juan (1); Wang, Xin Qiang (1); Qu, Cheng Tun (1)
Source: *Advanced Materials Research*, v 807-809, p 1473-1478, 2013, *Environmental Protection and Resources Exploitation*; **ISSN:** 10226680; **ISBN-13:** 9783037858622; **DOI:** 10.4028/www.scientific.net/AMR.807-809.1473; **Conference:** 2013 International Conference on Advances in Energy and Environmental Science, ICAEES 2013, July 30, 2013 - July 31, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi, China
Abstract: In this paper, aqueous methanol (methanol concentration 1000 mg&middotl-1) degradation was studied by using UV/Fenton, and effect of methanol degradation was evaluated with COD removal rate. When pH was determined, H2O2 dosage, Fe2+ dosage and reaction time were investigated by single factor test, respectively. In the orthogonal experiment, UV/Fenton was used to deal with wastewater of 1000 mg&middotl-1methanol, the order of the influent factors on COD removal was: H2O2 dosage > reaction time > Fe2+content. Under the optimal condition (6%H2O250 ml&middotl-1, Fe2+0.9 g&middotl-1, reaction time 60 min), 95.77% COD removal rate was obtained. In addition, a comparison of UV, Fenton regent and UV/Fenton system indicated that UV and Fe2+ had synergistic effect on catalytic decomposition of H2O2, and reaction time to obtain the highest COD removal was shorted 10 min when UV/Fenton was used. © (2013) Trans Tech Publications, Switzerland. (15 refs)
Main heading: Methanol
Controlled terms: Binary alloys - Wastewater treatment
Uncontrolled terms: Aqueous methanol - Catalytic decomposition - Fenton reagents - Methanol concentration - Optimal conditions - Orthogonal experiment - Synergistic effect - UV
Classification Code: 452.4 Industrial Wastes Treatment and Disposal - 804.1 Organic Compounds
Database: Compendex
Data Provider: Engineering Village

121. Corrosion factors analysis and anti-corrosion measures research of Changqing Oil Field concentrated treatment station

Qu, Chengtun (1); Wang, Xin (1); Su, Hongguang (1); Tian, Jing (1); Yang, Xue (1)
Source: *Applied Mechanics and Materials*, v 295-298, p 1144-1148, 2013, *Progress in Environmental Protection and Processing of Resource*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856499; **DOI:** 10.4028/www.scientific.net/AMM.295-298.1144; **Conference:** 2012 International Conference on Sustainable Energy and Environmental Engineering, ICSEEE 2012, December 29, 2012 - December 30, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an, Shannxi, China
Abstract: In this experiment the main corrosion factors of produced water in Changqing Oil Field concentrated treatment station was studied. In terms of ion component analysis, dissolved oxygen detection, bacteria content measurement, corrosion rate determination, as well as Gray Relational Analysis (GRA) method. And the corrosion products Scanning Electron Microscope Energy Dispersive X-ray analysis(SEM/EDX) were conducted. The results showed that the TGB content, pH value, S2-content, HCO3-, and dissolved oxygen content were the main corrosion factors. This study indicated that the corrosion rate of the system could be reduced from 0.0872mm/a to 0.0074mm by

increasing pH value of oilfield produced water appropriately, strengthening the intensity of sulfur removal, controlling the bacterial content by adding fungicides etc. © (2013) Trans Tech Publications, Switzerland. (13 refs)
Main heading: Produced Water
Controlled terms: pH - Corrosion rate - Scanning electron microscopy - Energy dispersive X ray analysis - Dissolved oxygen
Uncontrolled terms: Anti-corrosion - Content measurements - Dissolved oxygen contents - Energy dispersive x-ray - Gray relational analysis - Oilfield produced waters - Produced water - Scanning Electron Microscope
Classification Code: 452.3 Industrial Wastes - 801 Chemistry - 801.1 Chemistry, General - 944.8 Radiation Measurements
Database: Compendex
Data Provider: Engineering Village

122. Genesis of illite in Chang 7 tight oil reservoir in Heshui area, Ordos Basin

Tian, Jianfeng (1); Gao, Yongli (2); Zhang, Pengbo (1); Wang, Xiujuan (3); Yang, Youyun (1)
Source: *Oil and Gas Geology*, v 34, n 5, p 700-707, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130518; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (3) Exploration and Development Research Institute, PetroChina Changqing Oilfield Company, Xi'an, Shaanxi 710021, China
Abstract: Chang 7 reservoir in Heshui area, Ordos Basin is a typical tight oil reservoir with high content of illite up to 9.1%, which is the key factor controlling the quality of reservoir. Analyses of the composition, distribution and occurrence of illite through SEM, EDS, cast thin section and X-diffraction show that the Chang 7 reservoir is very fine turbidity sandstones. The pervasive dissolution of K-feldspar yield lots of secondary pore which is the main pore type. The illites are complex in chemical composition and are mainly in scattered, chaotic sheet-like shape. They only occur in residue intergranular pores. And their content increases with the decreasing of grain size. In comparison with the adjacent shales, the relative content of clay mineral is similar, but the K-feldspar/plagioclase ratio is smaller. Volcanic activities were very intense during the deposition of Chang 7, which provides the favorable condition for semctite development at the early diagenetic stage. The semctites were transformed to illites subsequently. This process may be the main genesis of illite in Chang 7, as illitization of smectite is very common. In addition, the palaeo-geotemperature in the study area is generally lower than 120°C and there are no external potassium-rich hot fluid input, making it impossible for the formation of illite of other genesis. (31 refs)
Main heading: Clay minerals
Controlled terms: Metamorphic rocks - Petroleum reservoir engineering - Petroleum reservoirs
Uncontrolled terms: Heshui area - Illite - Oil reservoirs - Ordos Basin - Reservoir characteristic - Tight oil
Classification Code: 481.1 Geology - 481.1.2 Petrology (Before 1993, use code 482) - 482.2 Minerals
Database: Compendex
Data Provider: Engineering Village

123. Influence of hardness on casing wear resistance in polysulfide water based drilling fluid

Dou, Yihua (1); Zhou, Hailing (1); Wang, Xiaozeng (2); Yang, JingWen (1)
Source: *Advanced Materials Research*, v 634-638, n 1, p 3595-3598, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.3595; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China (2) Jiaying University, Meizhou, Guangdong, 514015, China
Abstract: Worn casing often appears in deep and ultra deep well which effected by many factors in drilling process, such as casing grades, drilling fluid density and contact forces, and so on. Using polysulfide water-based drilling fluid, simulating the actual bit pressure, rotary speed and other influencing factors, the wear experiments of TP140,VM140,P110 and N80 casing which often are adopted in the oilfield are completed, and the wear efficiency and friction coefficient which are adopted to predict down hole casing wear are obtained. The experimental results show that the higher casing steel grade, the greater the hardness, the better wear performance. The experiments can help deepen the understanding of the mechanism of casing wear. Adopting the results which are obtained in research the prediction accuracy of down hole casing wear can be improved. © (2013) Trans Tech Publications, Switzerland. (13 refs)

Main heading: Efficiency
Controlled terms: Wear resistance - Hardness - Friction - Oil fields - Drilling fluids - Wear of materials - Tribology
Uncontrolled terms: Casing - Casing wear - Contact forces - Down holes - Drilling fluid density - Drilling process - Friction coefficients - Prediction accuracy - Rotary speed - Steel grades - Ultra-deep wells - Water based drilling fluids - Water-based drilling fluid - Wear performance
Classification Code: 512.1.1 Oil Fields - 913.1 Production Engineering - 931 Classical Physics; Quantum Theory; Relativity - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

124. Extracts of Punica granatum Linne husk as green and eco-friendly corrosion inhibitors for mild steel in oil fields

Chen, Gang (1); Zhang, Min (1); Pang, Min (1); Hou, Xiao-Qing (1); Su, Huijun (1); Zhang, Jie (1)
Source: *Research on Chemical Intermediates*, v 39, n 8, p 3545-3552, October 2013; **ISSN:** 09226168, **E-ISSN:** 15685675; **DOI:** 10.1007/s11164-012-0861-x; **Publisher:** Kluwer Academic Publishers
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an 710065 Shaanxi, China
Abstract: Extracts of pomegranate have been investigated, by use of weight loss and potentiodynamic polarization techniques, as green and eco-friendly inhibitors of corrosion of Q235A steel in 1 M hydrochloric acid solution at 60 C. The efficiency of inhibition by the extracts varied with extract concentration from 10 to 1,000 mg/L; the highest efficiency was 95.0 %. The extracts inhibit corrosion mainly by an adsorption mechanism. In addition, the hydroxyl and ether groups of polyphenols can capture the H+ to reduce the corrosion, and the polyphenols can eliminate dissolved O2 to inhibit oxygen-adsorption corrosion. Potentiodynamic polarization studies show that extracts are mixed-type inhibitors. © 2012 Springer Science+Business Media Dordrecht. (29 refs)
Main heading: Corrosion inhibitors
Controlled terms: Extraction - Plants (botany) - Efficiency - Environmental protection - Oil fields - Steel corrosion - Polarization - Dissolved oxygen
Uncontrolled terms: Eco-friendly - Green - Inhibition efficiency - Polyphenols - Pomegranate
Classification Code: 454.2 Environmental Impact and Protection - 512.1.1 Oil Fields - 539.1 Metals Corrosion - 539.2.1 Protection Methods - 545.3 Steel - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 913.1 Production Engineering
Funding Details: Number: 2012KJXX-40, Acronym: -, Sponsor: -; Number: 50874092, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: Acknowledgments This work was financially supported by grants from the National Science Foundation of China (50874092), Scientific and Technological Plan Projects of Shaanxi Province of China (2012KJXX-40) and the Student Research Training Program of Xi'an Shiyou University.
Database: Compendex
Data Provider: Engineering Village

125. Investigation on the characteristics of micro/nanofiber Bragg grating for refractive index sensing (*Open Access*)

Liu, Ying-Gang (1); Che, Fu-Long (1); Jia, Zhen-An (1); Fu, Hai-Wei (1); Wang, Hong-Liang (1); Shao, Min (1)
Source: *Wuli Xuebao/Acta Physica Sinica*, v 62, n 10, May 20, 2013; **Language:** Chinese; **ISSN:** 10003290; **DOI:** 10.7498/aps.62.104218; **Article number:** 104218; **Publisher:** Institute of Physics, Chinese Academy of Sciences
Author affiliation: (1) Shaanxi Key Laboratory of Photoelectric Sensing Logging, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Using the fiber Bragg grating equation and the functional relation of the fundamental effective mode refractive index (RI), the mathematical model of the wavelength shift and the relational function of wavelength sensitivity are established, when the reflected wavelength of the micro/nanofiber Bragg grating (MNFBG) changes with ambient RI and the fiber radius. The theoretical relationship demonstrates that the variation of MNFBG reflected wavelengths is dependent on the change of effective RI with fiber radius and ambient RI. Meanwhile, we also study the variation of effective RI and its sensitivity in detail. The results show that the effective RI nonlinearly decreases with fiber-core radius and ambient refractive index decreasing, and its sensitivity increases as the ambient refractive index increases, and the sensitivity, linearity and the linear response range increase with the decrease of the fiber radius. For a fiber radius of 0.5 μm, by simulating the curves of the effective index versus ambient RI in the index ranges of 1.20-1.30 and 1.33-1.43 respectively, the values of wavelength sensitivity of 477.33 nm/RIU and 856.30 nm/RIU and

the values of high linearity of 99.2% and 99.7% are obtained, which not only verifies the analysis conclusions and the measurement program for RI sensing with MNFBG, but also supplies references for the RI sensor design, optimization and the application. © 2013 Chinese Physical Society. (18 refs)
Main heading: Refractive index
Controlled terms: Fiber Bragg gratings - Functions - Sensitivity analysis - Application programs
Uncontrolled terms: Functional relation - Linear response range - Measurement programs - Micro/nano fibers - Refractive index increase - Refractive index sensing - Sensitivity increase - Wavelength sensitivity
Classification Code: 723 Computer Software, Data Handling and Applications - 741.1 Light/Optics - 921 Mathematics
Open Access type(s): All Open Access, Hybrid Gold
Database: Compendex
Data Provider: Engineering Village

126. Corrosion behavior of five commonly-used steels in oily and alcoholic sewage from gas field

Ma, Yun (1); Wang, Qian (2); Wu, Xin-Min (3)
Source: *Advanced Materials Research*, v 815, p 55-60, 2013, *Progress in Materials Science and Engineering: ICMSE 2013*; **ISSN:** 10226680; **ISBN-13:** 9783037858707; **DOI:** 10.4028/www.scientific.net/AMR.815.55; **Conference:** 2013 International Conference on Material Science and Engineering, ICMSE 2013, October 4, 2013 - October 6, 2013;
Publisher: Trans Tech Publications Ltd
Author affiliation: (1) School of Life Science and Technology, Xi'an jiaotong University, Xi'an Shanxi 710049, China (2) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an, Shanxi 710065, China (3) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an, Shanxi 710065, China
Abstract: The corrosion behavior of commonly-used steels in the oil-containing and alcoholic sewage from gas field was studied combined with polarization curves, electric impedance spectrum (EIS), dynamic corrosion weight loss test, scanning electron microscope (SEM) and energy spectrum (ES) of corrosion products. It was shown that corrosion rate increased with the sequence of 316L, 16Mn, 20#, L360 and 20R steels, and 316L steel was corroded more slightly than 16Mn,20#, L360 and 20R steels. There were some spot corrosion pits on the surface of L360 and 20R steels. A higher Chromium content of 316L steel led to a stronger corrosion resistance. Ferrous carbonate was the mainly corrosion product on the surface of the four steels. While the corrosion product on the surface of L360 and 20R steels was poor adhered and easy to fall off, and formed some corrosion pits on the steels surface. © (2013) Trans Tech Publications, Switzerland. (18 refs)
Main heading: Steel corrosion
Controlled terms: Corrosion rate - Electrochemical impedance spectroscopy - Gas industry - Corrosion resistance - Corrosive effects - Pipeline corrosion - Polarization - Scanning electron microscopy - Electric losses - Pitting - Sewage - Electrochemical corrosion
Uncontrolled terms: Chromium contents - Corrosion behavior - Corrosion pits - Corrosion products - Dynamic corrosions - Energy spectra - Impedance spectroscopy - Polarization curves
Classification Code: 452.1 Sewage - 522 Gas Fuels - 539.1 Metals Corrosion - 545.3 Steel - 801 Chemistry - 801.4.1 Electrochemistry - 802.2 Chemical Reactions
Database: Compendex
Data Provider: Engineering Village

127. Carbon and oxygen stable isotopic features of diagenetic facies of Ordovician carbonate rocks in Ordos Basin

Wang, Qicong (1); Zhang, Yang (1); Xiao, Ling (1)
Source: *Oil and Gas Geology*, v 34, n 5, p 652-658, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130511; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) College of Oil and Gas Resources, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: Based on thin section and cathodoluminescence imaging, this paper discussed the types of diagenetic facies and the characteristics of lithofacies of Ordovician carbonate rocks in Ordos Basin. In combination with carbon and oxygen stable isotopic characteristics, we also studied the geochemical characteristics of each diagenetic facies. During the early Paleozoic, the Ordovician carbonate platform was in a near-surface diagenetic tract and can be divided into four diagenetic environments and facies including normal seawater, evaporative seawater, early meteoric freshwater and hot seawater according to the diagenetic medium. The #18O and #13C of diagenetic facies of normal seawater, hot seawater and evaporative seawater are generally high, but tend to decrease along with the increasing bioclastic content. In contrast, the #18O and #13C of the early freshwater diagenetic facies, are generally low. During

the late Paleozoic, the top of the Ordovician was in the epidiagenetic tract. According to the rock types of the current residual strata, the epidiagenetic tract can be divided into limestone weathering diagenetic facies in the Fengfeng Formation and dolomite weathering diagenetic facies in the Majiagou Formation. Their #18O and #13C values are significantly lower than that of the early freshwater diagenetic facies. At the end of the Late Paleozoic, the Ordovician Formation was in the moderate-deep burial diagenetic tract at a depth of 3000-4000 m, which can be divided into a closed system diagenetic facies and an open system diagenetic facies. The #18O and #13C values of the closed system diagenetic facies are similar with their original rocks. In contrast, the #18O and #13C values of the open system diagenetic facies are much lower than their original rocks because of the isotope fractionation effect in the hot environment. These results indicate that the petrographic characteristics and the #18O and #13C values of carbonate rocks are important indicators for identification of the diagenetic environment and classification of diagenetic facies of carbonate rocks. (27 refs)
Main heading: Weathering
Controlled terms: Carbon - Carbonates - Geochronology - Isotopes - Metamorphic rocks - Oxygen - Seawater - Sedimentary rocks - Water
Uncontrolled terms: Diagenetic facies - Marine carbonate rock - Ordos Basin - Ordovician - Oxygen stable isotopes
Classification Code: 421 Strength of Building Materials; Mechanical Properties - 471.4 Seawater, Tides and Waves - 481 Geology and Geophysics - 482.2 Minerals - 804 Chemical Products Generally - 804.2 Inorganic Compounds
Database: Compendex
Data Provider: Engineering Village

128. 3,4-dimethyl-N-[1-(1H-pyrrol-2-yl)ethylidene]aniline and the 1-(1-thiophen-2-yl) analogue

Su, Bi-Yun (1); Wang, Jia-Xiang (1); Liu, Xiang (1); Li, Qian-Ding (1)
Source: *Acta Crystallographica Section C: Crystal Structure Communications*, v 69, n 9, p 1073-1076, September 2013; **ISSN:** 01082701, **E-ISSN:** 16005759; **DOI:** 10.1107/S0108270113022142; **Publisher:** International Union of Crystallography
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An ShiYou University, Xi'an, Shaanxi 710065, China
Abstract: The title compounds, 3,4-dimethyl-N-[1-(1H-pyrrol-2-yl)ethylidene]aniline, C14H16N2, (I), and its analogue 3,4-dimethyl-N-[1-(1-thiophen-2-yl)ethylidene]aniline, C14H 15NS, (II), both have basic heterocyclic imino structures showing a planar backbone with similar features, but differing in the heteroatoms of the five-membered heterocyclic rings, i.e. N in (I) and S in (II). The dihedral angles formed by the five-membered and benzene rings are 81.78 (8) and 75.89 (7)° for (I) and (II), respectively. In (I), centrosymmetric iminopyrrole dimers are assembled by means of two inverted N - HN hydrogen bonds and two inverted C - H# interactions. In (II), however, molecules are linked by nonclassical C - HN hydrogen bonds in which the molecules act as both hydrogen-bond donors and acceptors, resulting in one-dimensional supramolecular chains. © 2013 International Union of Crystallography. (23 refs)
Main heading: Dihedral angle
Controlled terms: Chains - Hydrogen bonds - Dimers - Molecules - Supramolecular chemistry - Indium compounds - Aniline - Crystal structure - O rings
Uncontrolled terms: Benzene ring - Centrosymmetric - Heteroatoms - Heterocyclic rings - Hydrogen bond donors - Pi interactions - Supramolecular chains - Title compounds
Classification Code: 602.1 Mechanical Drives - 619.1.1 Pipe Accessories - 652.1 Aircraft, General - 801.4 Physical Chemistry - 804.1 Organic Compounds - 815.1.1 Organic Polymers - 931.3 Atomic and Molecular Physics - 933.1.1 Crystal Lattice
Database: Compendex
Data Provider: Engineering Village

129. Direct Henry reactions with modified calcium oxide as solid catalyst

Tang, Ying (1); Gu, Xuefan (1); Meng, Mei (1); Xu, Jingfang (1)
Source: *Research on Chemical Intermediates*, v 39, n 8, p 3715-3725, October 2013; **ISSN:** 09226168, **E-ISSN:** 15685675; **DOI:** 10.1007/s11164-012-0875-4; **Publisher:** Kluwer Academic Publishers
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an 710065 Shaanxi, China
Abstract: Commercial CaO was modified simply with benzyl bromide. The modified CaO had good water resistance, and characterization by FTIR and TG revealed the modifier was chemically bonded to the CaO surface. Commercial CaO and CaO modified with benzyl bromide were investigated as catalysts for the Henry reaction between benzaldehyde and nitromethane. It was found that the catalytic activity of the modified CaO was greatly improved, with

high conversion of benzaldehyde to the (E)-phenyl nitroolefin and 1-phenyl-2-nitroethanol, and with different selectivity from commercial CaO. The effect of modification and reaction conditions on yield, selectivity, and mechanism were studied thoroughly. © 2012 Springer Science+Business Media Dordrecht. (15 refs)
Main heading: Catalyst activity
Controlled terms: Lime
Uncontrolled terms: Chemically bonded - Henry reactions - Heterogeneous catalyst - High conversions - Modification - Reaction conditions - Solid catalysts - Water-resistances
Classification Code: 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.2 Inorganic Compounds
Funding Details: Number: 11JK0591, Acronym: -, Sponsor: Education Department of Shaanxi Province; Number: 2011JQ2014, Acronym: -, Sponsor: Science and Technology Innovation as a Whole Plan Projects of Shaanxi Province;
Funding text: Acknowledgments This work was financially supported by grants from a scientific research program funded by Shaanxi Provincial Education Department (No. 11JK0591), natural science research plan projects of Shaanxi Science and Technology Department (No. 2011JQ2014), and the open funds of the Shanghai Key Laboratory of Green Chemistry and Chemical Process.
Database: Compendex
Data Provider: Engineering Village

130. Development of the ring block drill pipe casing wear tester and experimental research

Qin, Yanbin (1); Dou, Yihua (1); Wang, Xiaozeng (2); Yang, JingWen (1)
Source: *Advanced Materials Research*, v 634-638, n 1, p 3582-3585, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.3582; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China (2) Jiaying University, Meizhou, Guangdong, 514015, China
Abstract: In deep wells and ultra-deep wells the complex geological conditions often result in serious casing wear. In order to be able to accurately measure the wear efficiency and friction coefficient required in the process of the prediction of casing wear, a ring-block drill pipe and casing wear tester is specifically designed and produced, the scheme of tester is proposed, and the design of structure, driving device, and the detecting system of the friction and contact forces of tester is completed. Adopting the ring block drill pipe casing wear tester and simulating down hole conditions P110 casing wear experiments are finished. The results show that the ring block drill pipe casing wear tester meets the requirement of down hole casing wear experiment. P110 casing wear efficiency decreased with the increasing of wear time. The friction coefficient between the P110 casing and the drill pipe sample is about 0.25. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Efficiency
Controlled terms: Drill pipe - Friction - Tribology - Wear of materials - Drills
Uncontrolled terms: Casing - Casing wear - Complex geological condition - Contact forces - Deep wells - Detecting systems - Down holes - Driving device - Experimental research - Friction coefficients - Ultra-deep wells - Wear tester - Wear time
Classification Code: 511.2 Oil Field Equipment - 603.2 Machine Tool Accessories - 913.1 Production Engineering - 931 Classical Physics; Quantum Theory; Relativity - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

131. Bis{2-[(phenyl imino) eth yl]-1H-pyrrol-1-ido-$_{\kappa 2}$ N,N#}nickel(II): A supra molecular structure formed by C - H# hydrogen bonds

Su, Bi-Yun (1); Wang, Jia-Xiang (1); Liu, Xiang (1); Li, Qian-Ding (1)
Source: *Acta Crystallographica Section C: Crystal Structure Communications*, v 69, n 8, p 851-854, August 2013; **ISSN:** 01082701, **E-ISSN:** 16005759; **DOI:** 10.1107/S0108270113018118; **Publisher:** International Union of Crystallography
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An ShiYou University, Xi'an, Shaanxi 710065, China
Abstract: In the title compound, [Ni(C12H11N2)2], the NiII cation lies on an inversion centre and has a square-planar coordination geometry. This transition metal complex is composed of two deprotonated N,N′_bidentate 2-[(phenyl

imino) ethyl]-1H-pyr rol-1-ide ligands around a central Ni II cation, with the pyrrolide rings and imine groups lying trans to each other. The Ni - N bond lengths range from 1.894(3) to 1.939(2)Å and the bite angle is 83.13(11)°. The Ni - N(pyrrolide) bond is substantially shorter than the Ni - N(imino) bond. The planes of the phenyl rings make a dihedral angle of 78.79(9)° with respect to the central NiN4 plane. The mol ecules are linked into simple chains by an intermolecular C - H# interaction involving a phenyl β–C atom as donor. Intramolecular C - H# interactions are also present. © 2013 International Union of Crystallography. (22 refs)
Main heading: Ligands
Controlled terms: Crystal structure - Transition metals - Metal complexes - Complexation - Dihedral angle - Supramolecular chemistry - Positive ions - Hydrogen bonds - Nickel compounds
Uncontrolled terms: C atoms - Phenyl rings - Pi interactions - Pyrrolide - Square-planar coordination geometry - Title compounds
Classification Code: 531 Metallurgy and Metallography - 652.1 Aircraft, General - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 804.2 Inorganic Compounds - 933.1.1 Crystal Lattice
Database: Compendex
Data Provider: Engineering Village

132. Influence of geometrical and physical parameters of cement on loads of casing and cement

Wang, Xiaozeng (1); Qu, Zhan (2); Dou, Yihua (2)
Source: *Advanced Materials Research*, v 634-638, n 1, p 3591-3594, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.3591; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Jiaying University, Meizhou, Guangdong, 514015, China (2) Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: A mechanical model of casing, formation and cement is established under the action of the in-situ stress in the cementing section. According to the continuous displacement and radial stress conditions, the calculation formulas of loads applied to casing and cement are developed. The influences of geometrical and physical parameters of cement on loads and stresses of the casing and cement are analyzed. The result shows that the increase of Young's modulus of cement results in that the casing load increases firstly, and then decreases. The bigger Young's modulus of cement, the more load of cement. Along with the increase of Poisson's ratio of cement, cement and casing load become bigger. Cement load is greater than the casing one, so it can avoid damaging casing. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Cements
Controlled terms: Stresses - Elastic moduli - Geometry
Uncontrolled terms: Calculation formula - Casing load - Elastic formation - Insitu stress - Mechanical model - Physical parameters - Poisson's ratio - Radial stress - Young's Modulus
Classification Code: 412.1 Cement - 921 Mathematics - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

133. Isomeric 3- and 4-chloro-N-[1-(1H-pyrrol-2-yl)ethylidene]aniline

Su, Bi-Yun (1); Wang, Jia-Xiang (1); Liu, Xiang (1); Li, Qian-Ding (1)
Source: *Acta Crystallographica Section C: Crystal Structure Communications*, v 69, n 5, p 522-525, May 2013; **ISSN:** 01082701, **E-ISSN:** 16005759; **DOI:** 10.1107/S0108270113007889; **Publisher:** International Union of Crystallography
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An ShiYou University, Xi'an, Shaanxi 710065, China
Abstract: The title isomers, namely 3-chloro-N-[1-(1H-pyrrol-2-yl)ethylidene]aniline, (I), and 4-chloro-N-[1-(1H-pyrrol-2-yl)ethylidene]aniline, (II), both C 12H11ClN2, differ in the position of the chlorine substitution. Both compounds have the basic iminopyrrole structure, which shows a planar backbone with similar features. The dihedral angle formed by the planes of the pyrrole and benzene rings is 75.65 (7)° for (I) and 86.56 (8)° for (II). The H atom bound to the pyrrole N atom is positionally disordered and partial protonation occurs at the imino N atom in (I), while this phenomenon is absent from the structure of (II). Packing interactions for both compounds include intermolecular N - H···N hydrogen bonds and C - H···# interactions, forming centrosymmetric dimers for both (I) and (II). © 2013 International Union of Crystallography. (14 refs)
Main heading: Aniline

Controlled terms: Atoms - Dihedral angle - Aromatic compounds - Isomers - Hydrogen bonds
Uncontrolled terms: Benzene ring - Centrosymmetric dimers - Pi interactions
Classification Code: 652.1 Aircraft, General - 801.4 Physical Chemistry - 804 Chemical Products Generally - 804.1 Organic Compounds - 931.3 Atomic and Molecular Physics
Database: Compendex
Data Provider: Engineering Village

134. Sedimentary characteristics of the shore-shallow lacustrine beach bar system of Yan 7+8 oil reservoirs in southern Ordos Basin

Wang, Jianmin (1)
Source: *Oil and Gas Geology*, v 34, n 5, p 672-678, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg2013514; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710069, China
Abstract: Retrograding sedimentary sequence and shore-shallow lacustrine beach bar system are developed in the Mesozoic Jurassic Yan'an Formation in southern Ordos Basin, and the latter has close paragenetic relationship with the meandering river delta around the lake basin of the Yan'an stage. Retrogradation and the destruction of the meandering delta provide clastic input for the development of the low-shallow lake beach bar system. During the depostion of Yan 7+8, An'sai and Zhidan areas in the north of Shaaxi province were in shore-shallow lacustrine environment. Beach bar deposits were widely developed as the major part of sedimentation, and can be divided into four microfacies types including beach sand, sand bar, sand sheet and mudstone. Generally, the beach bar sand bodies occur at the side of the river mouth and the flat open shore-shallow lake environment, and are parallel with the lake shoreline. They are dominated by medium and fine sandstone, and have massive bedding, wavy bedding, inclined wavy bedding and lenticular bedding, etc. Beach sand is usually in sheet-like shape and is relatively thin. Bar sand, which is the most representative deposit of the beach bar system, usually has banded shoreline-parallel distribution, large thickness, and lenticular shape on section, reverse grading at the bottom and transgressive sequences in the middle and upper parts. A series of beach bar sandbodies superimposed with each other in different phases, forming large-scale shoreline-parallel clustered reservoirs with high net-to-gross ratio. The mudstones of shore-shallow lake facies between the beach bars act as lateral barriers or overlying seals of the beach bar sandbodies. The sedimentary characteristics of the shore-shallow lacustrine beach bar system have significant influences on reservoir development and oil/gas accumulation of the Yan'an Formation. (16 refs)
Main heading: Beaches
Controlled terms: Deposits - Grading - Lakes - Metamorphic rocks - Petroleum reservoirs - Reservoirs (water) - Rivers - Sand - Sedimentology
Uncontrolled terms: Bar systems - Meandering rivers - Oil reservoirs - Oil/gas accumulation - Ordos Basin - Reservoir development - Sedimentary characteristics - Sedimentary sequence
Classification Code: 913.3 Quality Assurance and Control - 617 Turbines and Steam Turbines - 612 Engines - 532 Metallurgical Furnaces - 505 Mines and Mining, Nonmetallic - 481.1.2 Petrology (Before 1993, use code 482) - 481.1 Geology - 441.2 Reservoirs - 407 Maritime and Port Structures; Rivers and Other Waterways
Database: Compendex
Data Provider: Engineering Village

135. Materials research and analysis of sulfur dioxide absorption system

Qu, Chengtun (1); Yang, Xue (1); Yang, Bo (1); Tian, Jing (1); Wang, Xin (1); Su, Hongguang (1)
Source: *Applied Mechanics and Materials*, v 295-298, p 497-502, 2013, *Progress in Environmental Protection and Processing of Resource*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856499; **DOI:** 10.4028/www.scientific.net/AMM.295-298.497; **Conference:** 2012 International Conference on Sustainable Energy and Environmental Engineering, ICSEEE 2012, December 29, 2012 - December 30, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: When Puguang gas field in non-normal production of hydrogen sulfide emissions from the combustion generates sulfur dioxide, in order to prevent its impact on the environment, the need for its emergency absorption. Used static weight-loss method study of A3 steel, 304 stainless steel, aluminum, H62 copper in 10% of (NH4)2SO3 solution, 10% of NH4HSO3 solution, and the mixed solution of 10% (NH4)2SO3 and NH4HSO3 respectively, optimized absorption system of material, and using the electrochemical impedance spectroscopy and anodic polarization

curve analysis of several kinds of material in the absorption product solution of the corrosion condition. The results showed that 304 stainless steel corrosion resistance of the best, in 10% of (NH4)2SO3 solution, 10% of NH4HSO3 solution, and the mixed solution of 10% (NH4)2SO3 and NH4HSO3 respectively. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Electrochemical impedance spectroscopy
Controlled terms: Corrosion resistance - Curve fitting - Gas industry - Steel corrosion - Sulfur dioxide - Gas emissions - Electrochemical corrosion
Uncontrolled terms: 304 stainless steel - Anodic polarization curves - Electrochemical - Impact on the environment - Materials research - Production of hydrogen - Sulfur dioxide absorption - Weight loss method
Classification Code: 522 Gas Fuels - 539.1 Metals Corrosion - 545.3 Steel - 801 Chemistry - 801.4.1 Electrochemistry - 802.2 Chemical Reactions - 804.2 Inorganic Compounds - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

136. Porosity estimation of tight reservoirs based on petrophysical facies classification: A case study from the east area of the Sulige Gas Field, Ordos Basin

Song, Ziqi (1); Jing, Cheng (2); Pang, Yudong (1); Tian, Xin (1); Zhang, Jinghao (3)
Source: *Natural Gas Industry*, v 33, n 8, p 31-37, August 2013; **Language:** Chinese; **ISSN:** 10000976; **DOI:** 10.3787/j.issn.1000-0976.2013.08.006; **Publisher:** Natural Gas Industry Journal Agency
Author affiliation: (1) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) School of Petroleum Engineering, China University of Petroleum-East China, Qingdao, Shandong 266580, China (3) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: Tight reservoirs in the Sulige Gas Field, Ordos Basin, are influenced by multi-stage deposits with different types, diagenesis and structures, and are characterized by small pore space, complex pore types and structures and complex logging responses. In view of this, we analyzed the classification evaluation system of petrophysical facies of tight reservoirs, and proposed a technical solution to the estimation of tight reservoir porosity via petrophysical facies classification. Reservoir parameter interpretation models were built for different types of petrophysical facies by using the available logging, core and formation test data obtained from the tight reservoirs in the study area. During fitting of data point distribution obtained from the calibration of logging interpretation models with classification core data, the classification models showed relatively clustered distribution trend and relatively good linear relationship. Especially when effective porosity parameters were estimated by using the comprehensive fitting values of classification density models and those of interval transit time porosity parameter models separately, the features and differences of lithology, physical property, pore type and structure, as well as logging responses were highlighted, and the accuracy of porosity estimation of tight reservoirs was significantly improved. The problems of low signal-to-noise ratio and low resolution of tight reservoirs are successfully solved. Field application shows that classification modeling of tight reservoirs can convert a heterogeneous non-linear problem to a relatively homogeneous and linear one, thus providing an effective method for building tight reservoir parameter models of high quality. (22 refs)
Main heading: Classification (of information)
Controlled terms: Natural gas fields - Parameter estimation - Petroleum reservoirs - Porosity - Signal to noise ratio - Metamorphic rocks - Gas industry - Lithology
Uncontrolled terms: Classification features - Fitting - Heterogeneity - Ordos Basin - Petro-physical facies - Sulige gas field - Tight sandstones
Classification Code: 481.1 Geology - 512.1.1 Oil Fields - 512.2.1 Natural Gas Fields - 522 Gas Fuels - 716.1 Information Theory and Signal Processing - 903.1 Information Sources and Analysis - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

137. Electronic structure and optical properties of SiC nanotube material with silicon antisite defect

Li, Kejian (1); Song, Jiuxu (1); Liu, Hongxia (2)
Source: *Advanced Materials Research*, v 625, p 230-234, 2013, *Research on Mechanics, Dynamic Systems and Material Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855690; **DOI:** 10.4028/www.scientific.net/AMR.625.230; **Conference:** 2012 International Conference on Mechanics, Dynamic Systems and Material Engineering, MDSME 2012, November 24, 2012 - November 25, 2012; **Sponsor:** Wuhan institute of technology; Beijing Material Research Center; International Material Research Society, Hong Kong; **Publisher:** Trans Tech Publications

Author affiliation: (1) School of Electronic Engineering, Xi'an Shiyou University, Xi'an, China (2) Xi'an Institute of Microelectronic Technology, Xi'an, China
Abstract: Based on first-principle calculations, electronic structure and optical properties of a single-walled zigzag SiC nanotube with silicon antisite defect have been investigated. This defect results in the formation of a bump in the surface of the nanotube. No defect energy level is formed in its band gap, which is originated from the resonance between the defect level and conduction band resulting in the defect level entering its conduction band. The most primary dielectric peak in dielectric function parallel to the axis of the nanotube is depressed, while the first peak perpendicular to its axis is enhanced. These results are meaningful for investigations on SiCNT electronic and optical devices. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Electronic structure
Controlled terms: Optical properties - Point defects - Silicon carbide - Surface defects - Nanotubes - Yarn - Calculations - Energy gap - Conduction bands
Uncontrolled terms: Anti-site defect - Defect energy level - Defect levels - Dielectric functions - Dielectric peaks - Electronic structure and optical properties - First principle calculations - First-principles calculation - SiC nanotubes - Single-walled
Classification Code: 741.1 Light/Optics - 761 Nanotechnology - 804.2 Inorganic Compounds - 819.4 Fiber Products - 921 Mathematics - 932.1 High Energy Physics - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

138. Simulation prediction model for payback period of industrial construction project

Sai, Yunxiu (1); Wang, Weiran (2); Fang, Xing (3)
Source: *Modeling and Computation in Engineering II - Proceedings of the 2nd SREE Conference on Modeling and Computation in Engineering, CMCE 2013*, p 225-229, 2013, *Modeling and Computation in Engineering II - Proceedings of the 2nd SREE Conference on Modeling and Computation in Engineering, CMCE 2013*; **ISBN-13:** 9781138000582; **DOI:** 10.1201/b14896-35; **Conference:** 2nd SREE Conference on Modeling and Computation in Engineering, CMCE 2013, June 22, 2013 - June 23, 2013; **Sponsor:** Society for Resources, Environment and Engineering (SREE); **Publisher:** Taylor and Francis - Balkema
Author affiliation: (1) Xi'an Technological University, Xi'an, China (2) Xi'an University of Architecture and Technology, Xi'an, China (3) Xi'an Shiyou University, Xi'an, China
Abstract: According to the Characteristics of industrial construction projects, this paper establishes the system model and economic model of the investment recovery period, analyses the random factors that influence the investment recovery period of industrial construction projects, confirms the probability distribution of random factors statistical data with the hypothetical test method of statistics, and then forms the simulation model of payback period combined with system simulation theory. By using the matlab language, it achieves the simulation model, then analyses the precision of simulation results according to central limit theorem. Finally, combined with practical examples, further demonstrates the model's feasibility, the results show that the simulation predicting model can be used as the important basis for the industrial construction projects' investment decision making. © 2013 Taylor & Francis Group. (6 refs)
Main heading: Probability distributions
Controlled terms: MATLAB - Computation theory - Investments - Testing - Decision making - Economics
Uncontrolled terms: Central Limit Theorem - Industrial construction - Investment decision making - Investment recoveries - Predicting models - Simulation prediction - Statistical datas - System simulations
Classification Code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.5 Computer Applications - 912.2 Management - 921 Mathematics - 922.1 Probability Theory - 971 Social Sciences
Database: Compendex
Data Provider: Engineering Village

139. Reliability analysis of pressure meter electronic system based on fault tree

Yan, Jian (1); Yan, Wen-hui (1); Wang, Li-ping (2)
Source: *Applied Mechanics and Materials*, v 347-350, p 917-921, 2013, *Instruments, Measurement, Electronics and Information Engineering*; **ISSN:** 16609336, **E-ISSN:** 16627482; **DOI:** 10.4028/www.scientific.net/AMM.347-350.917; **Conference:** 2013 International Conference on Precision Mechanical Instruments and Measurement Technology, ICPMIMT 2013, May 25, 2013 - May 26, 2013; **Publisher:** Trans Tech Publications Ltd

Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Xi Jing University, Xi'an, Shaanxi 710123, China
Abstract: Pressure meter is an important testing and storage investment during oilfield hydraulic fracturing. The pressure meter electronic system mainly composed by the microcontroller module, battery module, temperature signal acquisition and processing module, the pressure signal acquisition and processing module and memory module. This paper briefly introduced the principle of pressure meter, and established fault tree based on schematic diagram of pressure meter electronic system and specific cause of failure; Aiming at solving traditional reliability analysis the limitation of long cycle and poor economy, the paper adopt reliability simulation by using MATLAB and combined with the theory of Monte Carlo. Ultimately getting the reliability curve and life of pressure meter electronic system. The reliability of electronic systems gradually decreases with increasing time and obeyed exponentially distributed law; Electronic system simulation life of 2877.7 hours. In other words, the electronic system can work 2877.7 hours since down to underground of oil well. It has some guidance for engineering practice, as well as provides a measure of reliability analysis for pressure meter electronic system. © 2013 Trans Tech Publications Ltd, Switzerland. (6 refs)
Main heading: Reliability analysis
Controlled terms: MATLAB - Monte Carlo methods - Oil wells - Reliability theory - Schematic diagrams - Signal processing
Uncontrolled terms: Analysis simulation - Downhole pressure - Electronic systems - Engineering practices - Fault-trees - Processing modules - Reliability simulation - Temperature signal
Classification Code: 512.1.1 Oil Fields - 716.1 Information Theory and Signal Processing - 723.5 Computer Applications - 921 Mathematics - 922.2 Mathematical Statistics
Database: Compendex
Data Provider: Engineering Village

140. Study on the dew point corrosion mechanism of atmospheric and vacuum distillation unit low-temperature part

Lin, Hong Xian (1, 2); Qu, Zhan (1, 2); Fan, Yu Guang (2)
Source: *Advanced Materials Research*, v 739, p 427-430, 2013, *Industrial Materials - Applications, Products, and Technologies*; **ISSN:** 10226680; **ISBN-13:** 9783037857465; **DOI:** 10.4028/www.scientific.net/AMR.739.427; **Conference:** 2013 World Congress on Industrial Materials - Applications, Products and Technologies, WCIM 2013, April 1, 2013 - April 2, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Northwestern Polytechnical University, Xi'an 710072, Shaanxi, China (2) Xi'an Shiyou University, Xi'an 710065, Shaanxi, China
Abstract: In view of dew point corrosion for the emergence of low-temperature part of atmospheric and vacuum distillation unit, from the analysis of the main factors for the impact of dew-point temperature,we make the calculation of the dew-point temperature and composition of the liquid.And it is calculated through the examples of calculation steps. We can get a different component content will lead to the different dew point temperature, when the dew point temperature changes, the liquid component of the dew-point percentage and the position with the corresponding change. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Liquids
Controlled terms: Distillation - Atmospheric corrosion - Atmospheric temperature - Distillation equipment
Uncontrolled terms: Atmospheric and vacuum distillations - Dew point corrosions - Dewpoint - Dewpoint temperature - Liquid components - Low temperatures
Classification Code: 443.1 Atmospheric Properties - 539.1 Metals Corrosion - 802.1 Chemical Plants and Equipment - 802.3 Chemical Operations
Database: Compendex
Data Provider: Engineering Village

141. A method of chemiluminescence coupled with ultrafiltration for investigating the interaction between ibuprofen and human serum albumin

Xiong, Xunyu (1); Zhang, Qunzheng (1); Nan, Yefei (1); Gu, Xuefan (1)
Source: *Luminescence*, v 28, n 6, p 954-960, November-December 2013; **ISSN:** 15227235, **E-ISSN:** 15227243; **DOI:** 10.1002/bio.2465; **Publisher:** John Wiley and Sons Ltd
Author affiliation: (1) No.18 College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an 710065, China
Abstract: In acidic media, ibuprofen substantially enhanced the weak chemiluminescence (CL) produced by sodium sulfite and potassium permanganate. The increased signals were linearly correlated with ibuprofen concentrations

ranging from 1.2 × 10-3 to 4.8 μM, with a detection limit of 4.8 × 10-4 μM. Two ultrafiltration (UF) membranes were used to construct a unit for trapping 0.15 and 0.75 μM human serum albumin (HSA) and coupled online with the CL system. At low HSA concentrations, the numbers of bound molecules per binding site were calculated to be 0.9 for Sudlow site I and 6.2 for Sudlow site II. The association constants on these binding sites were 5.9 × 105 and 3.4 × 104 M-1, respectively. Our CL-UF protocol presents a rapid and sensitive method for studies on drug-protein interaction. Copyright © 2012 John Wiley & Sons, Ltd. Copyright © 2012 John Wiley & Sons, Ltd. (41 refs)
Main heading: Chemiluminescence
Controlled terms: Binding sites - Body fluids - Potash - Ultrafiltration
Uncontrolled terms: Acidic media - Association constant - Binding-sites - Bound molecules - Detection limits - Human serum albumins - Ibuprofen - Rapid method - Ultra-filtration membranes - Ultrafiltration membranes
Classification Code: 461.2 Biological Materials and Tissue Engineering - 741.1 Light/Optics - 801.2 Biochemistry - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.2 Inorganic Compounds
Database: Compendex
Data Provider: Engineering Village

142. Rigid body kinematics analysis model and its solution for pipe racking device of offshore drilling platform

Zhang, Ruo-Xi (1); Peng, Yong (1); Wu, Heng (1)
Source: *Journal of Applied Sciences*, v 13, n 22, p 5488-5492, 2013; **ISSN:** 18125654, **E-ISSN:** 18125662; **DOI:** 10.3923/jas.2013.5488.5492; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) Department of Mechatronic Engineering, School of Mechanical Engineering, Xi'an Shiyou University, 710065 Xi'an, China
Abstract: With pipe racking device of offshore drilling platform as object of the research, this study builds its kinematic model on the basis of its actual motion in the pipe racking process and solves this model by the method of homogeneous coordinate transformation, then the position and posture of the PRS end effector (clamp) during the racking procedure can be achieved which is relative to the inertial reference system. The motion track and the displacement, velocity and acceleration curves of clamp are acquired by MATLAB software. The kinematic parameters of this mechanism are analyzed comparatively when the joints are in the three different motion modes: Uniform velocity, uniform acceleration-uniform deceleration and uniform acceleration-uniform velocity-uniform deceleration. © 2013 Asian Network for Scientific Information. (6 refs)
Main heading: Kinematics
Controlled terms: Drilling platforms - MATLAB - Offshore drilling
Uncontrolled terms: Acceleration curve - Homogeneous coordinate transformations - Inertial reference systems - Kinematic model - Kinematic parameters - Matlab- software - Rigid body kinematics - Uniform velocities
Classification Code: 511.2 Oil Field Equipment - 674.2 Marine Drilling Rigs and Platforms - 723.5 Computer Applications - 921 Mathematics - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

143. The structural and electronic properties of the zigzag GaN nanoribbons: A first-principles study

Chen, Guo Xiang (1); Wang, Dou Dou (2)
Source: *Advanced Materials Research*, v 700, p 79-82, 2013, *Advanced Research on Advanced Structure, Materials and Engineering II*; **ISSN:** 10226680; **ISBN-13:** 9783037857038; **DOI:** 10.4028/www.scientific.net/AMR.700.79; **Conference:** 2013 2nd International Conference on Advanced Structure, Materials and Engineering, ASME 2013, April 13, 2013 - April 14, 2013; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Sciences, Xian Shiyou University, Xian 710065, Shaanxi, China (2) College of Sciences, Xi'an University of Science and Technology, Xi'an 710054, Shaanxi, China
Abstract: We have performed the first-principles calculations onto the structural and electronic properties of GaN nanoribbons with zigzag edge (ZGaNNRs). The results show that, the lowest unoccupied conduction band (LUCB) and the highest occupied valence band (HOVB) are always separated, representing a semiconductor character for the ZGaNNRs. In addition, the majority and minority spin bands are fully superposition and therefore the ZGaNNRs are non-magnetic. As the nanoribbons width increase, band gaps of ZGaNNRs decrease monotonically and become close to their asymptotic limit of a single layer of GaN sheet. It is found that the fewer coordination number will lead the most

electrons to range in higher energy region of the occupancy state. © (2013) Trans Tech Publications, Switzerland. (17 refs)
Main heading: Electronic properties
Controlled terms: Nanoribbons - Gallium nitride - Energy gap - Calculations - III-V semiconductors - Wide band gap semiconductors
Uncontrolled terms: Coordination number - First-principles - First-principles calculation - First-principles study - Higher energy region - Highest occupied valence bands - Semiconductor characters - Structural and electronic properties
Classification Code: 712.1 Semiconducting Materials - 761 Nanotechnology - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

144. Analytic and numerical solutions of load and stress of casing and cement in cementing section

Qu, Zhan (1); Wang, Xiaozeng (2); Dou, Yihua (1)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 721-724, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.721; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Northwestern Polytechnical University, Xi'an, Shannxi 710065, China
Abstract: With the prolonged production term and the stimulation of the oil well in oil-field, the load which results from the in-situ stress is one of the main reasons to the casing damage. Taking the casing in Cementing section, the cement and the rock surrounding the cement into consideration, a mechanical model is established, while analytical solutions of displacement and stress distribution is obtained. The finite element method is adopted to obtain the numerical solutions of the mechanics model. The result shows that analytical solutions and finite element solutions are approximate. Finite element model of casing/cement/formation which is established in the paper can be used to analyze the load and stress distribution of worn casing with non-uniform in-situ stress. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Cements
Controlled terms: Oil well cementing - Oil field development - Stress concentration - Finite element method - Numerical methods - Oil well flooding - Analytical models
Uncontrolled terms: Casing - Casing damage - Finite element models - Finite element solution - Formation - Insitu stress - Load - Mechanical model - Mechanics models - Numerical solution
Classification Code: 412.1 Cement - 511.1 Oil Field Production Operations - 512.1.2 Petroleum Deposits : Development Operations - 921 Mathematics - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

145. First-principles study on electronic structure and magnetic properties of freestanding Ni nanobelts

Chen, GuoXiang (1); Wang, DouDou (2)
Source: *Advanced Materials Research*, v 661, p 57-61, 2013, *Nanotechnology and Material Engineering Research*; **ISSN:** 10226680; **ISBN-13:** 9783037856390; **DOI:** 10.4028/www.scientific.net/AMR.661.57; **Conference:** 2012 International Conference on Nanotechnology and Future Material Engineering, NFME 2013, January 19, 2013 - January 20, 2013; **Sponsor:** Wuhan Institute of Technology; Beijing Material Research Center; International Material Research Society, Hong Kong; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Sciences, Xian Shiyou University, Xian 710065, Shaanxi, China (2) College of Sciences, Xi'an University of Science and Technology, Xi'an 710054, Shaanxi, China
Abstract: Calculations have been performed for the relaxed structures and electronic properties of Ni nanobelts with the cross-section 3×3, 3×5, 3×7 and 3×9 atomic layers, using the first-principles projector-augmented wave (PAW) potential within density functional theory (DFT) framework. For all of the four size Ni nanobelts, the most atoms relax inward and the magnetic moment decrease as the belt width increase. Compared with bulk Ni, the freestanding Ni nanobelt offer strong spin polarization at the Fermi level as well as considerable magnetic moment. Thus such structures can be potentially utilized to design magnetic nano-devices. © (2013) Trans Tech Publications, Switzerland. (17 refs)

Main heading: Electronic properties
Controlled terms: Magnetic moments - Magnetic properties - Density functional theory - Electronic structure - Structural properties - Design for testability - Nanobelts - Calculations - Spin polarization
Uncontrolled terms: Atomic layer - Density functional theories (DFT) - First-principles - First-principles study - Nano-devices - Projector-augmented waves
Classification Code: 408 Structural Design - 701.2 Magnetism: Basic Concepts and Phenomena - 761 Nanotechnology - 921 Mathematics - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 932.1 High Energy Physics - 933 Solid State Physics - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

146. First-principles study on structural and electronic properties of the armchair GaN nanoribbons

Chen, Guo Xiang (1); Wang, Dou Dou (2)
Source: *Advanced Materials Research*, v 703, p 67-70, 2013, *Advanced Research on Information Science, Automation and Material System III*; **ISSN:** 10226680; **ISBN-13:** 9783037857069; **DOI:** 10.4028/www.scientific.net/AMR.703.67; **Conference:** 2013 3rd International Conference on Information Science, Automation and Material System, ISAM 2013, April 13, 2013 - April 14, 2013; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China;
Publisher: Trans Tech Publications Ltd
Author affiliation: (1) College of Sciences, Xian Shiyou University, Xian 710065, Shaanxi, China (2) College of Sciences, Xi'an University of Science and Technology, Xi'an 710054, Shaanxi, China
Abstract: Calculations have been performed for the structures and electronic properties of GaN nanoribbons with armchair edge (AGaNNRs), using the first-principles projector-augmented wave (PAW) potential within density functional theory (DFT) framework. The lowest unoccupied conduction band (LUCB) and the highest occupied valence band (HOVB) are always separated, representing a semiconductor character for the AGaNNRs. In addition, the majority and minority spin bands are fully superposition and therefore the AGaNNRs are non-magnetic. As the nanoribbons width increase, band gaps of AGaNNRs decrease monotonically and become close to their asymptotic limit of a single layer of GaN sheet. © (2013) Trans Tech Publications, Switzerland. (22 refs)
Main heading: Energy gap
Controlled terms: III-V semiconductors - Semiconducting gallium compounds - Density functional theory - Wide band gap semiconductors - Nanoribbons - Electronic properties - Gallium nitride - Silver compounds - Calculations
Uncontrolled terms: Asymptotic limits - First-principles - First-principles study - Highest occupied valence bands - Projector-augmented waves - Semiconductor characters - Single layer - Structural and electronic properties
Classification Code: 712.1 Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 761 Nanotechnology - 921 Mathematics - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics
Database: Compendex
Data Provider: Engineering Village

147. Study of reconfiguration algorithm in distribution system based on hopfield network

Wei, Na (1); Cheng, Zhe (2); Wu, Xiaomeng (1)
Source: *Applied Mechanics and Materials*, v 241-244, p 1900-1903, 2013, *Industrial Instrumentation and Control Systems*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855461; **DOI:** 10.4028/www.scientific.net/AMM.241-244.1900; **Conference:** 2012 International Conference on Measurement, Instrumentation and Automation, ICMIA 2012, September 15, 2012 - September 16, 2012; **Sponsor:** Queensland University of Technology; Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University, Korea; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Electrical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Xi'an Academy of Fine Arts, Xi'an 710065, China
Abstract: In accordance with the characteristic of radial running an algorithm for distribution network reconfiguration based on Hopfield neural network is put forward. The in-degree of each node is determined by Hopfield neural network, it is determined whether the lines run according to the in-degree of the nodes, and the state of each loop switch is determined according to whether the lines run, and thus the distribution network reconfiguration scheme is determined finally. The energy function of the neural network and its solution method are presented. In the energy function are considered the radial running of distribution network, the lowest distribution network loss and no loop switch in

some lines. The IEEE distribution network structure with three power sources obtained by the algorithm is basically consistent to that obtained by genetic algorithm, but the time spent using the former is shorter than that the latter. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Hopfield neural networks
Controlled terms: Genetic algorithms
Uncontrolled terms: Distribution network reconfiguration - Distribution systems - Energy functions - Hopfield Networks - In-Degree - Power sources - Reconfiguration algorithm - Solution methods - Time spent
Classification Code: 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

148. Study on the cutting performance and machinability of gamma titanium aluminide (*Open Access*)

Zhu, Lin (1); Chen, Yan (1)
Source: *Journal of Applied Sciences*, v 13, n 18, p 3774-3777, 2013; **ISSN:** 18125654, **E-ISSN:** 18125662; **DOI:** 10.3923/jas.2013.3774.3777; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) Mechanical Manufacture and Automation, School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi Provence, China
Abstract: γ–titanium aluminide alloy has advantages of high temperature resistance, high performance of anti-oxidation effect, low-density, high specific strength and rigidity etc. This material is suitable to be applied in aeronautics, astronautics and automobile industry. However its high hardness, brittleness and mechanical strength bring great difficulty in machining which is particularly outstanding in deep hole drilling. This article has analyzed the cutting performance and the machinability of γ–titanium aluminide and designed a deep-hole drill with three different tool materials. The experimental result shows: (1) YG8 cemented carbide is the appropriate tool material for drilling γ–titanium aluminide, (2) Small rake angle of external edge (γ0 = -1 °) and big clearance angle of external edge (α0 = 10-12°) should be chosen and (3) Best wear results are obtained when oil is utilized as cutting fluid. © 2013 Asian Network for Scientific Information. (4 refs)
Main heading: Fracture mechanics
Controlled terms: Titanium alloys - Carbide tools - Drills - Cutting fluids - Automotive industry - High strength alloys
Uncontrolled terms: Cemented carbides - Deep hole drilling - Deep holes - Gamma-titanium aluminide - High specific strength - High temperature resistance - Titanium aluminides - YG8 cemented carbides
Classification Code: 531.1 Metallurgy - 542.3 Titanium and Alloys - 603.2 Machine Tool Accessories - 931.1 Mechanics
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

149. Analysis of the plastic extension of parking cracks on casing after testing

Huang, Long Cang (1); Tong, Shao Kai (2); Cao, Yin Ping (2); Dou, Yi Hua (2)
Source: *Applied Mechanics and Materials*, v 423-426, p 1207-1210, 2013, *Applied Materials and Technologies for Modern Manufacturing*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858882; **DOI:** 10.4028/www.scientific.net/AMM.423-426.1207; **Conference:** 3rd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2013, August 24, 2013 - August 25, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) CNPC Tarim Oilfield Company, Korla, Xinjiang 841000, China (2) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: To avoid the fatigue fracture of casing inside slips, the plastic extension of casing cracks near slips under inner pressure after taking RTTS packer out should be analyzed. The plastic zone size of instability extension of two/three-dimensional cracks on casing was derived based on the theory of fracture mechanics. Analysis results show that hoop stress caused by inner pressure of casing is a key factor to lead to the instability extension of casing radial cracks after testing. The plastic extension zone size of cracks on casing near slips increases with the inner pressure or hoop stress. And, the plastic extension of cracks on casing near slips reduces the burst strength of casing significantly. The materials of casing materials and the inner pressure should be appropriately controlled to control the propagation of cracks. © (2013) Trans Tech Publications, Switzerland. (11 refs)
Main heading: Packers
Controlled terms: Cracks - Fracture testing - Residual stresses - Fracture mechanics - Fracture

Uncontrolled terms: Casing - Casing materials - Fatigue fracture - Plastic extension - Plastic zone size - Propagation of cracks - Slips - Theory of fracture mechanics
Classification Code: 511.2 Oil Field Equipment - 931.1 Mechanics - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

150. The finite element analysis of a shaft

Zhang, Guang Wei (1); You, Li (2); Li, Zhao (1)
Source: *Advanced Materials Research*, v 712-715, p 1022-1026, 2013, *Advances in Manufacturing Science and Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037857243; **DOI:** 10.4028/www.scientific.net/AMR.712-715.1022; **Conference:** 4th International Conference on Manufacturing Science and Engineering, ICMSE 2013, March 30, 2013 - March 31, 2013; **Sponsor:** Northeastern University; Harbin Institute of Technology; Jilin University; Hong Kong Industrial Technology Research Centre; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, China (2) CNOOC Information Technology Co., Ltd, Shanghai Branch, China
Abstract: Finite element method is a kind of method with the aid of computer engineering analysis of discretization numerical calculation. In the rotary steering drilling during the process of practical work, there was a great drilling pressure torque, space size limit strictly and requires a high efficiency and reliability.The working conditions are complex when drillings work underground and the working environment is harsh, there may has many unpredictable situations, the drilling tool may encounter the loose soil, or may be a hard rock, and these changes force is transmitted through the variation cardan shaft, so it is very necessary to check the strength of the variation cardan shaft. This article analyze the variation cardan shaft by ANSYS and provide a reference for actual use. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Finite element method
Controlled terms: Rock drilling - Numerical methods
Uncontrolled terms: Computer engineering - Controllable bend sub - Discretizations - Drilling pressure - Numerical calculation - Practical works - Variation cardan shaft - Working environment
Classification Code: 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

151. Analysis of premium connection of connecting and sealing ability loaded by axial tensile loads

Yu, Yang (1); Dou, Yihua (1); Zhang, Fuxiang (2); Yang, Xiangtong (2)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 737-740, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.737; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) CNPC Tarim Oilfield Company, Korla, Xinjiang 841000, China
Abstract: It is necessary to know the connecting and sealing ability of premium connection for appropriate choices of different working conditions. By finite element method, the finite element model of premium connection is established and the stresses of seal section, shoulder zone and thread surface of tubing by axial tensile loads are analyzed. The results show that shoulder zone is subject to most axial stresses at made-up state, which will make distribution of stresses on thread reasonable. With the increase of axial tensile loads, stresses of thread on both ends increase and on seal section and shoulder zone slightly change. The maximum stress on some thread exceed the yield limit of material when axial tensile loads exceed 400KN. Limited axial tensile loads sharply influence the contact pressures on shoulder zone while slightly on seal section. Although the maximum contact pressure on shoulder zone drop to 0 when the axial tensile load is 600KN, the maximum contact pressure on seal section will keep on a high level. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Finite element method
Controlled terms: Tensile stress - Seals
Uncontrolled terms: Axial stress - Connecting ability - Contact pressures - Finite element models - Maximum stress - Premium connection - Sealing ability - Tensile loads - Thread surface - Yield limit
Classification Code: 619.1.1 Pipe Accessories - 921.6 Numerical Methods
Database: Compendex

Data Provider: Engineering Village

152. Structure optimization of air cooling condenser in close-loop self-circulation evaporative cooling system of wind generator

Li, Jingming (1); Song, Fuchuan (2); Xindong, Tian (2); Gu, Guobiao (2)
Source: *Applied Mechanics and Materials*, v 281, p 370-373, 2013, *2nd International Conference on Mechanical Engineering, Materials and Energy, ICMEME 2012*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855928; **DOI:** 10.4028/www.scientific.net/AMM.281.370; **Conference:** 2nd International Conference on Mechanical Engineering, Materials and Energy, ICMEME 2012, October 26, 2012 - October 27, 2012; **Sponsor:** Trans tech publications; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou university, Xi'an, China (2) Institute of Electrical Engineering, Chinese Academy of Science, Beijing, China
Abstract: Being a widely used clean and renewable energy, the wind power has attracted the attention of all nations in the world. The application of air cooled close-loop self-circulation evaporative cooling technology in the cooling of large wind power generator is a new attempt in the discovery of wind power energy. The structure of the air cooling condenser has great effect on the smooth running of the natural temperature close-loop self-circulation (CLSC) evaporative cooling system of large wind power generator. An optimum structure of the air cooling condenser for the evaporative cooling system is introduced in this paper which can do great help to insure the successful running of wind generator. All these will do great help to the development of the evaporative cooling large wind power generator. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Evaporative cooling systems
Controlled terms: Thermoelectric equipment - Structural optimization - Cooling - Wind power - Evaporation - Wind turbines
Uncontrolled terms: Air-cooling condenser - Close loop - Evaporative cooling - Optimum structures - Power energy - Renewable energies - Self-circulation - Structure optimization - Wind generator systems
Classification Code: 615.4 Thermoelectric Energy - 615.8 Wind Power (Before 1993, use code 611) - 641.2 Heat Transfer - 802.3 Chemical Operations - 921.5 Optimization Techniques
Database: Compendex
Data Provider: Engineering Village

153. Analysis and comparison of seal ability of premium tubing connections under axial alternating load

Huang, Long Cang (1); Cao, Yin Ping (2); Yu, Yang (2); Dou, Yi Hua (2)
Source: *Applied Mechanics and Materials*, v 423-426, p 2035-2039, 2013, *Applied Materials and Technologies for Modern Manufacturing*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858882; **DOI:** 10.4028/www.scientific.net/AMM.423-426.2035; **Conference:** 3rd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2013, August 24, 2013 - August 25, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) CNPC Tarim Oilfield Company, Korla, Xinjiang 841000, China (2) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: In the process of oil and gas well production, tubing connection stand the axial alternating load during open well, shut well and fluid flow. In order to know premium connection seal ability under the loading, two types of P110 88.9mmx6.45mm premium tubing connections which called A connection and B connection are performed with finite element analysis, in which contact pressures and their the regularities distribution on sealing surface are analyzed. The results show that with the increasing of cycle number, the maximum contact pressures on sealing surface of both A connection and B connection are decreased. The decreasing of the maximum contact pressures on B connection is greater than those on A connection. With the increasing of cycle number of axial alternating compression load, the maximum contact pressure on sealing surface of A connection is decreased, and the maximum contact pressure on sealing surface of B connection remains constant. Compared the result, it shows that the seal ability of A connection is better than B connection under axial alternating tension load, while the seal ability of B connection is better than type A connection under axial alternating compression load. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Finite element method
Controlled terms: Flow of fluids - Tubing
Uncontrolled terms: Alternating loads - Compression loads - Contact pressures - Oil and gas well - Premium connection - Seal-ability - Tension loads - Tubing connections
Classification Code: 619.1 Pipe, Piping and Pipelines - 631.1 Fluid Flow, General - 921.6 Numerical Methods
Database: Compendex

Data Provider: Engineering Village

154. Experimental study on oilstone abrasive for superalloy deep-hole honing

Zhu, Lin (1); Chen, Yan (1); Huang, Wei (1)
Source: *BioTechnology: An Indian Journal*, v 8, n 9, p 1276-1279, 2013; **ISSN:** 09747435; **Publisher:** Trade Science Inc
Author affiliation: (1) Mechanical Manufacture and Automation, School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi Provence, China
Abstract: Superalloy has excellent high temperature strength, thermal stability and thermal fatigue resistance, it can withstand the complex stress and operate securely for long-term. This material is suitable to be applied in aeronautics, astronautics and petrochemical industry. However its high hardness and mechanical strength bring great difficulty in machining, which is particularly outstanding in deep hole honing. This article has analyzed the cutting performance and the machinability of 8 kinds of oilstones by deephole honing nickel-base superalloy inconel718, the experimental result shows: using medium hardness oilstone which contained 30% ceramic corundum as the abrasive, the honing efficiency and grinding ratio are both higher than other abrasives. © 2013 Trade Science Inc. - INDIA. (4 refs)
Main heading: Abrasives
Controlled terms: Grinding (machining) - Nickel alloys - Corundum - Honing - Superalloys - Hardness
Uncontrolled terms: Complex stress - Cutting performance - Grinding ratio - High hardness - High temperature strength - Inconel-718 - Nickel base superalloy - Petrochemical industry
Classification Code: 482.2 Minerals - 531 Metallurgy and Metallography - 548.2 Nickel Alloys - 604.2 Machining Operations - 606.1 Abrasive Materials - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

155. The finite element analysis of the rollers in a rotary steerable drilling tool

Zhang, Guang Wei (1); You, Li (2); Li, Zhao (3)
Source: *Applied Mechanics and Materials*, v 390, p 641-645, 2013, *Mechanical and Aerospace Engineering IV*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858332; **DOI:** 10.4028/www.scientific.net/AMM.390.641; **Conference:** 2013 4th International Conference on Mechanical and Aerospace Engineering, ICMAE 2013, July 20, 2013 - July 21, 2013; **Sponsor:** Samara State Aerospace University, Russia; Orleans University, France; St. Petersburg State University, Russia; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, China (2) CNOOC Information Technology Co., Ltd, Shanghai Branch, China (3) School of Mechanical Engineering, Xi'an Shiyou University, China
Abstract: Rotary steerable system (RSS) is a system complete the oriented features in real-time while a drill string rotary drilling. It is a major change since the 1990s in directional drilling technology. RSS's drilling frictional and torsional resistance is small, has a high drilling speed, low cost, the well trajectory is smooth and easy to control, it is considered to be the development direction of modern steering drilling technology.When the system working, drilling pressure and torque are passed by the thrust bearings in the controlled bend sub oriented tool; therefore it is necessary to analysis the roller's load distribution to verify the design parameters of variation cardan shaft, thrust bearings and roller are correct or not, This article analyzed thrust bearing's rollers by ANSYS. Determine its maximum stress, etc. Providing more intuitive and scientific basis for its structural optimization. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Finite element method
Controlled terms: Boring - Directional drilling - Drill strings - Drills - Structural optimization - Rotating machinery - Rollers (machine components) - Thrust bearings
Uncontrolled terms: Contact analysis - Development directions - Directional drilling technologies - Drilling pressure - Load distributions - Rotary steerable systems - Rotary-steerable drilling - Torsional resistance
Classification Code: 511.2 Oil Field Equipment - 601.1 Mechanical Devices - 601.2 Machine Components - 603.2 Machine Tool Accessories - 604.2 Machining Operations - 921.5 Optimization Techniques - 921.6 Numerical Methods
Funding Details: Number: 51174164, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Database: Compendex
Data Provider: Engineering Village

156. Analysis of sealing ability of premium tubing connection under axial alternating tension load

Dou, Yihua (1); Wang, Xing (1); Yu, Yang (1); Yang, Xiangtong (2)
Source: *Advanced Materials Research*, v 634-638, n 1, p 3569-3572, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.3569; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) CNPC Tarim Oilfield Company, Korla, Xinjiang 841000, China
Abstract: In order to know the sealing ability under axial alternating tension load, a 88.9mm×6.45mm P110 premium tubing connection is established with multiple linear elastic plastic finite element model, stress and contact pressure on sealing surface and torque shoulder are analyzed under axial alternating tension load and 80 MPa inner pressure. The results show that tubing connection slide by the axial tension, while the maximum contact pressure on seal surface reduced. With the increasing of alternating cycle, the maximum equivalent stress on seal surface increased and the maximum contact pressure on seal surface decreased. And, under limited loads, contact pressure on torque shoulder is affected little caused by alternating load. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Finite element method
Controlled terms: Elastoplasticity - Seals - Tubing
Uncontrolled terms: Alternating cycle - Alternating loads - Axial tensions - Contact pressures - Equivalent stress - Inner pressure - Limited load - Linear elastic - Premium connection - Sealing ability - Tension loads
Classification Code: 619.1 Pipe, Piping and Pipelines - 619.1.1 Pipe Accessories - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

157. Reliability research on measurement system for Downhole storage pressure gauge

Wu, Heng (1); Peng, Yong (1); Wang, Li Ping (2)
Source: *Applied Mechanics and Materials*, v 345, p 516-520, 2013, *Advanced Research on Mechanical Engineering, Industry and Manufacturing Engineering III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857793; **DOI:** 10.4028/www.scientific.net/AMM.345.516; **Conference:** 2013 3rd International Conference on Mechanical Engineering, Industry and Manufacturing Engineering, MEIME 2013, June 22, 2013 - June 23, 2013; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Mechanical Engineering School, Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China (2) Xijing University, Xi'an, Shaanxi, 710123, China
Abstract: Downhole storage pressure gauge should meet the requirements of high strength, high temperature resistance, vibration resistance, and high reliability when hydraulic fracturing. Downhole storage pressure gauge has been designed. Based on the working principle, the logic diagram for reliable analysis has been built, which has been connected by five units in series. With the modules of electronic component and integrated circuit, the operating failure rates of the five units have been calculated. The reliability and Mean Time Between Failure of downhole storage pressure gauge have been obtained. The high reliability of the downhole storage pressure gauge can satisfy the measuring demand for pressure and temperature when hydraulic fracturing. © (2013) Trans Tech Publications, Switzerland. (10 refs)
Main heading: Hydraulic fracturing
Controlled terms: Failure rate
Uncontrolled terms: Failure rate - High temperature resistance - Mean time between failures - Measurement system - Pressure and temperature - Reliability prediction - Storage pressures - Vibration resistance
Classification Code: 512.1.2 Petroleum Deposits : Development Operations - 913.1 Production Engineering
Database: Compendex
Data Provider: Engineering Village

158. Lithofacies recognition based on extreme learning machine

Tian, Yajuan (1); Pan, Huaxian (2); Liu, Xuanchao (1); Cheng, Guojian (1)
Source: *Applied Mechanics and Materials*, v 241-244, p 1762-1767, 2013, *Industrial Instrumentation and Control Systems*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855461; **DOI:** 10.4028/www.scientific.net/AMM.241-244.1762; **Conference:** 2012 International Conference on Measurement, Instrumentation and Automation, ICMIA 2012, September 15, 2012 - September 16, 2012; **Sponsor:** Queensland University of Technology; Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University, Korea; **Publisher:** Trans Tech Publications

Author affiliation: (1) School of Electronic Engineering, Xi'an Shiyou University, China (2) Xingzhi College, Xi'an University of Finance and Economics, China
Abstract: To overcome the problem of lower training speed and difficulty parameter selection in traditional support vector machine (SVM), a method based on extreme learning machine (ELM) for lithofacies recognition is presented in this paper. ELM is a new learning algorithm with single-hidden layer feedforward neural networks (SLFNN). Not only it can simplify the parameter selection process, but also improve the training speed of the network learning. By determining the optimal parameters, the lithofacies classification model is established, and the classification result of ELM is also compared to traditional SVM. The experimental results show that, ELM with less number of neurons has similar classification accuracy compared to SVM, and it is easier to select the parameters which significantly reduce the training speed. The feasibility of ELM for lithofacies recognition and the availability of the algorithm are verified and validated. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Support vector machines
Controlled terms: Feedforward neural networks - Learning algorithms - Network layers - Knowledge acquisition
Uncontrolled terms: Classification accuracy - Classification models - Classification results - Extreme learning machine - Lithofacies - Network learning - Optimal parameter - Parameter selection - Single-hidden layer feedforward neural networks - Training speed
Classification Code: 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 723.4.2 Machine Learning
Database: Compendex
Data Provider: Engineering Village

159. Geochemical characteristics of primary gas in the Ordovician and their significance for the gas source of Jingbian gas field, Ordos Basin

Xiao, Hui (1, 2); Zhao, Jingzhou (1, 2); Wang, Daxing (3); Ren, Junfeng (3); Ma, Zhanrong (3); Wu, Weitao (1, 2)
Source: *Oil and Gas Geology*, v 34, n 5, p 601-609, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130504; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Key Laboratory of Hydrocarbon Accumulation of Shaanxi Province, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (3) Research Institute of Petroleum Exploration and Development, Changqing Oilfield Company, PetroChina, Xi'an, Shaanxi 710018, China
Abstract: Gas source of the Ordovician weathering crust gas reservoirs in Jingbian gas field is restudied by analyzing gas source of Well Yutan1 in Ordos Basin. An analysis of the geochemical features of source rock and a comparative analysis on carbon isotopes of natural gases are performed. The total organic carbon (TOC) of the Middle Ordovician Wulalike Formation is 0.30%-1.16% (averaging at 0.51%) and the thickness of dark mudstone is 52.59 m. These two parameters indicate that this formation can be effective source rock. The carbon isotopes of methane in natural gas from Yutan-1 well are significantly lighter with #13C1 value in the range of -39.11‰-38.92‰, which is similar with the pyrolytic methane from carbonate source rocks. In contrast, the carbon isotopes of ethane are relatively heavier with #13C1 value in the range of -27.26‰ and -27.17‰, which seems to be the characteristics of coal-derived gas. However, the calculated gas maturity (Ro=1.86%-1.89%) from source rock thermal simulation experiment is coincided with the measured gas maturity (Ro=1.83%-1.92%) from source rock, both indicating high thermal maturity. In addition, the overlying thick Ordovician mudstone of the gas reservoir makes it difficult for the coal-derived gas from the Upper Paleozoic to migrate into the reservoir. All these evidences show that the Ordovician gas of Yutan-1 well should be oil-generated gas. Using the Ordovician gas of Yutan-1 well as the end member of oil-generated gas in Ordos basin, a comparative analysis is performed on the carbon isotopes of gas from the central-northern and southern Jingbian gas field. The following results are obtained. (1) Carbon isotope of methane should be considered as the major gas source index for the Ordovician gas, and #13C1<-38‰ is a index for identifying oil-generated gas in Jingbian weathering crust gas field; (2) The gas source in the entire Jingbian gas field is still dominated by mixed coal-derived gas of high maturity, but the proportion of oil-generated gases is higher in the southern Jingbian gas field than that in the central-northern Jingbian gas field; (3) Secondary pyrolysis of ethane may be the major factor causing heavier ethane carbon isotope of the oil-generated gas in the Ordovician. (26 refs)
Main heading: Gases
Controlled terms: Carbon - Ethane - Exploratory geochemistry - Gas industry - Isotopes - Metamorphic rocks - Methane - Natural gas - Pyrolysis - Weathering
Uncontrolled terms: Carbon isotopes - Gas fields - Gas sources - Ordos Basin - Ordovician
Classification Code: 931.2 Physical Properties of Gases, Liquids and Solids - 804.1 Organic Compounds - 804 Chemical Products Generally - 802.2 Chemical Reactions - 522 Gas Fuels - 481.2 Geochemistry - 481.1.2 Petrology (Before 1993, use code 482)
Database: Compendex

Data Provider: Engineering Village

160. Optimization of long distance natural gas pipeline design proposals based on multi-objective AHM method

Dong, Feng-Juan (1); Lu, Xue-Fei (2)
Source: *Advanced Materials Research*, v 756-759, p 4309-4313, 2013, *Information Technology Applications in Industry, Computer Engineering and Materials Science*; **ISSN:** 10226680; **ISBN-13:** 9783037857700; **DOI:** 10.4028/www.scientific.net/AMR.756-759.4309; **Conference:** 3rd International Conference on Materials Science and Information Technology, MSIT 2013, September 14, 2013 - September 15, 2013; **Sponsor:** Trans tech publications inc.; Computer Science and Electronic Technology; BITS Narsampet; Universitatea Politehnica Din Bucuresti;
Publisher: Trans Tech Publications Ltd
Author affiliation: (1) College of Petroleum Engineering, Xi'an Petroleum University, Xi'an, China (2) College of Science, Xi'an Petroleum University, Xi'an, China
Abstract: The new method-AHM, and nine parameters which included diameter, delivery pressure, pressure ratio of the first station, pressure ratios of intermediate stations, number of stations, investment costs of pipeline,investment costs of stations, investment costs of operation,equivalent cost, have been selected to evaluate design projects of the long distance natural gas pipeline. The results indicate that attribute AHM matches other methods well. The calculation result of the example indicates that AHM method can get a good assessment result for the multifactor and multihierarchy complicated problems. The study provides a new method and technique for designers to select the technical feasible and economic reasonable design case, which has some theoretical and practical value. © (2013) Trans Tech Publications, Switzerland. (14 refs)
Main heading: Design
Controlled terms: Investments - Natural gas pipelines - Natural gas - Costs
Uncontrolled terms: AHM method - Calculation results - Comprehensive assessment - Design projects - Design proposal - Investment costs - Method and technique - Multi objective
Classification Code: 522 Gas Fuels - 619.1 Pipe, Piping and Pipelines - 911 Cost and Value Engineering; Industrial Economics
Database: Compendex
Data Provider: Engineering Village

161. Content based spam text classification: An empirical comparison between english and Chinese

Zhang, Liumei (1); Ma, Jianfeng (1); Wang, Yichuan (1)
Source: *Proceedings - 5th International Conference on Intelligent Networking and Collaborative Systems, INCoS 2013*, p 69-76, 2013, *Proceedings - 5th International Conference on Intelligent Networking and Collaborative Systems, INCoS 2013*; **ISBN-13:** 9780769549880; **DOI:** 10.1109/INCoS.2013.21; **Article number:** 6630291; **Conference:** 5th IEEE International Conference on Intelligent Networking and Collaborative Systems, INCoS 2013, September 9, 2013 - September 11, 2013; **Sponsor:** Fujian Normal University; K. C. Wong Education Foundation Hong Kong; National Natural Science Foundation of China; **Publisher:** IEEE Computer Society
Author affiliation: (1) School of Computer Science and Technology, Xidian University School of Computer Science, Xi'an Shiyou University, Xi'an, China
Abstract: Spam text including e-mails, SMS and etc, is a real and growing problem primarily due to the availability of digital handset and internet. To filter spam text is to be the utmost topic over varies study area. Text bodies of different forms of communication expose channel for spammers. In this study, text dataset in English and Chinese are pre-processed. Classical classifiers are applied on the pre-processed dataset to evaluate the accuracy of the same classifier. The behavior of classifiers among English and Chinese is evaluated. The paper also discussed the result of experiments. In addition, different from most existing text spam detection methods which are based on English, classifiers suited for English text classification is insufficient for Chinese text classification. © 2013 IEEE. (18 refs)
Main heading: Classification (of information)
Controlled terms: Learning systems - Text processing
Uncontrolled terms: Chinese text classification - Content-based - Empirical - comparisons - Spam detection - Spam text - Spammers - Study areas - Text classification
Classification Code: 716.1 Information Theory and Signal Processing - 903.1 Information Sources and Analysis - 903.3 Information Retrieval and Use
Database: Compendex
Data Provider: Engineering Village

162. The research of through-casing resistivity logging calibration system leakage current measurement method

Jiatian, Zhang (1); Huanyou, Wang (1); Dezhou, Bao (2)
Source: *Telkomnika - Indonesian Journal of Electrical Engineering*, v 11, n 12, p 7509-7515, December 2013; **ISSN:** 23024046, **E-ISSN:** 2087278X; **Publisher:** Universitas Ahmad Dahlan
Author affiliation: (1) Key Laboratory of Education Ministry for Photoelectric Logging, Detecting of Detecting of Oil and Gas Xian Shiyou University, Xi'an, Shaanxi, China (2) China Petroleum Logging CO. LTD., Xi'an, Shaanxi, China
Abstract: This paper introduces the logging principle of through-casing resistivity logging technology, finds a phenomenon that the leakage current measurements are susceptible to sufferring interferences. Thethrough-casing resistivity logging technology in Russia and that of Schlumberger are studied, and thesystem of through-casing resistivity logging is established to improve the accuracy of calibrating, testingand measuring of the instrument. In this paper, distribution parameters of the form is replaced by thelumped parameter, and precision resistor array simulation in formation leakage current and scale poolsimulation in different resistivity of formation are conducted, which make the dynamic range of thesimulation in formation resistivity of the medium increase to 1-300 #.m and meet the requirement ofthrough-casing resistivity logging technology measurement range, 1#.m~100 #.m. Since the measuring signals of calibration acquisition and processing systems are extremely weak and calculation signalsneed to tell the nV (nanovolts) level, the high accurate data acquisition system of 24 digits is applied. © 2013 Universitas Ahmad Dahlan. (14 refs)
Main heading: Electric current measurement
Controlled terms: Calibration - Electric logging - Leakage currents - Signal processing
Uncontrolled terms: Acquisition systems - Calibration system - Data acquisition system - Distribution parameters - Formation resistivity - Precision resistors - Processing systems - Resistivity logging
Classification Code: 943 Mechanical and Miscellaneous Measuring Instruments - 942.2 Electric Variables Measurements - 942 Electric and Electronic Measuring Instruments - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 941 Acoustical and Optical Measuring Instruments - 701.1 Electricity: Basic Concepts and Phenomena - 512.1.2 Petroleum Deposits : Development Operations - 716.1 Information Theory and Signal Processing
Database: Compendex
Data Provider: Engineering Village

163. Collaborative logistics resource selection model of refined petroleum products by genetic algorithm

Ping, Bai (1, 2)
Source: *WIT Transactions on Information and Communication Technologies*, 46 VOLUME 3, p 2485-2492, 2013, *Information Science and Management Engineering*; **ISSN:** 17433517; **ISBN-13:** 9781845648282; **DOI:** 10.2495/ISME20133363; **Publisher:** WITPress
Author affiliation: (1) College of Economic Management, Xi'an University of Technology, Xi'an, China (2) College of Economic Management, Xi'an Shiyou University, Xi'an, China
Abstract: A critical problem on refined petroleum products collaborative logistics system is logistics transportation resources choice. Establishes mechanism frame of refined oil collaborative logistics, preliminary screens enterprise resources of refined products oil logistics with the analytic hierarchy process, gets the candidate transport enterprise resource pool of collaborative system, forms resource selection process of improved contract net protocol method based on collaborative logistics network model. Thus, determines the transport, storage, and other basic rate through refined petroleum products collaborative logistics system, realizes polymerization and synergy of logistics task according to the solution of collaborative logistics network model, finds the best refined oil collaborative logistics transportation resources combination through genetic algorithms. © 2014 WIT Press. (8 refs)
Main heading: Genetic algorithms
Controlled terms: Petroleum refining - Logistics - Petroleum transportation
Uncontrolled terms: Collaborative logistics - Collaborative logistics networks - Collaborative systems - Contract net protocols - Enterprise resources - Logistics transportations - Resource selection - Resources selections
Classification Code: 513.1 Petroleum Refining, General
Database: Compendex
Data Provider: Engineering Village

164. Preliminary study on the new dual-bed photocatalytic hydrogen production system

Liang, Hui Rong (1, 2); Guo, Lie Jin (2); Yan, Wei (2); Liu, Yi Liang (2)
Source: *Advanced Materials Research*, v 750-752, p 1786-1790, 2013, *Advanced Engineering Materials III*; **ISSN:** 10226680; **ISBN-13:** 9783037857632; **DOI:** 10.4028/www.scientific.net/AMR.750-752.1786; **Conference:** 3rd International Conference on Advanced Engineering Materials and Technology, AEMT 2013, May 11, 2013 - May 12, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xi'an, China (2) State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, China
Abstract: A new dual-bed photocatalytic hydrogen production reaction system is proposed in this paper. In this dual-bed system, one bed is photocatalytic hydrogen evolution reaction bed in which I- is oxidized into I2 by a hole and H+ is reduced to H2 by an electron, and the other is the hole-sacrificed agent regeneration bed in which I- is regenerated by reducing I2 with Cu2O. The two reaction beds are connected with two constant flow pumps to form a circulation loop. The hole-sacrificed agent I- can always be renewable by circulating the reaction solution between dual beds. The dual-bed reaction system achieves to produce hydrogen continuously, steadily and efficiently. (17 refs)
Main heading: Hydrogen production
Controlled terms: Copper oxides
Uncontrolled terms: Circulation loop - Constant flow - Dual-bed system - Photo-catalytic - Photocatalytic hydrogen evolution - Photocatalytic hydrogen production - Reaction solutions - Reaction system
Classification Code: 522 Gas Fuels - 804.2 Inorganic Compounds
Database: Compendex
Data Provider: Engineering Village

165. Characteristics of Chang 9 member source rocks and its significance of hydrocarbon exploration in Xingzichuan Oilfield, Ordos Basin

Bai, Yu-Bin (1); Zhao, Jing-Zhou (1); Gao, Zhen-Dong (2); Li, Zhong-Feng (2); Zhang, Zhi-Sheng (2); Zhu, Jie (2); Guo, Yu (1); Zheng, Hui (1)
Source: *Zhongguo Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of China University of Petroleum (Edition of Natural Science)*, v 37, n 4, p 38-45, August 2013; **Language:** Chinese; **ISSN:** 16735005; **DOI:** 10.3969/j.issn.1673-5005.2013.04.006; **Publisher:** University of Petroleum, China
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Yanchang Oilfield Corporation, Yan'an 716000, China
Abstract: By using rock pyrolysis, microscopic examination of kerogen, istope, gas chromatography, GC-MS and other analysis methods, the organic geochemical characteristics of the dark mudstone of Chang 9 member in Upper Triassic of Xingzichuan Oilfield in Ordos Basin and its significance of hydrocarbon exploration were studied. The results show that the main source rocks in study area are Lijiapan shale at the top of Chang 91, and the geochemical characteristics of the dark mudstone of Chang 92 show that they are not the petroleum source rocks. The source rocks on Chang 9 mainly consist of silty or silt-bearing mudstone, which are not the real clay rocks. The average organic carbon content is 3.05%, and the main kerogen type is type II1, and the average highest pyrolysis peak temperature is 450°C. These show that the source rocks rank is good ones and in the mutual stage. The types of parent materials are characterized by the common input of the lower aquatic organisms and higher plants, and the water environment of lake basin is the fresh water reduction condition as a whole. The comprehensive evaluation shows that Chang 9 develops the better hydrocarbon-generating condition, which tends to generate oil. The region whose thickness is over 10 m is the favorable exploration target area of Chang 8 to Chang 10 petroleum accumulations. (26 refs)
Main heading: Kerogen
Controlled terms: Pyrolysis - Oil well flooding - Metamorphic rocks - Aquatic organisms - Gas chromatography - Oil shale - Hydrocarbons - Petroleum geology - Petroleum prospecting - Organic carbon
Uncontrolled terms: Chang 9 member - Comprehensive evaluation - Geochemical characteristic - Hydrocarbon exploration - Ordos Basin - Organic carbon contents - Petroleum accumulations - Source rocks
Classification Code: 471 Marine Science and Oceanography - 481.1 Geology - 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.1 Organic Compounds
Database: Compendex
Data Provider: Engineering Village

166. Research of flow coefficient of new throttling/sealing valve based on CFD

Jin, Yabin (1); Zhou, Sanping (1); Zhang, Hong (2); Yang, Rui (2)

Source: *Applied Mechanics and Materials*, v 312, p 231-234, 2013, *Applied Research and Engineering Solutions in Industry*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856901; **DOI:** 10.4028/www.scientific.net/AMM.312.231; **Conference:** International Conference on Electrical Information and Mechatronics, ICEIM 2012, December 23, 2012 - December 25, 2012; **Sponsor:** Chinese Academy of Science; Society of Intelligent Aerospace Systems, China; Linear Motor Committees of China Electrotechnical Society; Zhejiang University; Beihang University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Institute of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) 705 Institute of China Shipbuilding Industry Corporation Company, Xi'an 710065, China
Abstract: The flow coefficient of the valve is an important index of measuring the valve circulation ability, a major process parameter of and a significant technical indicator of valves and regulating valves on an industrial basis. Numerical simulation was performed on the flow coefficient of the valve by using FLUENT, software of computational fluid mechanics and by the standard k-$\sum$ model. The flow and the resistance coeffients were obtained based on the numerical simulation of a new type of throttling /sealing valve under the same pressure differentials but with different opening conditions. The results demonstrate that the flow coefficient of the throttling/sealing valve is in close compliance with the typical curve of equal percent, and thus provides an important basis for its optimized control.© (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Computational fluid dynamics
Controlled terms: Curve fitting - Numerical models - Computer software - Industrial research
Uncontrolled terms: Computational fluid mechanics - Flow coefficients - Hydraulic valves - Opening conditions - Pressure differential - Process parameters - Resistance coefficients - Technical indicator
Classification Code: 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 901.3 Engineering Research - 912.1 Industrial Engineering - 921 Mathematics - 921.6 Numerical Methods - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

167. The tectonic and uplift history of the kuruketage area in the north-east edge of the tarim basin, China: Constraints from detrital zircon and apatite fission track data

Xiao, Hui (1); Han, Wei (2); Guo, Feng (1)
Source: *Applied Mechanics and Materials*, v 330, p 1067-1070, 2013, *Materials Engineering and Automatic Control II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857250; **DOI:** 10.4028/www.scientific.net/AMM.330.1067; **Conference:** 2nd International Conference on Materials Engineering and Automatic Control, ICMEAC 2013, May 18, 2013 - May 19, 2013; **Sponsor:** Shandong Jianzhu University; Shandong University; China University of Petroleum; Shandong University of Science and Technology; University of Jinan; et al; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of earth sciences and engineering, Xi'an Shiyou University, Xi'an, China (2) Xi'an Institute of Geology and mineral Resources, Xi'an, China
Abstract: This study uses the application of zircon fission track (ZFT) and apatite fission track (AFT) thermochronometry technique to investigate the tectonic and uplift history of the Kuruketage area, north-east edge of the Tarim Basin. Based on measured ZFT, AFT and equivalent vitrinite reflectance measurements of samples in sedimentary rocks in Kuruketage area, the temperature - time evolution history from early Paleozoic strata was modeled. The results show that the youngest peaks of ZFT at 371 -392Ma and 328 - 305.7Ma record Hercynian tectonic and uplift event; the AFT peaks at 134.5 - 164Ma, 73 - 100Ma and - 35.4Ma mainly represent the Late-Cretaceous tectonic and uplift event in Kuruketage area. The AFT thermal modeling results from the early Paleozoic strata indicate that the maximum paleo-temperature (at 140 - 215°C) experienced in late Silurian to early Devonian, and the strata temperature decreased to about 120° before the Late-Cretaceous. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Tectonics
Controlled terms: Fission reactions - Geochronology - Zircon - Sedimentary rocks - Apatite
Uncontrolled terms: Apatite fission tracks - Kuruketage area - Tarim Basin - Tectonic events - Zircon fission tracks
Classification Code: 481.1 Geology - 481.3 Geophysics - 482.2 Minerals - 482.2.1 Gems - 932.2.1 Fission and Fusion Reactions
Database: Compendex
Data Provider: Engineering Village

168. Determination of enantiomeric composition of dopa by using UV spectroscopy combined with principal component regression

Qiang, Deng (1); Long, Jiao (1, 2); Yi-Qing, Ge (1); Yun-Xia, Wang (2)

Source: *Advanced Materials Research*, v 622, p 1451-1455, 2013, *Manufacturing Science and Technology III*; **ISSN:** 10226680; **ISBN-13:** 9783037855638; **DOI:** 10.4028/www.scientific.net/AMR.622-623.1451; **Conference:** 2012 3rd International Conference on Manufacturing Science and Technology, ICMST 2012, August 18, 2012 - August 19, 2012; **Sponsor:** IACSIT; Trans tech publications inc.; Engineering Village; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, China (2) College of chemistry and materials science Northwest University, China
Abstract: A method which combines UV spectroscopy, guest-host chemistry and principal component regression (PCR) was proposed for determining the enantiomeric composition of DOPA samples. The calibration models were developed from UV spectral data of a series of samples containing DOPA with different known enantiomeric compositions by using PCR. The obtained model was subsequently validated by determining the enantiomeric composition of a set of independently prepared samples. This method shows high sensitivity for determining the enantiomeric composition of DOPA. When there is 5.00 μM DOPA in the samples, the enantiomeric composition of DOPA can be accurately determined. © (2013) Trans Tech Publications, Switzerland. (21 refs)
Main heading: Ultraviolet spectroscopy
Controlled terms: Principal component analysis - Regression analysis - Enantiomers
Uncontrolled terms: Calibration model - DOPA - Enantiomeric composition - Guest-host - High sensitivity - Principal component regression - Spectral data
Classification Code: 922.2 Mathematical Statistics
Database: Compendex
Data Provider: Engineering Village

169. Research optical characteristics of H2S molecule adsorption on Agn (n=2,4,6) clusters

Zhou, Hong (1); Wang, Jun-Feng (1); Wen, Jun-Qing (1); Cheng, Wei-Bin (1); Wang, Jun-Fei (2)
Source: *Applied Mechanics and Materials*, v 321-324, p 499-502, 2013, *Mechatronics and Industrial Informatics*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856949; **DOI:** 10.4028/www.scientific.net/AMM.321-324.499; **Conference:** 2013 International Conference on Mechatronics and Industrial Informatics, ICMII 2013, March 13, 2013 - March 14, 2013; **Sponsor:** Korea Maritime University; Hong Kong Industrial Technology Research Centre; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an 710065, China (2) Institute of Modern Physics, Northwest University, Xi'an 710069, China
Abstract: Density-functional theory has been used to calculate the energetically global-minimum geometries and electronic states of AgnH2S (n=2, 4, 6) clusters. The lowest-energy structures of Ag2, Ag4, Ag6, Ag2H2S, Ag4H2S and Ag6H2S clusters were obtained, respectively. The calculation results show that the lowest-energy structures of Ag2, Ag4 and Ag6 clusters are planar geometries. The binding energies of Agn(n=2, 4, 6) clusters are gradually increasing in our calculations. Compare the infrared spectrum peaks of Ag4 cluster with that of Ag6 cluster, which show that the peaks shift to shortwave. After adsorption, we found that the peaks shift to shortwave by comparison. © (2013) Trans Tech Publications, Switzerland. (18 refs)
Main heading: Density functional theory
Controlled terms: Binding energy - Adsorption - Silver compounds - Electronic states
Uncontrolled terms: Adsorption spectrum - Calculation results - Infrared spectrum - Lowest energy structure - Molecule adsorptions - Optical characteristics - Planar geometries
Classification Code: 801.4 Physical Chemistry - 802.3 Chemical Operations - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933.3 Electronic Structure of Solids
Database: Compendex
Data Provider: Engineering Village

170. Study of water conservation evaluate for green building

Zhang, Wei (1); Yang, Yun (2)
Source: *Applied Mechanics and Materials*, v 361-363, p 81-84, 2013, *Sustainable Cities Development and Environment Protection*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857779; **DOI:** 10.4028/www.scientific.net/AMM.361-363.81; **Conference:** 3rd International Conference on Civil Engineering, Architecture and Building Materials, CEABM 2013, May 24, 2013 - May 26, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of management, Xi'an University of Architecture And Technology, Xi'an, Shaanxi, China (2) Department of Design, Xi'an Shiyou University, Xi'an, Shaanxi, China
Abstract: Green building is being paid more attention at present with the development of resource economizing social, and there are wider development space for water conservation technology. Water conservation evaluation is

accordingly becoming an important part in green building study. A green residential area, which including a series of water conservation project is selected as a study case. With evaluating its water conservation of incremental cost, rainwater utilization and comprehensive benefit, the paper aims at consulting on the investment decision in green building's water conservation technology to reduce the environmental impact on the earth due to water consumption and wastewater discharge. © (2013) Trans Tech Publications, Switzerland. (10 refs)
Main heading: Water conservation
Controlled terms: Environmental technology - Environmental impact - Economic and social effects - Housing - Historic preservation - Investments
Uncontrolled terms: Comprehensive benefit - Conservation projects - Conservation technologies - Green buildings - Investment decisions - Rainwater utilizations - Residential - Wastewater discharge
Classification Code: 403.1 Urban Planning and Development - 444 Water Resources - 454 Environmental Engineering - 454.2 Environmental Impact and Protection - 971 Social Sciences
Database: Compendex
Data Provider: Engineering Village

171. Research on the relational model of corrosion factors of air cooler on atmospheric tower

Feng, Bin (1); Chen, Bing (1); Gu, Guo (2); Wu, Changjiang (1)
Source: *Advanced Materials Research*, v 634-638, n 1, p 1626-1629, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.1626; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) Xi'an Controlled Company of Beijing Petrochemical Industry Ltd, Xi'an, 710065, China
Abstract: Corrosion perforation of air cooler on atmospheric tower in refinery is mainly caused by the outer wall pitting, and the leading factors which results in the air cooler failure are Cl-, pH value, temperature and Na+. With orthogonal model design test program to the main factors, and through polarization curves experiments obtain the corresponding corrosion potential, corrosion rate, pitting potential. we have done research on the impact that the change of concentration of Cl-and Na+, the temperature, pH on 304 stainless steel properties. The results show that Cl-concentration, Na+concentration rise make air cooler on atmospheric tower happening corrosion easily; pH value rise make air cooler on atmospheric tower happening corrosion not easily, which has a protective effect to the passive film; Temperature rise make air cooler on atmospheric tower passivation membrane formation rate increase, and at the same time pitting corrosion is more easily to happen. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Towers
Controlled terms: Corrosion rate - Passivation - Steel corrosion - Pitting - Software testing - Corrosion protection - Polarization - pH - Atmospheric corrosion - Atmospheric temperature
Uncontrolled terms: 304 stainless steel - Air cooler - Corrosion factor - Corrosion potentials - Membrane formation - Model design - Passive films - pH value - Pitting potential - Polarization curves - Protective effects - Relational Model - Temperature rise
Classification Code: 402.4 Towers - 443.1 Atmospheric Properties - 539.1 Metals Corrosion - 539.2 Corrosion Protection - 539.2.1 Protection Methods - 545.3 Steel - 723.5 Computer Applications - 801.1 Chemistry, General
Database: Compendex
Data Provider: Engineering Village

172. Density functional study of H2S adsorption on small Agn (n = 1-5)

Wen, Jun-Qing (1); Yang, A-Ping (1); Chen, Guo-Xiang (1); Zhang, Chen-Jun (2)
Source: *Advanced Materials Research*, v 634-638, n 1, p 47-51, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.47; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an 710065, China (2) Institute of Modern Physics, Northwest University, Xi'an 710069, China
Abstract: The global-minimum geometries and electronic states of AgnH2S (n=1-5) clusters have been calculated using density-functional theory. Our calculations predicate that the stable geometries of AgnH2S clusters can be got by directly adding the H2S molecule on different site of Agn clusters, Agn (n=1-5) clusters would like to bond with sulfur atom and the H2S molecule is partial to hold the top location and single fold coordination site in the clusters.

After adsorption, the structures of Agn clusters and H2S molecule keep the original structures and are only distorted slightly. The averaged binding energy reveals that adsorption of H2S molecule can strengthen the stabilities of AgnH2S clusters. The second difference in energy and the energy gaps between the HOMO and LUMO of Agn and AgnH2S have been studied. © (2013) Trans Tech Publications, Switzerland. (18 refs)
Main heading: Density functional theory
Controlled terms: Molecules - Silver compounds - Adsorption - Binding energy - Electronic states
Uncontrolled terms: Coordination sites - Density-functional study - Original structures - Sulfur atoms
Classification Code: 801.4 Physical Chemistry - 802.3 Chemical Operations - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933.3 Electronic Structure of Solids
Database: Compendex
Data Provider: Engineering Village

173. Multi wall carbon nanotube surface modification and adsorption performance of Cu2+

Re, Yila Abuduwayiti (1); Qu, Chengtun (1); Yu, Tao (1); Yang, Bo (1)
Source: *Applied Mechanics and Materials*, v 295-298, p 1227-1230, 2013, *Progress in Environmental Protection and Processing of Resource*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856499; **DOI:** 10.4028/www.scientific.net/AMM.295-298.1227; **Conference:** 2012 International Conference on Sustainable Energy and Environmental Engineering, ICSEEE 2012, December 29, 2012 - December 30, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou University, Key Laboratory of Environmental Pollution Control Technology and Reservoir Protection of Oilfield, Xi'an 710065, China
Abstract: Mixed acid processed Multi-walled carbon nanotubes (MWCNTs) were used as adsorbent to adsorb Cu2+in artificial wastewater in this. In this study, the effect factors of Cu2+adsorption capacity, such as initial concentration of Cu2+, absorbent contact time and dosage, etc were investigated respectively in the solution at neutral pH. The results show that population of -OH is increased on surface of mixed acid processed MWCNTs; and at condition of 30 °C, pH 6, as the increase in concentration and contact time, there is an increase in adsorption capacity of two adsorbents(processed and unprocessed), and the Cu2+adsorption rate increased with the increase in adsorbent dosage. In addition, the considered adsorption capacity change was obtained when processed MWCNTs was used. © (2013) Trans Tech Publications, Switzerland. (15 refs)
Main heading: Adsorption
Controlled terms: Yarn - Adsorbents - Surface treatment - Multiwalled carbon nanotubes (MWCN)
Uncontrolled terms: Adsorbent dosage - Adsorption capacities - Adsorption performance - Adsorption rates - Artificial wastewater - Contact time - Effect factors - Initial concentration
Classification Code: 761 Nanotechnology - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 819.4 Fiber Products - 933.1 Crystalline Solids
Database: Compendex
Data Provider: Engineering Village

174. Study of optical characteristics of H2S molecule adsorption on Agn (n=3,5) clusters

Zhou, Hong (1); Wen, Jun-Qing (1); Wang, Jun-Feng (1); Wang, Jun-Fei (2)
Source: *Advanced Materials Research*, v 690 693, p 611-614, 2013, *Materials Design, Processing and Applications*; **ISSN:** 10226680; **ISBN-13:** 9783037856925; **DOI:** 10.4028/www.scientific.net/AMR.690-693.611; **Conference:** 4th International Conference on Manufacturing Science and Engineering, ICMSE 2013, March 30, 2013 - March 31, 2013; **Sponsor:** Northeastern University, China; Harbin Institute of Technology; Jilin University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an 710065, China (2) Institute of Modern Physics, Northwest University, Xi'an 710069, China
Abstract: All electronic structures and infrared adsorption spectra of AgnH2S (n=3, 5) clusters have been performed by using density functional theory. We obtain the lowest-energy structures of Ag3, Ag5, Ag3H2S and Ag5H2S clusters. The calculation results show that the lowest-energy structures of Ag3 and Ag5 clusters are planar geometries. The lowest-energy structures of Ag3H2S and Ag5H2S can be obtained by adsorbs immediately H2S on Ag3 and Ag5 clusters. The peak of infrared spectrum is 120cm-1 for Ag3 cluster, which is smaller than that of Ag5 cluster (180 cm-1). The peak of infrared spectrum is 350cm-1 for Ag3H2S cluster, which is larger than that of Ag5H2S cluster (290 cm-1). The comparison illustrates that adsorption H2S molecule make the peak of infrared spectrum shifting to shortwave. © (2013) Trans Tech Publications, Switzerland. (18 refs)
Main heading: Silver compounds

Controlled terms: Density functional theory - Electronic structure - Molecules - Spectroscopy - Adsorption
Uncontrolled terms: Calculation results - Infrared adsorption spectrum - Infrared spectrum - Lowest energy structure - Molecule adsorptions - Optical characteristics - Planar geometries
Classification Code: 802.3 Chemical Operations - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics
Database: Compendex
Data Provider: Engineering Village

175. Theoretical prediction of thermal cycles and hardness of HAZ due to twin wire submerged arc welding (*Open Access*)

Li, Xiao (1); Ma, Ninshu (2); Xu, Xueli (1); Murakawa, Hidekazu (2)
Source: *Yosetsu Gakkai Ronbunshu/Quarterly Journal of the Japan Welding Society*, v 31, n 4, p 109s-113s, 2013;
ISSN: 02884771; **DOI:** 10.2207/qjjws.31.109s; **Publisher:** Japan Welding Society
Author affiliation: (1) Key Laboratory of Material Processing Engineering, Xi'An Shiyou University, China (2) Joining and Welding Research Institute, Osaka University, Japan
Abstract: Twin wire submerged arc welding (SAW) is widely used in the joining of oil or gas pipelines because of its high productivity. However, when it is applied to join the high strength steel pipe, the heat affected zone (HAZ), especially the coarse grain zone, becomes very brittle. To investigate the strength and toughness of HAZ, thermal cycles in HAZ due to twin wire SAW must be studied. In present studies, theoretical equations of twin wire welding thermal cycles for both a thick plate and a thin plate were developed. The critical thicknesses for both a thick plate and a thin plate were determined. The welding thermal cycles for a medium thickness plate were predicted by linear interpolation using results of both a thick plate and a thin plate. Through the theoretical equations, thermal cycles of twin wire SAW with actual welding conditions used in pipe fabrication were predicted and verified by both FEM and experiment. A good agreement among theoretical results, FEM and experimental results was achieved. Furthermore, the microstructures and Vicker's hardness of HAZ was predicted based on CCT diagram and thermal cycles calculated by the proposed theoretical equations. Predicted microstructures and hardness were compared with the experimental ones. A good agreement was also obtained. (16 refs)
Main heading: Wire
Controlled terms: Microstructure - High strength steel - Hardness - Heat affected zone - Submerged arc welding - Thermal cycling
Uncontrolled terms: Cooling time - Critical thickness - Linear Interpolation - Peak temperatures - Strength and toughness - Theoretical equation - Welding conditions - Welding thermal cycles
Classification Code: 535.2 Metal Forming - 538.2 Welding - 538.2.1 Welding Processes - 545.3 Steel - 951 Materials Science
Funding Details: Number: 24656532, Acronym: JSPS, Sponsor: Japan Society for the Promotion of Science;
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

176. Development of resource processing technology for heavy oil sludge

Wang, Qian (1); Qu, Cheng Tun (1); Qin, Fang Ling (1)
Source: *Advanced Materials Research*, v 807-809, p 1402-1408, 2013, *Environmental Protection and Resources Exploitation*; **ISSN:** 10226680; **ISBN-13:** 9783037858622; **DOI:** 10.4028/www.scientific.net/AMR.807-809.1402;
Conference: 2013 International Conference on Advances in Energy and Environmental Science, ICAEES 2013, July 30, 2013 - July 31, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Shaanxi Key Lab. of Environmental Pollution Control Tech. and Reservoir Protection of OilField, Xi'an 710065, China
Abstract: The process of oil extraction and processing produces large quantities of oily sludge, which is complex and unwieldy. It has become the main pollution factor of affecting oil production. So it is necessary to look for a reasonable treatment technology of oily sludge.This document introduces different sludge treatment methods and technological process, highlights the pyrolysis principle and test methods, and looking forward to the development of oily sludge treatment process. © (2013) Trans Tech Publications, Switzerland. (23 refs)
Main heading: Crude oil
Controlled terms: Heavy oil production - Pyrolysis - Testing
Uncontrolled terms: Development trends - Heavy oil - Oil extraction - Processing technologies - Sludge treatment - Technological process - Treatment process - Treatment technologies

Classification Code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 802.2 Chemical Reactions
Database: Compendex
Data Provider: Engineering Village

177. Modeling and simulation of cold rolling process for double groove ball-section ring

Li, Lanyun (1); Li, Xiao (1); Liu, Jing (1); He, Zhi (1)
Source: *International Journal of Advanced Manufacturing Technology*, v 69, n 5-8, p 1717-1729, November 2013;
ISSN: 02683768, **E-ISSN:** 14333015; **DOI:** 10.1007/s00170-013-5140-5; **Publisher:** Springer London
Author affiliation: (1) Key Laboratory of Materials Processing Engineering, School of Material Science and Engineering, Xi'An Shiyou University, Xi'an Shaanxi 710065, China
Abstract: Double groove ball-section ring (DGBR) is an important part of bearing rings. Cold DGBR rolling is an advanced continuous and local plastic forming technique by reducing cross section and increasing the diameter of ring blanks between rotating roll, and can directly obtain the DGBR with good mechanical properties. In this paper, the cold DGBR rolling processes from some initially rectangular blanks are investigated by using 3D-FE numerical simulation to reveal its deforming rules. Firstly, by analyzing the dimension relationship between rectangular blank and deformed ring, a new blank size design method is proposed based on rolling ratio and the volume conservation law, and thus a series of different original blanks can be precisely designed under different rolling ratios for a same final required DBGR. Secondly, under the ABAQUS/Explicit software environment, a reliable guide roll adaptive control-based 3D-FE model for cold DGBR rolling process is built via elastic-plastic dynamic explicit finite element method. Finally, several rectangular blanks are designed under different roll ratios and the deforming behaviors of cold DGBR rolling process are investigated with thorough numerical simulation. The results show that: (1) the maximum radial thickness of ring H reduces firstly slowly and then rapidly after the ball groove achieves its final shape; (2) the diameters of the ring expand gradually during the whole process and no sudden change occurs just when the final shape of the ball groove is completely formed; (3) the largest deformation occurs around the ball groove all the time under small rolling ratio; while under large rolling ratio, it occurs first around the ball groove and then gradually transfers to the ring outer surface; and (4) the inhomogeneous deformation degree increases with the progress of the process, and for final parts, it increases slowly first with the increasing of roll ratio and then fast when the roll ratio is greater than a certain value. These results will not only reveal the forming mechanisms of cold DGBR rolling process but also provide a basis to blank optimum design and process adaptive control of the relevant profiled ring rolling processes. © 2013 Springer-Verlag London. (27 refs)
Main heading: Finite element method
Controlled terms: Deformation - Numerical models - ABAQUS - Adaptive control systems - Process control - Cold rolling - Elastoplasticity
Uncontrolled terms: Blank sizes - Cold rolling process - Double groove ball-section ring (DGBR) - Elastic-plastic dynamics - Inhomogeneous deformation - Model and simulation - Software environments - Volume conservation
Classification Code: 535.1.2 Rolling Mill Practice - 723.5 Computer Applications - 731.1 Control Systems - 921 Mathematics - 921.6 Numerical Methods
Funding Details: Number: 51105306, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Database: Compendex
Data Provider: Engineering Village

178. High performance and full digitalization design of brushless DC motor control system

Min, Wei (1); Juan, Wei (2)
Source: *Advanced Materials Research*, v 706-708, p 818-821, 2013, *Mechatronics and Intelligent Materials III*;
ISSN: 10226680; **ISBN-13:** 9783037857106; **DOI:** 10.4028/www.scientific.net/AMR.706-708.818; **Conference:** 2013 3rd International Conference on Mechatronics and Intelligent Materials, MIM 2013, May 18, 2013 - May 19, 2013;
Sponsor: Hong Kong Control Engin. and Inform.; Science Research Assoc. (CEIS); Internat. Frontiers of science and; technol. Research Assoc. (IFST); Integrated Research Center for Green Living Techniques; National Chin-Yi University of Technology; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) School of Communication Engineering, Xidian University, Xi'an 710071, China
Abstract: In this paper, a fresh digital intelligent control system is designed. The overall project design, hardware principle and control strategy of the control system are presented particularly. The design scheme of the paper is tested and the sample has been manufactured, which shown that the system have such characteristics as small in size, simple construction, good portability, high reliability and stability and suitable for small power brushless DC motor control. © (2013) Trans Tech Publications, Switzerland. (3 refs)

Main heading: Brushless DC motors
Controlled terms: AC motors - Electric machine control - Digital signal processing - Manufacture - Control systems
Uncontrolled terms: Brushless DC - Control strategies - Design scheme - DSP - High reliability - Moduler - Project designs
Classification Code: 537.1 Heat Treatment Processes - 705.3.1 AC Motors - 705.3.2 DC Motors - 731.1 Control Systems - 731.2 Control System Applications - 913.4 Manufacturing
Database: Compendex
Data Provider: Engineering Village

179. Smooth diagonal weighted newton support vector machine

Liang, Jinjin (1); Wu, De (2)
Source: *Mathematical Problems in Engineering*, v 2013, 2013; **ISSN:** 1024123X, **E-ISSN:** 15635147; **DOI:** 10.1155/2013/349120; **Article number:** 349120; **Publisher:** Hindawi Limited
Author affiliation: (1) School of Mathematical Sciences, Xi'An Shiyou University, Xi'an 710065, China (2) School of Computer Sciences, Xidian University, Xi'an 710071, China
Abstract: Based on diagonal weighted support vector machine, a smooth model with Newton algorithm is proposed and is called SDWNSVM for short. SDWNSVM introduces the entropy function to approximate the plus function of the slack in the diagonal weighted SVM and is thus different from traditional SSVM that treats a reformulation problem. SDWNSVM utilizes the dual technique to rewrite the objection function by the connotative relation between the primal and dual program, which induces an exact smooth program and differs from traditional SSVM that uses Lagrangian multipliers to roughly substitute for the hyperplane weight. SDWNSVM proves the equivalence between the obtained model and the original one and proposes Newton algorithm to figure out the optimal solution. Numerical experiments on UCI data demonstrate that SDWNSVM has higher accuracies and less iteration than existing methods. © 2013 Jinjin Liang and De Wu. (20 refs)
Main heading: Support vector machines
Controlled terms: Numerical methods - Iterative methods - Lagrange multipliers
Uncontrolled terms: Entropy function - Lagrangian multipliers - Newton algorithm - Numerical experiments - Objection functions - Optimal solutions - Smooth models - Weighted support vector machine
Classification Code: 723 Computer Software, Data Handling and Applications - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

180. Instantaneous road grade estimation based on GPS/IMU

Wang, Huili (1); Shi, Zhongke (1); Ren, Zhiping (2)
Source: *Journal of Computational Information Systems*, v 9, n 18, p 7207-7214, 2013; **ISSN:** 15539105; **DOI:** 10.12733/jcis6813; **Publisher:** Binary Information Press
Author affiliation: (1) School of Automation, Northwestern Polytechnical University, Xi'an 710072, China (2) School of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Road grade is an important parameter for safety driving and it is the primary objective in the parameter estimation. This paper presented a new method to estimate instantaneous road grade based on GPS/IMU measurements. After establishing the state equation under Cartesian coordinate system, the road was described and fitted by geometric characteristics, and then the longitudinal road grade was calculated by the road surface equations. Considering the effects of random and cumulative error during the measurement, recursive estimation was used by going forward the road sections piecewise. The experiment result shows that this method can improve the accuracy and smoothness of calculation. What is more, it can measure the condition that when the data is missing by using the state equations (such as there is no signal for GPS when the vehicle is driving in the cave). © 2013 Binary Information Press. (15 refs)
Main heading: Equations of state
Controlled terms: Roads and streets
Uncontrolled terms: Cartesian coordinate system - Cumulative errors - Geometric characteristics - GPS/IMU - Recursive estimation - Road grades - State equations - Traffic safety
Classification Code: 406.2 Roads and Streets
Database: Compendex
Data Provider: Engineering Village

181. Adaptive weighted orthogonal constrained algorithm for blind source separation

Ye, Jimin (1); Jin, Haihong (2); Zhang, Qingrui (1)
Source: *Digital Signal Processing: A Review Journal*, v 23, n 2, p 514-521, March 2013; **ISSN:** 10512004; **DOI:** 10.1016/j.dsp.2012.10.006; **Publisher:** Elsevier Inc.
Author affiliation: (1) Mathematics Department, School of Science, Xidian University, Xi'an 710071, China (2) School of Science, Xi'An Shiyou University, Xi'an 710065, China
Abstract: Blind source separation (BSS) consists of recovering the statistically independent source signals from their linear mixtures without knowing the mixing coefficients. Pre-whitening is a useful pre-processing technique in BSS. However, BSS algorithms based on the pre-whitened data lack the equivariance property, one of the significant properties in BSS. By transforming the pre-whitening into a weighted orthogonal constraint condition, this paper proposes a new definition of the contrast function. In light of the constrained optimization method, various weighted orthogonal constrained BSS algorithms with equivariance property are developed. Simulations on man-made signals and practical speech signals show the proposed weighted orthogonal constrained BSS algorithms have better separation ability, convergent speed and steady state performance. © 2012 Elsevier Inc. (24 refs)
Main heading: Blind source separation
Controlled terms: Constrained optimization - Principal component analysis - Orthogonal functions
Uncontrolled terms: Natural gradient - Nonlinear principal component analysis - Recursive least square (RLS) - Weighted orthogonality - Whitening
Classification Code: 921 Mathematics - 922.2 Mathematical Statistics - 961 Systems Science
Funding Details: Number: 61075117, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: This work is supported by National Natural Science Foundation of China under grants 61075117 and 11101322. * Corresponding author. E-mail addresses: jmye@mail.xidian.edu.cn (J. Ye), jinhh@xsyu.edu.cn (H. Jin), Zhangqingrui2880@163.com (Q. Zhang).
Database: Compendex
Data Provider: Engineering Village

182. Quantitative model on stress sensitivity of sandstone reservoirs with abnormal high pressure and low permeability: Taking the middle section of the third member of Shahejie formation in the Wen 13 Dong oil field, Dongpu sag as a case in point

Wang, Rui-Fei (1); Lv, Xin-Hua (2); Guo, Dian-Bin (2); Huang, Xin-Wen (2)
Source: *Zhongguo Kuangye Daxue Xuebao/Journal of China University of Mining and Technology*, v 42, n 2, p 243-250, March 2013; **Language:** Chinese; **ISSN:** 10001964; **Publisher:** China University of Mining and Technology
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Zhongyuan Oilfield Company, SINOPEC, Puyang, Henan 457001, China
Abstract: In order to establish the quantitative model on stress sensitivity of sandstone reservoirs with abnormal high pressure and low permeability, this study was carried out the stress sensitivity experiment with condition of simulated oil reservoir. The experiment was used to study the stress sensitivity by changing the confining pressure (constant pore fluid pressure) and the pore fluid pressure (constant confining pressure). The research results show that: changing the confining pressure has a greater influence on the effective stress compared with that changing the pore fluid pressure; the effective stress for changing the confining pressure obviously increases in contrast with that for changing pore fluid pressure; the stress sensitivity damage is exaggerated in changing confining pressure experiment on stress sensitivity. Based on the stress sensitivity experiment of changing pore fluid pressure, the quantitative models on stress sensitivity were obtained. The model, which is derived from liquid stress sensitivity experiment of changing pore fluid pressure, is closer to the actual oilfield development. In the development of sandstone reservoir with abnormal high pressure and low permeability, the indexes of liquid and oil production decrease rapidly after water appears. In the high water cut stage, the index of liquid production goes up, while the index of oil production still goes down. This kind of reservoir is unfit for stabilizing the production by improving the liquid production. (15 refs)
Main heading: Liquids
Controlled terms: Oil field development - Oil well flooding - Petroleum reservoir engineering - Rock pressure - Sandstone - Low permeability reservoirs
Uncontrolled terms: Abnormal high pressure - Dongpu sag - Low-permeability sandstone reservoirs - Quantitative modeling - Stress sensitivity
Classification Code: 482.2 Minerals - 502.1 Mine and Quarry Operations - 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations
Database: Compendex
Data Provider: Engineering Village

183. A hidden space smooth support vector machine with particle swarm optimization

Liang, Jinjin (1); Wu, De (2)
Source: *Hsi-An Chiao Tung Ta Hsueh/Journal of Xi'an Jiaotong University*, v 47, n 12, p 38-42, December 2013;
Language: Chinese; **ISSN:** 0253987X; **DOI:** 10.7652/xjtuxb201312007; **Publisher:** Xi'an Jiaotong University
Author affiliation: (1) School of Mathematical Sciences, Xi'an Shiyou University, Xi'an 710065, China (2) School of Computer Sciences, Xidian University, Xi'an 710071, China
Abstract: A hidden space smooth support vector machine with particle swarm optimization (PSO-HSSSVM) algorithm is proposed to solve problems of long training time and computing complex in using hidden space support vector machine (HSSVM) to solve constrained convex quadratic programs. The proposed algorithm transforms the input data to a hidden space using a hidden function, and has no any restriction on the positive definity of the hidden function. The entropy function is employed to approximate the plus function of the slack vector, and a smooth differentiable unconstrained convex quadratic program is derived. The conjugate gradient (CG) algorithm is used to solve the smooth model, and the particle swarm optimization (PSO) algorithm is used to give the optimal parameters. Experiments show that the PSO-HSSSVM enlarges the usable kernels of smooth support vector machine (SSVM), and its accuracy and training time are similar to those of SSVM; The PSO-HSSSVM improves the accuracy of HSSVM by 2.14%, and the training time is only 9.5% that of HSSVM. (12 refs)
Main heading: Support vector machines
Controlled terms: Entropy - Vectors - Particle swarm optimization (PSO) - Vector spaces - Constrained optimization - Quadratic programming
Uncontrolled terms: Conjugate gradient algorithms - Conjugate graduate - Entropy function - Hidden space - Hidden space support vector machines - Particle swarm optimization algorithm - Quadratic programs - Smooth support vector machine
Classification Code: 641.1 Thermodynamics - 723 Computer Software, Data Handling and Applications - 921 Mathematics - 921.1 Algebra - 921.5 Optimization Techniques - 961 Systems Science
Database: Compendex
Data Provider: Engineering Village

184. Analysis of temperature field and thermal deformation for lubricating oil transfer pump

Xu, Jianning (1); Lv, Wenjie (1); Zhu, Bin (2); Zhu, Duanyin (1); Gao, Yanxiong (1)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 1067-1070, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.1067; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Qinghai Division, CNPC Logging, Dunhuang, Gansu 736202, China
Abstract: Lubricating oil transfer pump is an important function subsystem in twin-screw pump system. The friction pair between Lubrication screw and shell also is heat source of the system, not only affect the temperature field of the subsystem and the whole system, and the excessive thermal deformation itself may exist can also cause drive failure. This paper established the temperature field and thermal deformation analysis model and boundary conditions of the lubrication screw by means of Finite Element Analysis, and analyzed temperature field and thermal deformation of the lubrication screw and shell as the coefficient of convective heat transfer is 1200W/m2&middot°C in the oil production process, and proved thermal deformation of the lubrication screw and shell can not affect the normal work of Lubricating oil transfer pump in the condition. © (2013) Trans Tech Publications, Switzerland. (3 refs)
Main heading: Lubrication
Controlled terms: Manufacture - Lubricating oils - Sustainable development - Temperature - Finite element method - Pumps - Deformation - Heat convection
Uncontrolled terms: Convective heat transfer - Friction pair - Heat sources - Oil production - Thermal deformation - Thermal deformation analysis - Transfer pumps - Twin-screw pump
Classification Code: 537.1 Heat Treatment Processes - 607.1 Lubricants - 607.2 Lubrication - 618.2 Pumps - 641.1 Thermodynamics - 641.2 Heat Transfer - 913.4 Manufacturing - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

185. A new method for improving aircraft landing performance

Ye, Kun (1); Ye, Zheng-Yin (1); Qu, Zhan (2)

Source: *Gongcheng Lixue/Engineering Mechanics*, v 30, n 5, p 287-292+304, May 2013; **Language:** Chinese; **ISSN:** 10004750; **DOI:** 10.6052/j.issn.1000-4750.2011.12.0845; **Publisher:** Tsinghua University
Author affiliation: (1) School of Aeronautics, Northwestern Polytechnical University, Xi'an 710072, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A new aerodynamic method is presented. The main principle is to design a movable part on the upper surface of the wing of an aircraft. When the aircraft access to the relatively larger angle of attack in the period of landing, a step can be formed by appropriately raising the downstream tip of the movable part, thus a stable trapped vortex is generated to control the flow above the upper surface of the wing. At the same time, the Gurney flap installed at the trailing-edge of the wing is operated. Both effects of enlarging the lift and the stall angle of attack will be achieved. The method will be very useful for small aircrafts or UAV configuration in improving their landing behavior. By the numerical simulation of given aircraft configuration, it is shown that the airfoil's maximum usable lift coefficient can be increased by 33%, and the stall angle of attack can be increased by 30%. It is believed to be a promising method to improve aircraft landing performance for the small aircrafts. (16 refs)
Main heading: Vortex flow
Controlled terms: Fighter aircraft - Numerical models - Vehicle performance - Angle of attack - Angle of attack indicators - Lift
Uncontrolled terms: Aerodynamic methods - Aircraft configurations - High angle of attack - High-lift devices - Lift coefficient - Small aircraft - Stall - Trailing edges
Classification Code: 631.1 Fluid Flow, General - 651.1 Aerodynamics, General - 652.1.2 Military Aircraft - 652.3 Aircraft Instruments and Equipment - 662.1 Automobiles - 663.1 Heavy Duty Motor Vehicles - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

186. Radius calculation of compacted zone in lime-soil composite foundation based on unified strength theory

Cui, Ying (1, 2); Zhao, Jun-Hai (1); Zhang, Chang-Guang (1); Sun, Shan-Shan (1)
Source: *Yantu Lixue/Rock and Soil Mechanics*, v 34, n 4, p 1116-1120+1139, April 2013; **Language:** Chinese; **ISSN:** 10007598; **Publisher:** Academia Sinica
Author affiliation: (1) School of Civil Engineering, Chang'an University, Xi'an 710061, China (2) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: When lime-soil composite foundation bearing load, the expansion deformation of lime-soil piles would compact soil around and exert pressure on soil and piles. To enhance the reinforcement effect of the lime-soil composite foundation, it is critical to identify the radius of compacted zone. Based on the unified strength theory and taking the conditions of compatible deformation of soil and piles into consideration, the formula describing the relationship between settlement of composite foundation and radius of compacted zone has been derived. Furthermore, the various elements influencing compacted zone radius and the trend of the zone radius changing under different values of b, different pile diameters, and different foundation depths are discussed as well. The research results indicate that the radius of compacted zone decreases with the increase of foundation depth when the b value and pile diameter are invariable. The results also show the optimal range of compacted zone along the composite foundation depth is from the pile top to the 1/3 length of pile. The radius of compacted zone varies from 1.51d to 1.68d under different conditions of b value, where d is the diameter of pile. And radius of compacted zone expands along with increase of the pile diameter d, when the b value and foundation depth are invariable. To exert the strength of material such as soil, the solution considered the intermediate principal stress has positive effect on the ultimate strength of material. (16 refs)
Main heading: Piles
Controlled terms: Foundations - Soils - Lime - Strain - Strength of materials - Deformation
Uncontrolled terms: Composite foundations - Expansion deformation - Foundation depths - Intermediate principal stress - Lime soil - Plane strains - Reinforcement effects - Unified strength theory
Classification Code: 408.2 Structural Members and Shapes - 483.1 Soils and Soil Mechanics - 483.2 Foundations - 804.2 Inorganic Compounds - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

187. High dynamic range image reproduction based on color appearance mapping

Luo, Xuemei (1); Wang, Yifeng (1); Zeng, Ping (1, 2); Zheng, Haihong (1)

Source: *Jisuanji Yanjiu yu Fazhan/Computer Research and Development*, v 50, n 8, p 1787-1796, August 2013; **Language:** Chinese; **ISSN:** 10001239; **Publisher:** Science Press
Author affiliation: (1) School of Computer Science, Xidian University, Xi'an 710071, China (2) School of Computer Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: To solve the problem that different viewing conditions results in different color appearance between a reproduced image and its original one during high dynamic range (HDR) image reproduction, a new algorithm based on color appearance mapping for HDR image reproduction is presented. Firstly, the chrominance and luminance of the HDR image are processed separately, through the estimation of the original environment parameters, the HDR image is reproduced under the display environment by a color appearance model, which preserves the chromatic appearance across scene and display environments. Then the luminance image is regionalized adaptively according to the histogram characteristics, and a piecewise linear tone scale function is constructed to allocate the range of display luminance for different regions dynamically, which raises perceptual contrast of the image. Meanwhile, the details of the luminance image is extracted through bilateral filtering technology in order to maintain details. Finally, the processed chromatic and achromatic image is synthesized and the change of color appearance affected by luminance compressing is corrected, and then the reproduced low dynamic range image is obtained, which is mapped in color appearance with the original HDR image. Experiments show that the proposed algorithm gains advantages over the traditional ones in color appearance maintaining, dynamic range compressing, and the performance of details. (21 refs)
Main heading: Mapping
Controlled terms: Color - Image processing - Luminance - Piecewise linear techniques
Uncontrolled terms: Adaptive regionalization - Color appearance - HDR image - Tone mapping - Viewing conditions
Classification Code: 405.3 Surveying - 723.2 Data Processing and Image Processing - 741.1 Light/Optics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
Database: Compendex
Data Provider: Engineering Village

188. Determination of physical property limits for the gas accumulation in tight sandstone reservoirs in the eastern Ordos Basin

Cao, Qing (1); Zhao, Jingzhou (1); Liu, Xinshe (2); Hu, Aiping (2); Fan, Liyong (2); Wang, Huaichang (2)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 34, n 6, p 1040-1048, November 2013; **Language:** Chinese; **ISSN:** 02532697; **DOI:** 10.7623/syxb201306002; **Publisher:** Science Press
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) PetroChina Changqing Oilfield Company, Xi'an 710021, China
Abstract: To determinate physical properly limits of natural gas accumulation in Upper Paleozoic tight sand reservoirs in the eastern Ordos Basin, natural gas stress condition was analyzed in micro pore throat, and irreducible water film, buoyancy, capillary resistance and abnormal high pressure and hydropower were considered for the effect of natural gas accumulation. Taking the thickness of irreducible water film as the minimum pore throat radius of tight reservoirs, it could be calculated irreducible water film and determined the lower limit of pore throat radius is equal to 10 nm based on the irreducible water saturation which measured by NMR. The maximum pore throat radius was calculated by critical pore throat radius according to equilibrium state of buoyancy and capillary resistance. To determine gas column height of main gas reservoirs at different geologic epoch, the upper limit of pore throat radius was calculated by critical pore throat radius. According to the results of mercury injection experiment, a matching tendency of the median pore throat radius and physical parameters could be established, and petrophysical limit parameters could be calculated based on generating the upper and lower limits into the tendency. The calculation results of petrophysical limits were: For the Member 8 of Lower Shihezi Formation, lower petrophysical limits of reservoir are 4% and 0.1 mD (porosity and permeability), upper petrophysical limits are 13% and 1.8 mD at the end of Early Cretaceous, and 14% and 2.0 mD at present; For 3rd sub Member of the Member 2 of Shanxi Formation, the corresponding values are, in order, 2% and 0.01 mD, 8% and 1.0 mD, 9% and 1.4 mD; For Taiyuan Formation, these are, in order, 3.5% and 0.02 mD, 11% and 1.1 mD, 12% and 2.0 mD. (42 refs)
Main heading: Sandstone
Controlled terms: Buoyancy - Metamorphic rocks - Gases - Natural gas - Tight gas - Geochronology - High pressure effects - Petroleum reservoir engineering
Uncontrolled terms: Gas columns - Irreducible water - Ordos Basin - Petrophysical - Tight sandstone reservoirs
Classification Code: 481.1 Geology - 481.3 Geophysics - 482.2 Minerals - 512.1.2 Petroleum Deposits : Development Operations - 512.2 Natural Gas Deposits - 522 Gas Fuels - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

189. The analysis of the pulverized coal deposition in the pump cylinder in drainage and mining of the coal bed methane(CBM)

Sun, Yan Ping (1); Zhao, Ning (1); Qu, Wen Tao (2)
Source: *Advanced Materials Research*, v 712-715, p 1359-1362, 2013, *Advances in Manufacturing Science and Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037857243; **DOI:** 10.4028/www.scientific.net/AMR.712-715.1359; **Conference:** 4th International Conference on Manufacturing Science and Engineering, ICMSE 2013, March 30, 2013 - March 31, 2013; **Sponsor:** Northeastern University; Harbin Institute of Technology; Jilin University; Hong Kong Industrial Technology Research Centre; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechenical Engineering, Northwestern Polytechnical University, Xi'an 710072, China (2) School of Mechenical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In drainage and mining of the coal bed methane(CBM),pump valve jams caused by the settlement of pulverized coal particles directly affect the normal production of the coal bed methane(CBM).From the study of the pulverized coal particle size,this paper summarizes the law of the pulverized coal particle size change in various stages of the coal bed methane(CBM) production well drainage and ming.By analyzing the pulverized coal particle velocity distribution along the pump cylinder,the viewpoint that the pulverized coal particle has a higher axial velocity in the central part of the settlement and has a lower velocity near the wall surface is put forward to.Based on the theory,the motion track equation of the pulverized coal particle can be got by calculation.Under the condition of considering buoyancy,fluid resistance and pressure drag,instant drop speed of the pulverized coal in water is calculated. © (2013) Trans Tech Publications, Switzerland. (14 refs)
Main heading: Deposition
Controlled terms: Coal deposits - Cylinders (shapes) - Coal - Methane - Velocity control - Velocity distribution - Coal bed methane - Particle size - Equations of motion - Pumps
Uncontrolled terms: Axial velocity - CBM - Coalbed methanes - Fluid resistance - Pressure drag - Production wells - Pulverized coal particle - Pulverized coals
Classification Code: 503 Mines and Mining, Coal - 512.2 Natural Gas Deposits - 522 Gas Fuels - 524 Solid Fuels - 618.2 Pumps - 731.3 Specific Variables Control - 802.3 Chemical Operations - 804.1 Organic Compounds - 921.2 Calculus - 922.2 Mathematical Statistics
Database: Compendex
Data Provider: Engineering Village

190. A high-g shock tester with one-level velocity amplifier

Zhang, Xuefeng (1); Zhao, Yulong (1); Duan, Zhengyong (1, 2); Li, Xiaobo (1)
Source: *Measurement Science and Technology*, v 24, n 4, April 2013; **ISSN:** 09570233, **E-ISSN:** 13616501; **DOI:** 10.1088/0957-0233/24/4/045901; **Article number:** 045901; **Publisher:** IOP Publishing Ltd
Author affiliation: (1) State Key Laboratory for Manufacturing Systems Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China (2) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi, China
Abstract: A simply constructed but efficacious shock tester is developed for screening or calibration of lightweight devices comprising micro-electro- mechanical systems (MEMS). The proposed shock tester provides a promising solution to the trade-off between cost-effective development and the demands on high-g shock testing devices. By incorporating material of high specific modulus and velocity gain achieved through collisions between vertically stacked masses, the shock tester achieves an acceleration range of about 100 000 g and features relative simplicity, low cost and small size compared with existing drop machines. The experiments were conducted based on a Brüel & Kjær (B&K) high-g accelerometer, the matching charge amplifier and a data acquisition system. The acceleration range, shock duration and reproducibility on given driving force were tested. The results show that the developed high-g shock tester has favorable properties that allow its use in demanding applications. © 2013 IOP Publishing Ltd. (17 refs)
Main heading: Cost effectiveness
Controlled terms: Data acquisition - MEMS - Economic and social effects - Shock testing
Uncontrolled terms: Charge amplifiers - Data acquisition system - High-G accelerometers - high-g shock - Lightweight devices - Micro electromechanical system (MEMS) - Reproducibilities - Specific modulus
Classification Code: 704.2 Electric Equipment - 723.2 Data Processing and Image Processing - 911.2 Industrial Economics - 971 Social Sciences
Database: Compendex
Data Provider: Engineering Village

191. Research status and development trend of electromagnetic defect detection logging

Yan, Zheng Guo (1); Zhao, Lin (1)

Source: *Applied Mechanics and Materials*, v 327, p 856-860, 2013, *Advanced Research on Materials, Applied Mechanics and Design Science*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857175; **DOI:** 10.4028/www.scientific.net/AMM.325-326.856; **Conference:** 2nd International Conference on Intelligent Materials, Applied Mechanics and Design Science, IMAMD 2013, April 13, 2013 - April 14, 2013; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Key Laboratory of Photoelectric Logging and Detecting of Oil and Gas, Ministry of Education, Xi'an Shiyou University, Xi'an, Shannxi 710065, China
Abstract: Electromagnetic defect detection logging can measure multilayer pipeline and provide the information of casing defect and the remaining metal thickness, is the hot spot of the casing defect detection technology. This paper elaborates the advantages and disadvantages of electromagnetic defect detection logging and the present instrument situation, compares technical indexes of several new electromagnetic casing defect detection instruments, summarizes the latest research status, points out the problems existed in current researches and the development trend combining with the instrument index and theory research. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Defects
Uncontrolled terms: 3D imaging - Casing corrosions - Defect detection - Development trends - Hot spot - Metal thickness - Research status
Classification Code: 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

192. Multispectral image compression algorithm based on clustering and wavelet transform

Liang, Wei (1); Zeng, Ping (1, 2); Zhang, Hua (1); Luo, Xue-Mei (1)
Source: *Guang Pu Xue Yu Guang Pu Fen Xi/Spectroscopy and Spectral Analysis*, v 33, n 10, p 2740-2744, October 2013; **Language:** Chinese; **ISSN:** 10000593; **DOI:** 10.3964/j.issn.1000-0593(2013)10-2740-05; **Publisher:** Science Press
Author affiliation: (1) School of Computer Science and Technology, Xidian University, Xi'an 710071, China (2) School of Computer Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Aiming at the problem of high time-space complexity and inadequate usage of spectral characteristics of existing multispectral image compression algorithms, an inter-spectrum sparse equivalent representation of multispectral image and its clustering realization ways were studied. Meanwhile, a new multispectral image compression algorithm based on spectral adaptive clustering and wavelet transform was designed. The affinity propagation clustering was utilized to generate inter-spectrum sparse equivalent representation which can remove inter-spectrum redundancy under low complexity, two-dimensional wavelet transform was used to remove spatial redundancy, and set partitioning in hierarchical trees (SPIHT) was used to encode. The quality of reconstruction images was improved by error compensation mechanism. Experimental results show that the proposed approach achieves good performance in time-space complexity, the peak signal-to-noise ratio (PSNR) is significantly higher than that of similar compression algorithms under the same compression ratio, and it is a generic and effective algorithm. (9 refs)
Main heading: Clustering algorithms
Controlled terms: Error compensation - Image coding - Image compression - Redundancy - Wavelet transforms
Uncontrolled terms: Adaptive clustering - Inter-spectrum sparse equivalent representation - Multispectral images - Multispectral-image compression - Wavelet coding
Classification Code: 721 Computer Circuits and Logic Elements - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 741 Light, Optics and Optical Devices - 903 Information Science - 914 Safety Engineering - 921.3 Mathematical Transformations
Database: Compendex
Data Provider: Engineering Village

193. Toward green Cloud computing: An attribute clustering based collaborative filtering method for virtual machine migration

Zhang, Liu-Mei (1, 2); Ma, Jian-Feng (1); Wang, Yi-Chuan (1); Lu, Di (1)
Source: *Information Technology Journal*, v 12, n 23, p 7275-7279, 2013; **ISSN:** 18125638, **E-ISSN:** 18125646; **DOI:** 10.3923/itj.2013.7275.7279; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) School of Computer Science and Technology, Xidian University, 710071, Xi'an, China (2) School of Computer Science, Xi'an Shiyou University, 710065, Xi'an, China

Abstract: In this study, an attribute clustering based collaborative filtering algorithm is depicted for virtual machine migration towards green Cloud computing. The algorithm utilizes similarity characteristics of virtual machine task related attributes, especially CPU related attributes, to filter redundant data by feature selection. Then by referencing K-Means clustering to effectively solve the rating scale problems existing in the traditional collaborative filtering recommendation algorithm. Experiments use virtual machine task related information for clustering the data. By integration of a scaled rating scheme on task related properties and the collaborative filtering philosophy to provide migration recommendation for system administrators. © 2013 Asian Network for Scientific Information. (10 refs)
Main heading: Virtual machine
Controlled terms: Cloud computing - Clustering algorithms - Network security - Collaborative filtering - Green computing
Uncontrolled terms: Attribute clustering - Collaborative filtering algorithms - Collaborative filtering methods - Collaborative filtering recommendations - Green Clouds - System administrators - Virtual machine migrations - Vm migrations
Classification Code: 454 Environmental Engineering - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 903.1 Information Sources and Analysis
Database: Compendex
Data Provider: Engineering Village

194. A new type of electroacoustic transducer used for downhole acoustic telemetry system

Liu, Xuan Chao (1); He, Yan Xia (1); Li, Guo Hong (2)
Source: *Applied Mechanics and Materials*, v 336-338, p 286-289, 2013, *Industrial Instrumentation and Control Systems II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857519; **DOI:** 10.4028/www.scientific.net/AMM.336-338.286; **Conference:** 2013 2nd International Conference on Measurement, Instrumentation and Automation, ICMIA 2013, April 23, 2013 - April 24, 2013; **Sponsor:** Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Electronic Engineering College, Xi'an Shiyou University, Xi'an, Shaanxi province, China (2) Well Logging Company, CNPC Bohai Drilling Engineering Company Limited, Tianjin, China
Abstract: The high power and low frequency electroacoustic transducer plays a very important role in the underground acoustic telemetry system used for petroleum industry. How to realize electroacoustic conversion technology with the giant magnetostrictive materials was studied in this paper. The principles and methods of how to design it were proposed and the experimental verification was achieved. Results show that the electroacoustic transducer based on giant magnetostrictive materials features high-power and low-frequency output, high conversion efficiency, high temperature resistance, and excellent performance. It can completely meet the needs of the downhole acoustic telemetry system. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Electroacoustic transducers
Controlled terms: Magnetostrictive devices - Petroleum industry - Chemical industry - Telemetering equipment
Uncontrolled terms: Acoustic telemetry systems - Conversion technology - Experimental verification - Giant magnetostrictive - Giant magnetostrictive materials - High conversion efficiency - High temperature resistance - Vibration
Classification Code: 752.1 Acoustic Devices - 805 Chemical Engineering, General
Database: Compendex
Data Provider: Engineering Village

195. Research status and development trend of electromagnetic defect detection logging

Yan, Zheng Guo (1); Zhao, Lin (1)
Source: *Applied Mechanics and Materials*, v 325-326, p 856-860, 2013, *Manufacturing Engineering and Process II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857076; **Conference:** 2013 2nd International Conference on Manufacturing Engineering and Process, ICMEP 2013, April 13, 2013 - April 14, 2013; **Sponsor:** Science and Engineering Institute; University of Ontario Institute of Technology (UOIT), Canada; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Key Laboratory of Photoelectric Logging and Detecting of Oil and Gas, Ministry of Education, Xi'an Shiyou University, Xi'an, Shannxi 710065, China
Abstract: Electromagnetic defect detection logging can measure multilayer pipeline and provide the information of casing defect and the remaining metal thickness, is the hot spot of the casing defect detection technology. This paper elaborates the advantages and disadvantages of electromagnetic defect detection logging and the present instrument situation, compares technical indexes of several new electromagnetic casing defect detection instruments, summarizes

the latest research status, points out the problems existed in current researches and the development trend combining with the instrument index and theory research. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Defects
Uncontrolled terms: 3D imaging - Casing corrosions - Defect detection - Development trends - Hot spot - Metal thickness - Research status
Classification Code: 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

196. Land value evaluation of real estate development project based on grey correlation analysis

Wang, Wei Ran (1); Sai, Yun Xiu (1, 2); Fang, Xing (3)
Source: *Applied Mechanics and Materials*, v 438-439, p 1782-1785, 2013, *Civil Engineering, Architecture and Sustainable Infrastructure II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858820; **DOI:** 10.4028/www.scientific.net/AMM.438-439.1782; **Conference:** 2nd International Conference on Civil Engineering, Architecture and Sustainable Infrastructure, ICCEASI 2013, July 13, 2013 - July 15, 2013; **Sponsor:** Zhengzhou University; Wuhan University; Dalian University of Technology; Changsha University of Science and Technology; Changzhou Institute of Technology; et al; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an University of Architecture and Technology, Xi'an 710055, China (2) Xi'an Technological University, Xi'an 710032, China (3) Xi'an Shiyou University, Xi'an 710065, China
Abstract: The accuracy of land value directly affects the size of the project development profit in real estate development project, more will be related to the project success and failure. According to the characteristics of the real estate development, land prices in the mature real estate, on the basis of influence factors, the grey correlation analysis model is set up by using the value of developed successful plot, to estimate the land value, and combined with examples to provide a reference for scientific decision-making to real estate developers. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Decision making
Controlled terms: Correlation methods - Regional planning
Uncontrolled terms: Gray correlation analysis - Grey correlation analysis - Land prices - Project development - Project success and failure - Real estate - Real estate development - Value evaluations
Classification Code: 403.2 Regional Planning and Development - 912.2 Management - 922.2 Mathematical Statistics
Database: Compendex
Data Provider: Engineering Village

197. Design of measure and control system of the ring block casing wear tester

Yang, Xiang Tong (1); Wang, Xiao Zeng (2); Cao, Yin Ping (3); Dou, Yi Hua (3)
Source: *Applied Mechanics and Materials*, v 423-426, p 2414-2418, 2013, *Applied Materials and Technologies for Modern Manufacturing*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858882; **DOI:** 10.4028/www.scientific.net/AMM.423-426.2414; **Conference:** 3rd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2013, August 24, 2013 - August 25, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) CNPC Tarim Oilfield Company, Korla, Xinjiang, 841000, China (2) Northwestern Polytechnical University, Xi'an, Shaanxi, China (3) Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: In deep wells and ultra-deep wells the complex geological conditions often result in serious casing wear. In order to obtain the wear efficiency which is used to compute the wear depth of downhole casing, the ring block drillpipe casing wear tester is developed. The measure and control system which include the measure circuits of contact forces between casing and drillpipe samples, the measure circuits of the friction forces are main component of wear tester. It is very important to design the measure and control system of tester. The paper also develops the calibration method of the loads sensors used to measure the contact and friction force. The wear tester can accurately measure the wear efficiency and the friction coefficient needed by casing wear prediction. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Control systems
Controlled terms: Efficiency - Tribology - Drills - Wear of materials - Drill pipe - Friction
Uncontrolled terms: Calibration method - Casing - Complex geological condition - Contact forces - Friction coefficients - Measure and controls - Ultra-deep wells - Wear tester

Classification Code: 511.2 Oil Field Equipment - 603.2 Machine Tool Accessories - 731.1 Control Systems - 913.1 Production Engineering - 931 Classical Physics; Quantum Theory; Relativity - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

198. Fuzzy evaluation method in the application of the engineering bidding

Wang, Wei Ran (1); Sai, Yun Xiu (1, 2); Fang, Xing (3)
Source: *Applied Mechanics and Materials*, v 401-403, p 2252-2255, 2013, *Frontiers of Manufacturing Science and Measuring Technology III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858462; **DOI:** 10.4028/www.scientific.net/AMM.401-403.2252; **Conference:** 3rd International Conference on Frontiers of Manufacturing Science and Measuring Technology, ICFMM 2013, July 30, 2013 - July 31, 2013; **Sponsor:** Control Engineering and Information Science; Research Association; International Frontiers of science and technology; Research Association; Trans Tech Publications; Chin-Yi University of Technology; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an University of Architecture and Technology, Xi'an 710055, China (2) Xi'an Technological University, Xi'an 710032, China (3) Xi'an Shiyou University, Xi'an 710065, China
Abstract: In the construction projects there has been accompanied by the emergence of risk from the investment decision-making of the building units to the contractors bidding on projects. Therefore, in order to satisfy the interests of construction units, It is necessary to carry out its comprehensive evaluation of the risk of bidders. In this paper, according to the fuzzy mathematics theory, we discuss the relevant principles of fuzzy evaluation and calculation method, and more, analyze a project example. State the application of this method in construction bidding. Provide the decision supports for the related Companies. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Risk assessment
Controlled terms: Decision making - Investments
Uncontrolled terms: Bidding - Comprehensive evaluation - Construction biddings - Construction projects - Decision supports - Fuzzy evaluation - Fuzzy evaluation method - Investment decision making
Classification Code: 912.2 Management - 914.1 Accidents and Accident Prevention
Database: Compendex
Data Provider: Engineering Village

199. Viscoelastic evaluation of gemini surfactant gel for hydraulic fracturing

Yang, Jiang (1); Guan, Baoshan (1); Lu, Yongjun (1); Cui, Weixiang (1); Qiu, Xiaohui (1); Yang, Zhen (2); Qin, Wenlong (2)
Source: *SPE - European Formation Damage Conference, Proceedings, EFDC*, v 2, p 942-946, 2013, *Society of Petroleum Engineers - SPE European Formation Damage Conference and Exhibition 2013: Unconventional and Conventional Solutions to Challenging Reservoirs*; **ISBN-13:** 9781627486101; **DOI:** 10.2118/165177-ms; **Conference:** SPE European Formation Damage Conference and Exhibition 2013: Unconventional and Conventional Solutions to Challenging Reservoirs, June 5, 2013 - June 7, 2013; **Publisher:** Society of Petroleum Engineers (SPE)
Author affiliation: (1) RIPED-Langfang, PetroChina, China (2) Xi'an Petroleum University, China
Abstract: The viscoelastic surfactant (VES) fluids have been used in stimulation of low permeability oil and gas reservoir due to their low formation damage. The physical association and entanglement of wormlike like micelle gives viscoelastic properties, which gives similar properties as polymer. However, conventional viscoelastic surfactant fluids were used at much higher concentration than that of traditional polymer guar fluids. The more effective VES fluids that performed at lower concentration are unmet needs to be filled. Hence, new cationic Gemini viscoelastic surfactants with connecting spacer were studied. The Gemini surfactants have higher surface activity than that of conventional surfactants. Critical micelle concentration of Gemini surfactants is 10 times lower than that of conventional surfactants. Fluids of Gemini surfactants gave the desired viscosity by forming gel structure at lower concentration than that of conventional surfactants. The viscosity of new Gemini VES fluid can be maintained above 50 cps at 1% under 120 °C and shear rate of 100 s -1. The fluid is shear stable at the temperature for 2 hours. The dynamic rhcological properties of the new VES fluid showed highly elastic properties, which elastic moduli G'' is higher than loss moduli G'at angular frequency 0.1 rad/s below 100 °C. It showed good proppant suspending properties. The solvent with high polarity has less effect on fluid viscosity than that of solvent with low polarity. The Gemini VES gel can be broken down upon contacting and mixing with hydrocarbons or dilution with formation brine. The Gemini VES gel is a better alterative fluid for low damaging hydraulic fracturing. © (2013) by the Society of Petroleum Engineers. (14 refs)
Main heading: Viscoelasticity

Controlled terms: Cationic surfactants - Viscosity - Hydraulic fracturing - Fracturing fluids - Gas permeability - Micelles - Petroleum reservoir engineering - Critical micelle concentration - Low permeability reservoirs
Uncontrolled terms: Angular frequencies - Conventional surfactants - Elastic properties - Gemini surfactant - Low permeability oil - Surface activities - Viscoelastic properties - Viscoelastic surfactants
Classification Code: 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 801.3 Colloid Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

200. On sufficiency in multiobjective fractional programming problems

An, Gang (1); Gao, Xiaoyan (2)
Source: *Journal of Computational and Theoretical Nanoscience*, v 10, n 12, p 2943-2948, December 2013; **ISSN:** 15461955, **E-ISSN:** 15461963; **DOI:** 10.1166/jctn.2013.3306; **Publisher:** American Scientific Publishers
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an 710065, China (2) School of Science, Xi'an University of Science and Technology, Xi'an 710054, China
Abstract: The purpose of this paper is to study a class of nondifferentiable multiobjective fractional programming problems with inequality constraints. After a deep investigation on the invex functions, a new kind of generalized invexity, namely (b,#)-$_{\rho-(\eta,\ \theta)-}$invexity, (b,#)-$_{\rho-(\eta,\ \theta)-}$pseudoinvexity, and (b,#)-$_{\rho-(\eta,\ \theta)-}$quasiinvexity, are firstly defined where the functions involved are locally Lipschitz by means of the concepts of generalized Clarke directional derivative and generalized subgradient. Several known invex functions can be deduced as special cases. And an important property, which the ratio of (b,#)-$_{\rho-(\eta,\ \theta)-}$invex functions is also (b,#)-$_{\rho-\ (\eta,\ \theta)-}$invex, is proved. In addition, by utilizing the assumptions of various new generalized invex functions and the above property, several sufficient optimality conditions are obtained and proved for a feasible solution to be an efficient solution or a weakly efficient solution for the multiobjective fractional programming problem involving nonsmooth Lipschitz functions. The results extend and improve the corresponding results in the literature. Copyright © 2013 American Scientific Publishers. (20 refs)
Main heading: Constraint theory
Controlled terms: Mathematical programming
Uncontrolled terms: Directional derivative - Generalized invex functions - Inequality constraint - Invexity - Multiobjective fractional programming - Optimality - Sufficient optimality conditions - Weakly efficient solution
Classification Code: 961 Systems Science
Database: Compendex
Data Provider: Engineering Village

201. Study on water-oil flow characteristics in porous media

Lv, Jin (1); Li, Wei (2)
Source: *Proceedings - 2013 4th International Conference on Intelligent Systems Design and Engineering Applications, ISDEA 2013*, p 614-616, 2013, *Proceedings - 2013 4th International Conference on Intelligent Systems Design and Engineering Applications, ISDEA 2013*; **ISBN-13:** 9781479927913; **DOI:** 10.1109/ISDEA.2013.546; **Article number:** 6843523; **Conference:** 4th International Conference on Intelligent Systems Design and Engineering Applications, ISDEA 2013, November 6, 2013 - November 7, 2013; **Sponsor:** 'St. John's University'; Central South University; Department of Electronics Science and Technology; Hunan University of Technology; Intelligent Computation Technology and Automation Society; National University of Defense Technology; **Publisher:** IEEE Computer Society
Author affiliation: (1) Mechanical Engineering College, Xi'An Shiyou University, Xi'an 710065, China (2) State Key Laboratory of Multi-phase Flow, Xi'An Jiaotong University, Xi'an 710049, China
Abstract: During recent five years, the percentage of low-permeability reservoirs in newly increased proven reserves has reached 50-60%. And in the remaining reserves low-permeability reservoirs account for 76.5%. But in normal situations, the average recovery efficiency of water- injected reservoirs is only 33%. Study on how to reduce the amount of residual oil and to enhance oil recovery efficiency is of great significance.In this paper, experimental and theoretical analysis on water-oil flow characteristics in low-permeability porous media were introduced. Main conclusions are as follows. Critical volumes of injected water for highpermeability, low- permeability and heterogeneous porous media were found in the experimentals, which were 1.5PV, 2PV and 3.5-4PV respectively; Concept of "utilization ratio of the differential pressure" was first put forward, which could be used to analyze and evaluate the utilization of displacement pressure. © 2013 IEEE. (7 refs)
Main heading: Porous materials

Controlled terms: Efficiency - Low permeability reservoirs - Oil well flooding - Mechanical permeability - Petroleum reservoir engineering - Water injection
Uncontrolled terms: Critical volume - Differential pressures - Displacement efficiency - Displacement pressure - Enhance oil recoveries - Heterogeneous porous media - Low permeability - Oil flow
Classification Code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 612.1 Internal Combustion Engines, General - 913.1 Production Engineering - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

202. Structure analysis of the turbine generator for automatic vertical drilling tool (*Open Access*)

Peng, Yong (1, 2); Li, Sisi (1, 2); Yan, Wenhui (1, 2)
Source: *Journal of Applied Sciences*, v 13, n 18, p 3626-3631, 2013; **ISSN:** 18125654, **E-ISSN:** 18125662; **DOI:** 10.3923/jas.2013.3626.3631; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) National Engineering Technology Research Center for Oil and Gas Drilling Equipment, China
Abstract: Generating electricity by downhole turbine generator is one of the main methods to provide power supply for the downhole measuring and controlling in the drilling process of oil and gas production. This study has analyzed three kinds of structure of the existing turbine generators, including the common unsealed structure, the axial magnetic drive structure and cylindrical magnetic drive structure. By combining the dynamic seal compensating protection technology and the magnetic drive technology, the supporting high-speed bearing of the rotating turbine and the dynamic seal components has been sealed with compensating protector and high speed rotating of the turbine has been transmitted to the rotor of the generator without contact by the magnetic drive which can isolate the generator from the power mud fluid completely, improve the working condition of the turbine generator and increase the service life and reliability of the moving parts of turbine generator. The study also discusses the material selection of the key parts. © 2013 Asian Network for Scientific Information. (9 refs)
Main heading: Magnetism
Controlled terms: Seals - Electric equipment protection - Turbines - Turbogenerators - Electric power systems
Uncontrolled terms: Analysis - High-speed rotating - Material selection - Oil and gas production - Protection technologies - Rotating turbines - Structure analysis - Vertical drilling
Classification Code: 619.1.1 Pipe Accessories - 701.2 Magnetism: Basic Concepts and Phenomena - 704.2 Electric Equipment - 705.2 Electric Generators - 706.1 Electric Power Systems
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

203. Study on water-oil flow characteristics in low permeability porous media

Lv, Jin (1, 2); Li, Wei (2)
Source: *Proceedings - 2013 4th International Conference on Digital Manufacturing and Automation, ICDMA 2013*, p 1350-1353, 2013, *Proceedings - 2013 4th International Conference on Digital Manufacturing and Automation, ICDMA 2013*; **ISBN-13:** 9780769550169; **DOI:** 10.1109/ICDMA.2013.322; **Article number:** 6598246; **Conference:** 2013 4th International Conference on Digital Manufacturing and Automation, ICDMA 2013, June 29, 2013 - June 30, 2013; **Sponsor:** Central South University; Tsinghua University; **Publisher:** IEEE Computer Society
Author affiliation: (1) Mechanical Engineering College, Xi'an Shiyou University, Xi'an 710065, China (2) State Key Laboratory of Multi-phase Flow, Xi'an Jiaotong University, Xi'an 710049, China
Abstract: In serious vertical heterogeneity reservoir, the injected-water along the high-permeability layer break fastly into the production well, while in low-permeability layer there are many death oil region that the injected-water does not spread. For injected-water did not affect crude oil within a low permeability layer, displacement efficiency significantly reduced [1][2]. Further spread of the injected water to the low permeability regions, improvement of vertical sweep of injected-water, creating equilibrium displacement front can raise oil recovery, prolong water-free production period and reduce volumes of injected-water. In view of this, theoretical study on water flooding characteristic in heterogeneous plane models of sandstone in this article has been done. The main conclusions are as follows: (1) establishes a vertical exchange of oil-water relationship, exchange capacity is related mainly to capillary force, gravity, start-up pressure and flow cross-sectional area. (2) water-bearing saturation gradients makes injected-water flow from high water to low water areas. For water-wet reservoir, the injected-water flows from the higher layer to low-permeability layers,

and for oil-wet reservoirs, precisely the opposite. (3) as the density of the injected water was increased, the efficiency of water flooding didn't change obviously in anti-prosodic models of sandstone and ultimate recovery rates was little difference between the two. And with increasing the density of injected water, vertical flowing cross-sectional area and oil displacement efficiency increased all. © 2013 IEEE. (6 refs)
Main heading: Sandstone
Controlled terms: Oil well flooding - Water injection - Porous materials - Reservoirs (water) - Efficiency - Flow of water - Crude oil - Hydraulics - Petroleum reservoir engineering - Floods
Uncontrolled terms: Displacement efficiency - Low permeability - Oil flow - Oil water - Plane model - Water bearing
Classification Code: 441.2 Reservoirs - 482.2 Minerals - 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 512.1.2 Petroleum Deposits : Development Operations - 612.1 Internal Combustion Engines, General - 631.1.1 Liquid Dynamics - 632.1 Hydraulics - 913.1 Production Engineering - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

204. Improvement hardware design of high power and ultra-low frequency signal source in cased hole resitivity logging

Gao, Cheng Fang (1); Wu, Xiao Meng (1); Zhang, Jia Tian (1)
Source: *Applied Mechanics and Materials*, v 397-400, p 2278-2281, 2013, *Advanced Design and Manufacturing Technology III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858431; **DOI:** 10.4028/www.scientific.net/AMM.397-400.2278; **Conference:** 3rd International Conference on Advanced Design and Manufacturing Engineering, ADME 2013, July 13, 2013 - July 14, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) The Key Laboratory of Photo electricity Gas and Oil Logging and Detecting, Ministry of Education, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: The cased hole resistivity logging technology is one of high-tech logging technologies being studied in China. The signal source requires high voltage, high current, ultra-low frequency, high stability, high resolution, etc. Based on the characteristics, proposed were the ideas that the direct digital synthesis technique should be applied to produce the required sine logging exciting signals, and high-power FET were used to produce the signals with high power and high voltage. The results show that the output frequency of signal source is 0~ 10 Hz, frequency resolution 0. 002 Hz, output voltage range -300V~ +300 V, output current less than 6 A. The design has been successfully applied in the research project of extremely weak nV-level electric signal acquisition theory and experimental study on formation resistivity measurement through metal casing. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Signal processing
Controlled terms: Sustainable development
Uncontrolled terms: AD9850 DDS - Cased hole - Direct digital synthesis - Formation resistivity - Frequency resolutions - Output-voltage ranges - Power amplification - Ultra-low frequencies
Classification Code: 716.1 Information Theory and Signal Processing
Database: Compendex
Data Provider: Engineering Village

205. Reactive power compensation of oilfield distribution systems based on tabu search algorithm

Wu, Xiao Meng (1); Fei, Wang Hao (1); Xiang, Xiao Mei (1); Wang, Wen Juan (2)
Source: *Applied Mechanics and Materials*, v 397-400, p 1113-1116, 2013, *Advanced Design and Manufacturing Technology III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858431; **DOI:** 10.4028/www.scientific.net/AMM.397-400.1113; **Conference:** 3rd International Conference on Advanced Design and Manufacturing Engineering, ADME 2013, July 13, 2013 - July 14, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Electronic Engineering Xi'an Shiyou university, Shanxi, Xi'an, 710065, China (2) Public Service Department PetroChina Tarim Oilfield Company, Xinjiang, Korla, 841000, China
Abstract: In order to solve the problem in reactive power compensation of oilfield distribution systems at present, a Taboo search algorithm is proposed in this paper, by which the optimal location and size of shunt capacitors on distribution systems are determined. Then the voltage profile is improved and the active power loss is reduced. In this paper, Voltage qualified is used as objective function to search an initial solution that meets the voltage constraints so that it is feasible in practicable voltage range; then the global optimum solution can be got when taking the reduced maximum of active power loss as objective unction. The examples show that the improved algorithm is feasible and effective. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Electric power utilization

Controlled terms: Electric power distribution - Manufacture - Tabu search - Learning algorithms - Oil well flooding - Reactive power
Uncontrolled terms: Distribution systems - Global optimum solutions - Objective functions - Optimal planning - Reactive power compensation - Taboo search algorithm - Tabu search algorithms - Voltage constraints
Classification Code: 511.1 Oil Field Production Operations - 537.1 Heat Treatment Processes - 706.1 Electric Power Systems - 706.1.2 Electric Power Distribution - 723.4.2 Machine Learning - 913.4 Manufacturing - 921.5 Optimization Techniques
Database: Compendex
Data Provider: Engineering Village

206. New energy recovery H# robust controller for electric bicycles

Zhou, H.B. (1); Long, B. (2); Cao, B.G. (2)
Source: *International Journal of Automotive Technology*, v 14, n 2, p 283-289, April 2013; **ISSN:** 12299138; **DOI:** 10.1007/s12239-013-0032-0; **Publisher:** Korean Society of Automotive Engineers
Author affiliation: (1) Department of Material Science and Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) School of Mechatronic Engineering, Xi'an JiaoTong University, Xi'an, 710049, China
Abstract: The electric controller is one of the most crucial components in an electric bicycle. The overall performance of the whole system heavily depends on the properties of the controller. The authors use the robust control theory to design a new H# robust controller for the closed speed-current dual-loop driving and braking system. The designed controller also incorporates the driving and energy recovery braking circuit. Therefore, it has energy recovery ability, which coverts the kinetic energy wasted in braking into electric energy to recharge the battery. This prolongs the driving distance per battery charge. The simulations and experiments show that the new H# robust controller out-performs the traditional PID controller in many respects including stability, error, responding speed and driving distance per battery charge. © 2013 The Korean Society of Automotive Engineers and Springer-Verlag Berlin Heidelberg. (24 refs)
Main heading: Controllers
Controlled terms: Bicycles - Electric vehicles - Braking - Kinetics - Secondary batteries - Three term control systems - Recovery - Robust control - Kinetic energy
Uncontrolled terms: Braking system - Driving distance - Electric bicycles - Electric energies - Energy recovery - New energies - PID controllers - Robust controllers
Classification Code: 432.2 Passenger Highway Transportation - 602 Mechanical Drives and Transmissions - 631.1 Fluid Flow, General - 702.1.2 Secondary Batteries - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 732.1 Control Equipment - 931 Classical Physics; Quantum Theory; Relativity
Funding Details: Number: YS29030837, Acronym: -, Sponsor: -;
Funding text: ACKNOWLEDGEMENT-This project is partially supported by the Xi'an ShiYou University Science and Technology fund (doctor) YS29030837.
Database: Compendex
Data Provider: Engineering Village

207. Recent patents on adjoint method-based real-time dynamic water injection optimization

Jin, Pang (1, 2); Guanglun, Lei (1); Hong, Liu (2); Xu, Zhang (2); Honglian, Li (3)
Source: *Recent Patents on Computer Science*, v 6, n 2, p 145-152, 2013; **ISSN:** 18744796; **DOI:** 10.2174/22132759113069990009; **Publisher:** Bentham Science Publishers
Author affiliation: (1) China university of petroleum, Qingdao, 266580, China (2) Chongqing University of Science and Technology, Chongqing, 401331, China (3) Xi'an Shiyou University, Xian, 710065, China
Abstract: Conventional fixed allocation production and allocation injection method has the defects of uneven water flooding, injection-production loss of constant, which can affect water flooding development efficiency. Therefore, we put forward a real-time dynamic optimization water injection method for the different development time and different injection wells with different injection allocation systems. This method converts the optimization of the system into mathematical equations, focuses on discussing objective function gradient algorithm. The implementation process of the adjoint method calculation gradient is proposed. Gradient calculation and the detailed steps of real-time dynamic optimization water injection are also offered. Finally, an L shaped fault block oil reservoir conducted the simulation validation. The results show that the use of the adjoint method real-time dynamic optimization approach for injection method is better than the conventional fixed water injection allocation approach, which can better improve oil displacement efficiency and provide important technical support for the formulation of oil field water injection program patent. © 2013 Bentham Science Publishers. (14 refs)
Main heading: Floods

Controlled terms: Patents and inventions - Reservoirs (water) - Efficiency - Functions - Real time systems - Petroleum reservoir engineering - Oil well flooding - Petroleum reservoirs - Water injection
Uncontrolled terms: Adjoint methods - Fault block oil reservoir - Field - Gradient calculations - Implementation process - Mathematical equations - Oil-displacement efficiency - Water-flooding development
Classification Code: 441.2 Reservoirs - 511.1 Oil Field Production Operations - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 612.1 Internal Combustion Engines, General - 722.4 Digital Computers and Systems - 913.1 Production Engineering - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

208. A simple method for data processing of surface dynamometer card

Sun, Wen (1); Wang, San Min (1); Ren, Tao (2)
Source: *Applied Mechanics and Materials*, v 423-426, p 2476-2479, 2013, *Applied Materials and Technologies for Modern Manufacturing*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858882; **DOI:** 10.4028/www.scientific.net/AMM.423-426.2476; **Conference:** 3rd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2013, August 24, 2013 - August 25, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Northwestern Polytechnical University, Shaanxi, Xi'an, 710072, China (2) School of Mechanical Engineering, Xi'an Shiyou University, Shaanxi, Xi'an, 710065, China
Abstract: The surface dynamometer card is considered as the primary data for a computer analysis of a sucker rod pumping well. There are many problems in the information retrieved from the surface dynamometer card involving duplicated data and reverse direction data(RDD),and discontinuous data of the upstroke or the downstroke, etc. This paper presents a simple method for data processing of surface dynamometer card,it is very useful for the dynamics analysis and structural optimization design of pumping unit(PU). © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Dynamometers
Controlled terms: Data handling - Structural optimization - Pumping plants
Uncontrolled terms: Computer analysis - Discontinuous data - Dynamics analysis - Dynamometer card - Pumping unit - SIMPLE method - Structural optimization design - Sucker rod pumping
Classification Code: 446 Waterworks - 723.2 Data Processing and Image Processing - 921.5 Optimization Techniques - 943.1 Mechanical Instruments
Database: Compendex
Data Provider: Engineering Village

209. Kinematic analysis of the slider-crank type cluster well pumping unit(SCTCWPU) based on Pro/Mechanism

Sun, Wen (1); Ren, Tao (1); Qu, Wen Tao (1); Wang, San Min (2)
Source: *Advanced Materials Research*, v 774-776, p 128-131, 2013, *Advanced Technologies in Manufacturing, Engineering and Materials*; **ISSN:** 10226680; **ISBN-13:** 9783037858004; **DOI:** 10.4028/www.scientific.net/AMR.774-776.128; **Conference:** 2013 International Forum on Mechanical and Material Engineering, IFMME 2013, June 13, 2013 - June 14, 2013; **Sponsor:** Korea Maritime University; Inha University; Hong Kong Industrial Technology Research Centre; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Shaanxi, Xi'an, 710065, China (2) School of Mechanical Engineering, Northwestern Polytechnical University, Shaanxi, Xi'an, 710072, China
Abstract: Centric slider-crank mechanism forms the main mechanism of slider-crank type cluster well pumping unit(SCTCWPU). The kinematic analysis is the basis of structure design of SCTCWPU. The kinematic analysis based on Pro/Mechanism is simple, intuitive, reliable, accurate and easy to be modify. This paper presents the mechanism kinematics simulation of SCTCWPU based on Pro/Mechanism. In addition, a comparative motion analysis of SCTCWPU in Pro/Mechanism and MATLAB is made on the basis of actual working conditions. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Kinematics
Controlled terms: Pumping plants - MATLAB - Pumps
Uncontrolled terms: Kinematic Analysis - Kinematics simulation - Motion analysis - Pro/Mechanism - Pumping unit - Slider crank - Slider-crank mechanism - Structure design
Classification Code: 446 Waterworks - 618.2 Pumps - 723.5 Computer Applications - 921 Mathematics - 931.1 Mechanics
Database: Compendex

Data Provider: Engineering Village

210. Analysis of the operation mode and instability on the low-flowrate running of hot-oil pipeline

Rong-Ge, Xiao (1); Dong-Rui, Yi (2); Pei-Fen, Yao (1); Jia-Quan, Zhou (1)
Source: *Advanced Materials Research*, v 614-615, p 550-554, 2013, *Advances in Power and Electrical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855515; **DOI:** 10.4028/www.scientific.net/AMR.614-615.550; **Conference:** 2nd International Conference on Energy, Environment and Sustainable Development, EESD 2012, October 12, 2012 - October 14, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) Research Institute of Yan Chang Petroleum (Group) CO. LTD, Xi'an, 710075, China
Abstract: Because the most of crude oil has the nature of three-high in China and the natural aging of crude oil in the part of oil field, the transmission of crude-oil has reduced, and the oil refining has increased in oil field, Thus the majority of pipelines laid in china are running at a low-flowrate. Analysis of the problems in the running of low-flowrate pipeline: with the temperature drops up, the viscosity increases; the accident of condensate tubes very easily occurs; the turnover point increases; the pressure load of pipeline increases; the supply of heat is shortage, the reliability of equipment is reduced; costs increases and so on. There is proposing the main operation mode to solve the pipeline in low-flowrate, including intermittent transportation, the transportation of mixing light oil, oil and gas batch transportation, the transportation with adding pour point depressant and so on, and has discussed the instability of the running of hot pipeline in the low-flowrate. © (2013) Trans Tech Publications, Switzerland. (10 refs)
Main heading: Crude oil
Controlled terms: Reliability analysis - Petroleum pipelines - Petroleum transportation
Uncontrolled terms: Batch transportation - Hot pipelines - Light oil - Low-flowrate - Natural aging - Oil and gas - Oil refining - Operation mode - Pour point depressants - Pressure load - Reliability of equipment - Temperature drops - Viscosity increase
Classification Code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 619.1 Pipe, Piping and Pipelines
Database: Compendex
Data Provider: Engineering Village

211. Static analysis and optimization of the slide's structure of slider-crank type cluster well pumping unit(SCTCWPU)

Sun, Wen (1); Wang, San Min (1); Ren, Tao (2); Qu, Wen Tao (2)
Source: *Advanced Materials Research*, v 694 697, p 284-287, 2013, *Manufacturing Process and Equipment*; **ISSN:** 10226680; **ISBN-13:** 9783037856932; **DOI:** 10.4028/www.scientific.net/AMR.694-697.284; **Conference:** 4th International Conference on Manufacturing Science and Engineering, ICMSE 2013, March 30, 2013 - March 31, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Northwestern Polytechnical University, Shaanxi, Xi'an, 710072, China (2) School of Mechanical Engineering, Xi'an Shiyou University, Shaanxi, Xi'an,710065, China
Abstract: Centric slider-crank mechanism forms the main mechanism of slider-crank type cluster well pumping unit(SCTCWPU). The friction and wear is the core problem of (SCTCWPU). The pressure of the slide upon the rail is one of the major factors of the friction and wear between the roller and rail.This paper presents the static analysis and optimization of the structure of the slide. In addition,a comparative analysis of the two types of the slide's structure is made on the basis of actual working conditions. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Static analysis
Controlled terms: Wear of materials - Friction - Structural optimization - Pumping plants - Pumps
Uncontrolled terms: Cluster well - Comparative analysis - Core problems - Friction and wear - Major factors - Pumping unit - Slider crank - Slider-crank mechanism
Classification Code: 446 Waterworks - 618.2 Pumps - 723.5 Computer Applications - 921.5 Optimization Techniques - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

212. Theory of Choquet integral truth degrees of propositions in Lukasiewicz propositional logic

Zhou, Hong-Jun (1); She, Yan-Hong (2)
Source: *Tien Tzu Hsueh Pao/Acta Electronica Sinica*, v 41, n 12, p 2327-2333, December 2013; **Language:** Chinese; **ISSN:** 03722112; **DOI:** 10.3969/j.issn.0372-2112.2013.12.002; **Publisher:** Chinese Institute of Electronics
Author affiliation: (1) College of Mathematics and Information Science, Shaanxi Normal University, Xi'an, Shaanxi 710062, China (2) College of Science, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: The notion of Choquet integral truth degrees of propositions in Lukasiewicz propositional logic is introduced, by means of the Choquet integral of McNaughton functions with respect to uncertainty measures on the set of all valuations. When the involved uncertainty measures satisfy finite additivity property, the notion of Choquet integral truth degrees can induce in a natural way a pseudo-metric, with which the set of all propositions becomes a pseudo metric space and thus several graded reasoning methods can be established. The notion of Choquet integral truth degrees will reduce to the existing notion of Borel probability truth degrees in probabilistically quantitative logic when the uncertainty measures are Borel probability measures. This paper is a continuation of probabilistically quantitative logic and provides a possible framework for reasoning about non-linear uncertainty of propositions. (35 refs)
Main heading: Uncertainty analysis
Controlled terms: Fuzzy logic - Integral equations - Computer circuits
Uncontrolled terms: Borel probability measures - McNaughton functions - Nonlinear uncertainties - Probabilistically quantitative logic - Propositional logic - Pseudo-metric spaces - Truth degree - Uncertainty measures
Classification Code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 721.3 Computer Circuits - 921.2 Calculus - 922.1 Probability Theory
Database: Compendex
Data Provider: Engineering Village

213. The effect of water activity in shale on wellbore instability

Li, Tiantai (1, 2); Zhang, Ming (1, 2)
Source: *Advanced Materials Research*, v 616-618, p 970-974, 2013, *Sustainable Development of Natural Resources*; **ISSN:** 10226680; **ISBN-13:** 9783037855522; **DOI:** 10.4028/www.scientific.net/AMR.616-618.970; **Conference:** 2nd International Conference on Energy, Environment and Sustainable Development, EESD 2012, October 12, 2012 - October 14, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China (2) College of Petroleum Engineering, China University of Petroleum, Changping, Beijing, 102249, China
Abstract: It is accepted that the water flux in/out of the shale during drilling is the key factor, which controls wellbore instability. This flow can be divided into two components:1) the hydraulic flow due to the difference between the wellbore and pore hydraulic pressure; 2) the osmotic flow due to the imbalance between activities of the shale and the drilling fluid. The former can be prevented by adjusting the wellbore hydraulic pressure balance in the well hole, while the latter is much more difficult to control. The water activity of shale is a controlling factor in many areas of drilling. It impacts all situations wherein the temperature or the stress state of a shale is altered such as in wellbore stability, drilling rate and hydraulic fracturing. This chemical "potential activity interaction" produces a mechanical failure due to the movement of water in/out of shales. In order to have no shale alteration, it requires that the chemical potential of each component must be the same in all phases. This is seldom the case. After a lot of studies the shale activity is shown to be a function of pressure and temperature. Results showed inverse relationship between the platelet distance and the shale water activity. This experimental method proves to be a reliable and efficient way for studying the relationships for the shale water activity, comfining pressure, temperature, and platelet distance. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Shale
Controlled terms: Boreholes - Hydraulic fluids - Oil field equipment - Osmosis - Swelling - Hydraulic fracturing - Drilling fluids - Inverse problems - Stability
Uncontrolled terms: Controlling factors - Drilling rates - Effect of water - Experimental methods - Function of pressure - Hydraulic flow - Hydraulic pressure - Inverse relationship - IT impact - Key factors - Mechanical failures - Osmotic flow - Potential activities - Stress state - Two-component - Water activity - Water flux - Well-bore hydraulics - Wellbore - Wellbore instability - Wellbore stability
Classification Code: 511.2 Oil Field Equipment - 512.1.2 Petroleum Deposits : Development Operations - 802.3 Chemical Operations - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

214. A fault diagnosis of suck rod pumping system based on SVM

Wu, Wei (1); Zhou, Yu (1); Wei, Hangxin (1)
Source: *Applied Mechanics and Materials*, v 307, p 285-289, 2013, *Mechatronics and Computational Mechanics*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856598; **DOI:** 10.4028/www.scientific.net/AMM.307.285; **Conference:** 2012 International Conference on Mechatronics and Computational Mechanics, ICMCM 2012, December 20, 2012 - December 21, 2012; **Sponsor:** Trans Tech Publications; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xian Shiyou University, China
Abstract: Aiming at the defects of fault diagnosis in the traditional method for sucker rod pump system, a new method based on support vector machine (SVM) pump fault diagnosis is proposed. Through studying the theory of invariant moment and the shape characteristics of pump indicator diagram, seven invariant moments is extracted from the indicator diagram as a pumping unit well condition of the characteristic parameters. Then these parameters are pretreatment, and it makes up seven eigenvector which are regarded as the input eigenvector of the SVM. The experiment indicates that the method can not only detect the fault of the pumping oil well but also can recognize the fault type of it, which is very effective for safety protection and fault diagnosis of the pumping oil. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Support vector machines
Controlled terms: Failure analysis - Pumping plants - Oil wells - Fault detection - Eigenvalues and eigenfunctions - Oil well pumps
Uncontrolled terms: Characteristic parameter - Fault types - Feature vectors - Indicator diagram - Invariant moment - Pre-Treatment - Pumping unit - Rod pumping systems - Safety protection - Shape characteristics - Sucker-rod pumps - Theory of invariants - Well conditions
Classification Code: 446 Waterworks - 511.2 Oil Field Equipment - 512.1.1 Oil Fields - 618.2 Pumps - 723 Computer Software, Data Handling and Applications
Database: Compendex
Data Provider: Engineering Village

215. Influences of process and equipment on filament unevenness

Wang, Jiangping (1); Tian, Zhihui (1)
Source: *Applied Mechanics and Materials*, v 251, p 465-468, 2013, *New Trends in Mechanical Engineering and Materials*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855591; **DOI:** 10.4028/www.scientific.net/AMM.251.465; **Conference:** 2012 International Conference on Mechatronics and Materials Engineering, ICMME 2012, July 13, 2012 - July 14, 2012; **Sponsor:** Institute of Electronic and Information Technology; Zhejiang Economic and Trade Polytechnic; Dalian University of Technology; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xian Shiyou University, Xian, China
Abstract: The yarn irregularity of polyester POY in melt spinning influences not only the follow-up spinning property, but also the dyeing performance. The yarn irregularity is caused mainly by unstable state during which the filament is formed. It is presented in this paper that the main factors which affect the filament unevenness in melt spinning. They are the quality of raw materials, the improper choice and fluctuation of technological parameters, the structure of equipments and running conditions, etc. Such factors as steady spinning temperature, quenching conditions, the high performance finishes, proper collection oiling point and correct operation will guarantee lower filament unevenness. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Melt spinning
Controlled terms: Yarn - Spinning (fibers) - Wool
Uncontrolled terms: Dyeing performance - Influence factors - Running conditions - Technological parameters - Unstable state
Classification Code: 819.3 Fiber Chemistry and Processing - 819.4 Fiber Products - 821.4 Agricultural Products
Database: Compendex
Data Provider: Engineering Village

216. Long tube hole straightness data processing method

Liu, Yan Shu (1)
Source: *Advanced Materials Research*, v 756-759, p 1494-1497, 2013, *Information Technology Applications in Industry, Computer Engineering and Materials Science*; **ISSN:** 10226680; **ISBN-13:** 9783037857700; **DOI:** 10.4028/www.scientific.net/AMR.756-759.1494; **Conference:** 3rd International Conference on Materials Science and Information Technology, MSIT 2013, September 14, 2013 - September 15, 2013; **Sponsor:** Trans tech publications

inc.; Computer Science and Electronic Technology; BITS Narsampet; Universitatea Politehnica Din Bucuresti;
Publisher: Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, China
Abstract: In this paper, applying planar straightness error assessment methods, in other words, the principle of minimum conditions and roundness error approach, further more, the least square circle will be used to the idea of space. By establishing the two space mathematical models to deal with the long-tube straightness error. It dramatically solves the problem to the space straightness error. In practice, the use of the ideas of the software can gain high accurate and high precise data, it can also consistent with the actual situation. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Least squares approximations
Controlled terms: Data handling - Errors
Uncontrolled terms: Data processing methods - Dimensional straightness - Least Square - Least square methods - Mathematicalpattern - Planar straightness errors - Roundness error - Straightness errors
Classification Code: 723.2 Data Processing and Image Processing - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

217. Quasi-continuous hydrocarbon accumulation - A new model for large tight gas fields formation

Zhao, J. (1); Cao, Q. (1); Wang, X. (1); Li, J. (1)
Source: *75th European Association of Geoscientists and Engineers Conference and Exhibition 2013 Incorporating SPE EUROPEC 2013: Changing Frontiers*, p 5454-5458, 2013; **ISBN-13:** 9781629937915; **DOI:** 10.3997/2214-4609.20130330; **Conference:** 75th European Association of Geoscientists and Engineers Conference and Exhibition 2013 Incorporating SPE EUROPEC 2013: Changing Frontiers, June 10, 2013 - June 13, 2013; **Sponsor:** BG Group; bp; Chevron; et al.; ExxonMobil; Shell; **Publisher:** European Association of Geoscientists and Engineers, EAGE
Author affiliation: (1) Xi'an Shiyou University, China
Abstract: Tight gas is widely accepted either as a continuous accumulation such as basin-centered gas of unconventional hydrocarbons or discontinuous accumulation of conventional traps. But studies of the large tight gas fields in China have revealed that most of them are neither discontinuous conventional nor continuous unconventional, but transitional between them. This transitional type is known as quasi-continuous accumulation, which can be defined as accumulations occurred extensively in tight reservoirs without defined boundaries and being controlled by unconventional trapping mechanisms. Its characteristics are: accumulation occurring extensively without defined boundaries and being close to source rocks; traps being transitional between conventional and no trap; gas and water occurrence being complex and no noticeable edge and bottom water occurred; gas charge being driven principally by non-buoyancy forces and migration being short-distanced and largely vertical. The quasi-continuous accumulation is distinguished from the typical continuous accumulation such as coalbed methane and shale gas in that it is occurred in the vicinity of but out of source rocks, gas distribution is quasi-continuous, and the trap is transitional between shaped trap and shapeless ones, while the typical continuous accumulation is occurred inside source rocks, its gas distribution is continuous, and the trap is shapeless or needless. Copyright © (2012) by the European Association of Geoscientists & Engineers All rights reserved. (13 refs)
Main heading: Tight gas
Controlled terms: Coal deposits - Gas industry - Gases - Methane - Shale
Uncontrolled terms: Bottom water - Buoyancy forces - Gas distribution - Hydrocarbon accumulation - Quasi-continuous accumulations - Tigh treservoirs - Trapping mechanisms - Unconventional hydrocarbons
Classification Code: 503 Mines and Mining, Coal - 522 Gas Fuels - 804.1 Organic Compounds
Database: Compendex
Data Provider: Engineering Village

218. PML absorbing boundary condition of finite element prestack reverse time migration including rugged topography

Tang, W. (1)
Source: *75th European Association of Geoscientists and Engineers Conference and Exhibition 2013 Incorporating SPE EUROPEC 2013: Changing Frontiers*, p 2681-2685, 2013; **ISBN-13:** 9781629937915; **DOI:** 10.3997/2214-4609.20131006; **Conference:** 75th European Association of Geoscientists and Engineers Conference and Exhibition 2013 Incorporating SPE EUROPEC 2013: Changing Frontiers, June 10, 2013 - June 13, 2013;

Sponsor: BG Group; bp; Chevron; et al.; ExxonMobil; Shell; **Publisher:** European Association of Geoscientists and Engineers, EAGE
Author affiliation: (1) Xi'an Shiyou University, China
Abstract: Boundary reflection is an important problem of numerical simulation in limited domain. Perfectly matched layer (PML) absorbing boundary condition (ABC) is one of the best choices to eliminate boundary reflection. Generally, forward modeling needn't consider PML ABC in free surface, but in prestack reverse time migration, false events will be appeared due to the free surface reflection, so we must consider PML ABC in free surface. The goal of this article is to derive the PML ABC formulas of second-order finite element acoustic wave equation in displacement form based on rugged topography and implement finite element numerical simulation. Several numerical simulation results are compared and show that PML ABC including rugged topography obtains a much better boundary absorption effect than that of Clayton and Engquist ABC, which verified the advantages of this method. So it can simulate seismic wave field and eliminate the fault events resulted from the free surface reflection in prestack reverse time migration including rugged topography. Copyright © (2012) by the European Association of Geoscientists & Engineers All rights reserved. (5 refs)
Main heading: Acoustics
Controlled terms: Boundary conditions - Finite element method - Numerical methods - Numerical models - Topography
Uncontrolled terms: Absorbing boundary condition - Absorption effects - Boundary reflection - Finite element numerical simulation - Forward modeling - Perfectly Matched Layer - Reverse time migrations - Rugged topography
Classification Code: 751 Acoustics, Noise. Sound - 921 Mathematics - 921.6 Numerical Methods - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

219. The stress analysis of drilling derrick structure based on finite element method

Wang, Jiangping (1); Bao, Zefu (1)
Source: *Applied Mechanics and Materials*, v 251, p 84-90, 2013, *New Trends in Mechanical Engineering and Materials*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855591; **DOI:** 10.4028/www.scientific.net/AMM.251.84; **Conference:** 2012 International Conference on Mechatronics and Materials Engineering, ICMME 2012, July 13, 2012 - July 14, 2012; **Sponsor:** Institute of Electronic and Information Technology; Zhejiang Economic and Trade Polytechnic; Dalian University of Technology; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xian Shiyou University, Xian, Shaanxi (710065), China
Abstract: Oil-drilling derrick is the most important integrant of the equipments in oil industry and is also a giant load bearing structure. In this paper, the 3D geometric model of the derrick is created by commercial finite element analysis (FEA) software ANSYS, and the static stresses under several working conditions are analyzed. The displacement and stress distribution of the derrick acquired can lay the theoretical basis for the optimization design of structural and material choices of the derrick further. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Finite element method
Controlled terms: Cranes - Structural optimization - Stress analysis - Drilling equipment - Manufacture
Uncontrolled terms: 3D geometric model - Drilling derrick - Loadbearing structure - Material choice - Mechanics analysis - Oil industries - Optimization design - Software ANSYS - Static stress - Structure-based - Theoretical basis
Classification Code: 537.1 Heat Treatment Processes - 693.1 Cranes - 913.4 Manufacturing - 921.5 Optimization Techniques - 921.6 Numerical Methods - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

220. Experimental study on unsupported nano-MoS2 catalyst for deep desulfurization fuel oil

Zhu, Yu Qin (1)
Source: *Advanced Materials Research*, v 739, p 16-20, 2013, *Industrial Materials - Applications, Products, and Technologies*; **ISSN:** 10226680; **ISBN-13:** 9783037857465; **DOI:** 10.4028/www.scientific.net/AMR.739.16; **Conference:** 2013 World Congress on Industrial Materials - Applications, Products and Technologies, WCIM 2013, April 1, 2013 - April 2, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xian Shiyou University, Xian, China
Abstract: Five kinds of unsupported MoS2 hydrodesulfurization catalysts and the precursor of MoS2 catalyst, nano-sized MoO3, were synthesized by a novel hydrothermal reduction method. The influence of temperature, concentration

of reactants and pH values on the growth morphology of MoS2 was systematically investigated. The MoS2 fibers showed lots of defects and they were easily bended, which increased the number of active sites on the catalyst and easily met the requirements of hydrotreating ultra-desulfurization of fuel oil. © (2013) Trans Tech Publications, Switzerland. (11 refs)
Main heading: Molybdenum oxide
Controlled terms: Catalyst activity - Hydrodesulfurization - Layered semiconductors - Sulfur compounds - Fuel oils - Nanocatalysts
Uncontrolled terms: Deep desulfurization - Growth morphology - Hydrodesulfurization catalysts - Hydrothermal reduction - Hydrotreating - Number of active sites - pH value
Classification Code: 523 Liquid Fuels - 712.1 Semiconducting Materials - 761 Nanotechnology - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally
Database: Compendex
Data Provider: Engineering Village

221. The honing process for precision holes

Zhang, Zhe (1); Dong, Peng-Min (1); Dong, Zhao (2)
Source: *Applied Mechanics and Materials*, v 419, p 269-272, 2013, *Mechanics and Mechatronics*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858714; **DOI:** 10.4028/www.scientific.net/AMM.419.269; **Conference:** 2013 International Conference on Mechanics and Mechatronics, ICMM 2013, October 4, 2013 - October 6, 2013; **Sponsor:** Anhui Polytechnic University; Zhejiang Forestry University; Kunming University of Science and Technology; Yunnan Normal University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) School of Materials Engineering, Xi'an Shiyou University, Xi'an, 710065, China
Abstract: To satisfy the mass, high efficiency production requirements, using the honing abrasive made from artificial iron fund diamond, honing the precision hole of parts made from HT250 cast iron. Introduce the honing processing technology, the honing processing equipment, process parameters, honing oil formula and processing results. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Honing
Controlled terms: Cast iron
Uncontrolled terms: Honing heads - Oil formula - Precision holes - Process parameters - Processing equipment - Processing technologies - Production requirements
Classification Code: 534.2 Foundry Practice - 545.2 Iron Alloys
Database: Compendex
Data Provider: Engineering Village

222. Effect of deformation on the corrosion behavior of chromium bronze

Zhang, Y.N. (1); Wang, D.H. (1); Xu, T.H. (1)
Source: *Applied Mechanics and Materials*, v 303-306, p 2465-2468, 2013, *Sensors, Measurement and Intelligent Materials*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856529; **DOI:** 10.4028/www.scientific.net/AMM.303-306.2465; **Conference:** 2012 International Conference on Sensors, Measurement and Intelligent Materials, ICSMIM 2012, December 26, 2012 - December 27, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Materials Science and Engineering, Xian Shiyou University, Xian 710065, China
Abstract: The service life of material is much related with its corrosion resistance. Thus, the investigation on corrosion behavior is important for the better use of material. In this paper, the corrosion behavior of deformed chromium bronze experienced different processing was investigated in NaCl environment using electrochemical measurements and mass-loss tests. It has showed that the potentiodynamic polarization curves of cold rolled specimen coincide with that of cold worked specimen in two concentration of NaCl solution. The last cold working has little effect on the electrochemical behavior of cold rolled chromium bronze.The NaCl fog experiment showed that the corrosion resistance of cold rolled specimen is slightly better than that of cold worked specimen, and the mass-loss for two kinds of specimen are similar in the initial stage but the gap is increasing with corrosion time. The corrosion scales on the surface of specimen, accumulated in the form of island produced in the NaCl fog experiment, has little hindered effect on corrosion behavior. © (2013) Trans Tech Publications, Switzerland. (11 refs)
Main heading: Sodium chloride
Controlled terms: Atmospheric corrosion - Chromium - Metal cladding - Corrosion resistance - Corrosion resistant coatings - Deformation - Electrochemistry - Fog - Cold rolling - Corrosive effects

Uncontrolled terms: Chromium-bronze - Cold worked - Cold-rolled - Corrosion behavior - Corrosion scale - Corrosion time - Electrochemical behaviors - Electrochemical measurements - Initial stages - Mass-loss - NaCl solution - Potentiodynamic polarization curves
Classification Code: 443.1 Atmospheric Properties - 535.1.2 Rolling Mill Practice - 539.1 Metals Corrosion - 539.2 Corrosion Protection - 543.1 Chromium and Alloys - 801.4.1 Electrochemistry
Database: Compendex
Data Provider: Engineering Village

223. Multifunction expansion design of the wellbore multiphase-flow experimental system

Liang, Hui Rong (1); Xu, Jian Ning (1); Zhu, Duan Yin (1)
Source: *Advanced Materials Research*, v 732-733, p 421-425, 2013, *Thermal, Power and Electrical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037857434; **DOI:** 10.4028/www.scientific.net/AMR.732-733.421; **Conference:** 2013 2nd International Conference on Energy and Environmental Protection, ICEEP 2013, April 19, 2013 - April 21, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xi'an, China
Abstract: In this paper, a set of wellbore multiphase flow experimental system with several functions is designed. The system can complete a flow loop of water phase, gas phase, oil and gas mixed phases, oil and water mixed phases, or oil, gas and water mixed phases in a level, vertical or tilt angle tube, used to study the flow law of these different mixed modes in the inner tube and the annular space of the wellbore, also used to study the heat transfer law between the fluids in the inner tube and the annular space. It is a set of large-scale and complete experimental system to research the multiphase flow. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Multiphase flow
Controlled terms: Heat transfer - Oil field equipment - Oil wells
Uncontrolled terms: Annular space - Experimental system - Heat transfer laws - Inner tubes - Mixed phasis - Oil and gas - Water phase - Wellbore
Classification Code: 511.2 Oil Field Equipment - 512.1.1 Oil Fields - 631.1 Fluid Flow, General - 641.2 Heat Transfer
Database: Compendex
Data Provider: Engineering Village

224. Fuzzy-sliding mode controller design for electric bicycles

Zhou, Hao Bin (1)
Source: *Applied Mechanics and Materials*, v 339, p 74-80, 2013, *Mechatronics and Control Engineering*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857373; **DOI:** 10.4028/www.scientific.net/AMM.339.74; **Conference:** 2013 Asian Pacific Conference on Mechatronics and Control Engineering, APCMCE 2013, March 26, 2013 - March 27, 2013; **Sponsor:** Information Engineering Research Institute, USA; Trans Tech Publications inc.; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xian 710065, China
Abstract: The control system is the core of an electric bicycles. Properties of the controller are among the most important factors determining the performance of the Electric bicycles. In this paper, we design a new energy regenerating brake controller based on the driving and regenerating circuit topology for permanent brushless DC motor (BLDCM). A Fuzzy-Sliding Mode Control (Fuzzy-SMC) algorithm is applied to the inner loop (current loop) of the closed speed-current double loop system to improve the stability and reliability. Experiments and simulations show that the Fuzzy-Sliding Mode controller is superior to the traditional PID controller on many performance measurements including perturbation resistance,steady-state error,response speed and the extended driving distance per battery charge. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Bicycles
Controlled terms: Brushless DC motors - Sliding mode control - Controllers - Electric machine control - Electric vehicles - Fuzzy systems - Three term control systems
Uncontrolled terms: BLDCM - Electric bicycles - Energy regenerainge - Fuzzy-sliding mode controls - Performance measurements - Perturbation-resistance - Stability and reliabilities - Steady state errors
Classification Code: 432.2 Passenger Highway Transportation - 705.3.2 DC Motors - 731.1 Control Systems - 731.2 Control System Applications - 732.1 Control Equipment - 961 Systems Science
Database: Compendex
Data Provider: Engineering Village

225. Stored energy welding technology of ultra-thin sheet stainless steel (*Open Access*)

Zhou, Hao Bin (1); Ma, Ju Lian (1); Xu, Xiang Qian (1)
Source: *Advanced Materials Research*, v 749, p 27-30, 2013, *Bio-Medical Materials and Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037857557; **DOI:** 10.4028/www.scientific.net/AMR.749.27; **Conference:** 2013 International Conference on Bio-Medical Materials and Engineering, ICBME 2013, March 26, 2013 - March 27, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, China
Abstract: Considering the characteristics of the multilayered ultra-thin sheet stainless steel, by chosen the proper equipments and stored energy welding technology, the optimizing welding parameters are got from the condenser discharge spot welding experiments. The energy stored in the capacitor group is controlled by the energy required during welding and the discharge current is controlled by the size of dynamic resistance in resistance spot welding. So those control ways can better solve the hard problem of choosing welding parameter. The joint strength of ultra-thin sheet stainless steel is ensured by the reasonable quality assessment methods. The processed spot-welded joints are of good quality and appearance. © (2013)Trans Tech Publications,Switzerland. (3 refs)
Main heading: Stainless steel
Controlled terms: Spot welding
Uncontrolled terms: Dynamic resistance - Quality assessment - Resistance spot welding - Spot-welded joints - Stored energy - Ultra-thin - Welding parameters - Welding technology
Classification Code: 538.2.1 Welding Processes - 545.3 Steel
Open Access type(s): All Open Access, Green
Database: Compendex
Data Provider: Engineering Village

226. Analysis of burst and collapse strength for tubular with wearing defects

Yinping, Cao (1); Yihua, Dou (1)
Source: *Advanced Materials Research*, v 677, p 263-266, 2013, *Micro Nano Devices, Structure and Computing Systems II*; **ISSN:** 10226680; **ISBN-13:** 9783037856420; **DOI:** 10.4028/www.scientific.net/AMR.677.263; **Conference:** 2013 2nd International Conference on Micro Nano Devices, Structure and Computing Systems, MNDSCS 2013, January 23, 2013 - January 24, 2013; **Sponsor:** International Information Engineering Institute, USA; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: Taking account of the influence of friction between the outer wall of buckling tubular and the inner wall of casing under vibrating loads, the burst and collapse strengths of worn tubular would be reduced greatly compared to the unworn tubular. If the reduction of burst and collapse strength weren't taken into consideration, there may be potential risk in well completion. The models of worn tubular strings were established based on finite element method, and thus the relationships between strength of burst and collapse and the degree of wear were analyzed. The results of FEM were verified by the equations in API 5C3. The results show that the strengths of burst and collapse will be reduced with the increase of wear degree, and the burst strength will be reduced more sharply. When the tubular strings are worn by 30%, the strengths of burst and collapse will be reduced by almost 50%. While the strengths of burst and collapse will be reduced by almost 60%, when the tubular strings are worn by 50%. So, to avoid the accident caused by the worn tubular, the work case should be controlled strictly correspondingly. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Well completion
Controlled terms: Finite element method - Buckling
Uncontrolled terms: Burst strength - Collapse strength - Potential risks - Tubular - Tubular strings - Vibrating load - Wear degrees - Worn
Classification Code: 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

227. Analysis of fatigue life and influence factors of tubing with initial crack

Cao, Yin Ping (1); Dou, Yi Hua (1)
Source: *Advanced Materials Research*, v 690 693, p 1806-1809, 2013, *Materials Design, Processing and Applications*; **ISSN:** 10226680; **ISBN-13:** 9783037856925; **DOI:** 10.4028/www.scientific.net/AMR.690-693.1806; **Conference:** 4th International Conference on Manufacturing Science and Engineering, ICMSE 2013, March 30, 2013 - March 31, 2013;

Sponsor: Northeastern University, China; Harbin Institute of Technology; Jilin University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: Three-dimensional stresses are analyzed in the tubing working based on the theory of thick-walled cylinder, and the stress intensity factor expression is derived on longitudinal and circumferential extending cracks in the tubing. Tubing fatigue life is calculated according to given condition through the preparation of the corresponding program. Influence of initial crack length, change of the pressure and the tubing wall thickness on the fatigue life are discussed. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Fatigue of materials
Controlled terms: Cracks - Stress analysis - Tubing
Uncontrolled terms: Impact factor - Initial cracks - Thick walled cylinders - Three-dimensional stress - Wall thickness
Classification Code: 619.1 Pipe, Piping and Pipelines - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

228. A research on the stresses distributed over pipe insulating joints

Kang, Yong (1); Chen, Nai Qin (2)
Source: *Advanced Materials Research*, v 753-755, p 1530-1533, 2013, *Materials Processing and Manufacturing III*; **ISSN:** 10226680; **ISBN-13:** 9783037857649; **DOI:** 10.4028/www.scientific.net/AMR.753-755.1530; **Conference:** 3rd International Conference on Advanced Engineering Materials and Technology, AEMT 2013, May 11, 2013 - May 12, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: By using CAD 3D modeling and structural statics of finite element analysis software ANSYS, the stress distribution of the insulating joint under different loads is obtained. The main factors are suggested, which influence the effects of the insulating joint, being base on the mechanical analysis of using computer software, and the ranges of concentrated stress are pointed out. These studies will help the insulating joint structure design, structure optimization and better applications. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Finite element method
Controlled terms: Structural optimization - Insulation - Computer aided design
Uncontrolled terms: 3-d modeling - Concentrated stress - Finite element analysis software - Joint structure - Mechanical analysis - Non-metallic - Structure optimization
Classification Code: 413 Insulating Materials - 723.5 Computer Applications - 921.5 Optimization Techniques - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

229. Mathematical model establishment and analysis on the pipe deformation under external pressure with the ovality

Yong, Kang (1); Chen, Wei (1)
Source: *Advanced Materials Research*, v 760-762, p 2263-2266, 2013, *Optoelectronics Engineering and Information Technologies in Industry*; **ISSN:** 10226680; **ISBN-13:** 9783037857731; **DOI:** 10.4028/www.scientific.net/AMR.760-762.2263; **Conference:** 2nd International Conference on Opto-Electronics Engineering and Materials Research, OEMR 2013, October 19, 2013 - October 20, 2013; **Sponsor:** Computer Science and Electronic Technology; Trans tech publications inc.; National Cheng Kung University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xi'an Shaanxi, 710065, China
Abstract: Beside the residual stresses and axial loads, other factors of pipe like ovality, moment could also bring a significant influence on pipe deformation under external pressure. The Standard of API-5C3 has discussed the influences of deformation caused by yield strength of pipe, pipe diameter and pipe thickness, but the factor of ovality degree is not included. Experiments and numerical simulations show that with the increasing of pipe ovality degree, the anti-deformation capability under external pressure will become lower, and ovality affecting the stability of pipe shape under external pressure is significant. So it could be a path to find out the mechanics relationship between ovality and pipe deformation under external pressure by the methods of numerical simulations and theoretical analysis. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Deformation
Controlled terms: Numerical methods - Numerical models

Uncontrolled terms: External pressures - Ovality - Pipe diameter - Pipe thickness
Classification Code: 921 Mathematics - 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

230. Honing TC11 titanium alloy material the choice of stone

Shu, Liu Yan (1)
Source: *Advanced Materials Research*, v 676, p 27-30, 2013, *Advanced Research on Material Engineering and Electrical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037856703; **DOI:** 10.4028/www.scientific.net/AMR.676.27; **Conference:** 2013 International Conference on Insulating Materials, Material Application and Electrical Engineering, MAEE 2013, March 16, 2013 - March 17, 2013; **Sponsor:** International Science and Education Researcher; Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, China
Abstract: Based on the study of cutting properties of titanium alloy, and according to its features, several commonly used honing stones materials are selected to carry out the wear experiments of deep-hole honing for the alloy. the analysis of the experiments results shows the suitable for titanium alloy TC11 deep-hole drilling is identified. © (2013) Trans Tech Publications, Switzerland. (3 refs)
Main heading: Honing
Controlled terms: Titanium alloys
Uncontrolled terms: Cutting properties - Deep-hole drilling - TC11 titanium alloys - Titanium alloy tc11
Classification Code: 542.3 Titanium and Alloys
Database: Compendex
Data Provider: Engineering Village

231. Gas migration mechanism of quasi-continuous accumulation in the Upper Paleozoic of Ordos Basin

Li, Jun (1, 2); Zhao, Jingzhou (1, 2); Fan, Yuanfang (1, 2); Cao, Qing (1, 2); Wang, Qian (1, 2); Hu, Weiqiang (1, 2)
Source: *Oil and Gas Geology*, v 34, n 5, p 592-600, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130503; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Shaanxi Key Lab. of Petroleum Accumulation Geology, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: Based on the natural gas geochemical behaviors and basic geological conditions for gas migration, this paper studied the gas migration characteristics of the quasi-continuous tight sand gas field of the Upper Paleozoic in Ordos Basin. Laterally, the variations of gas components and carbon isotope composition are mainly controlled by thermal maturity of source rocks (Ro), while vertically, they are affected jointly by thermal maturity of source rocks and gas migration fractionation. Further analysis of the migration driving force and pathway conditions indicates that the large tight gas field of the Upper Paleozoic is characterized by near-source accumulation via primary migration and short-distance secondary migration. The principle driving force for migration are diffusion force generated by the gradient of gas molecule concentration and abnormal high pressure, while buoyancy force has little or no contributions to gas migration. There are two main migration styles: surge flow caused by overpressure and diffusion flow resulted from diffusion. The overpressure-driven surge flow is predominant in the Taiyuan Formation and the 2nd Member of Shaanxi Formation within source rock interval, while the diffusion-driven diffusion flow is predominant, in the 1st Member of Shaanxi Formation and the 8th Member of Xiashihezi Formation as well as reservoirs above them. The vertical regular variations of gas composition and carbon isotope are the direct responses to these gas migration patterns in Sulige gas field. (43 refs)
Main heading: Gases
Controlled terms: Carbon - Diffusion - Exploratory geochemistry - Gas industry - Isotopes - Metamorphic rocks
Uncontrolled terms: Driving forces - Gas accumulation - Geochemical characteristic - Migration style - Ordos Basin - Upper Paleozoic
Classification Code: 481.1.2 Petrology (Before 1993, use code 482) - 481.2 Geochemistry - 522 Gas Fuels - 804 Chemical Products Generally - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

232. Study on intelligent monitoring and controlling system in oil drilling optimization

Guo, Jian Ming (1); Zheng, Wang (1); Wang, Yan Ping (1)
Source: *Applied Mechanics and Materials*, v 263-266, n PART 1, p 1319-1322, 2013, *Information Technology Applications in Industry*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855744; **DOI:** 10.4028/www.scientific.net/AMM.263-266.1319; **Conference:** 2012 International Conference on Information Technology and Management Innovation, ICITMI 2012, November 10, 2012 - November 11, 2012; **Sponsor:** Information Science School of Guangdong; University of Business Studies; **Publisher:** Trans Tech Publications
Author affiliation: (1) College Of Petroleum Engineering, Xi'an Shiyou University, China
Abstract: With the increase of drilling data scale, real-time optimal drilling engineering seems to be difficult only by manual or traditional computer data, numerical, even simple knowledge processing. In such a case, Integration knowledge system is proven to be helpful in optimal drilling and improvement of drilling efficiency. A integrated and shared platform is built up about multi-source heterogeneous drilling data and information, to establish the conditions of intelligent reasoning; A multi-hierarchy and multi-modality knowledge model is created based on Ontology, they can define the performance, structure, function, axiom and case of glossary in oil drilling optimization domain, and integrate drilling optimization requirement, static and dynamic drilling data and Problem-Solving Method(PSM);An evolutionary uncertainty reasoning mechanism is built up to integrate rule and case reasoning based on Bayesian Network; An integrated knowledge system is exploited based on the knowledge model of and its reasoning. By application in oil field, the results show its intelligent level and reliability improve clearly, and prove that optimal drilling knowledge model created based on ontology can meet the neets of share and re-usability of knowledge in a special field, and the model has wide application prospects. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Case based reasoning
Controlled terms: Ontology - Monitoring - Bayesian networks - Oil fields
Uncontrolled terms: Application prospect - Case reasoning - Drilling data - Drilling efficiency - Drilling engineering - Drilling optimization - Intelligent level - Intelligent monitoring - Intelligent reasoning - Knowledge model - Knowledge processing - Knowledge system - Multi-hierarchy - Multi-modality - Multisources - Oil drilling - Problem-solving methods - Static and dynamic - Traditional computers - Uncertainty reasoning
Classification Code: 512.1.1 Oil Fields - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
Database: Compendex
Data Provider: Engineering Village

233. Research of prewarning pipe-sticking based on neural network

Zhu, Dan (1); Liu, Guang Xing (1); Zhang, Qi Zhi (1)
Source: *Applied Mechanics and Materials*, v 327, p 1734-1737, 2013, *Advanced Research on Materials, Applied Mechanics and Design Science*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857175; **DOI:** 10.4028/www.scientific.net/AMM.325-326.1734; **Conference:** 2nd International Conference on Intelligent Materials, Applied Mechanics and Design Science, IMAMD 2013, April 13, 2013 - April 14, 2013; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi Province, 710065, China
Abstract: According to the process of drilling characteristics which include complexity and uncertainty, this paper will propose using the technology of neural network in order to making stuck drill accident prewarning, setting the model of sticking prewarning, finally shows that the accuracy of the models by field data. Choosing mean impact value(MIV) algorithm for the variables influence screening, then selecting variables which influences on the accident of stuck drill largely as the input of the network, collecting the data of drilling and building the sticking prewarning model, eventually the the accuracy of the models is proved. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Drills
Controlled terms: Neural networks - Accidents - Manufacture
Uncontrolled terms: BP neural networks - Drilling characteristics - Field data - Impact value - Sticking prewarning
Classification Code: 537.1 Heat Treatment Processes - 603.2 Machine Tool Accessories - 913.4 Manufacturing - 914.1 Accidents and Accident Prevention
Database: Compendex
Data Provider: Engineering Village

234. Hydrocarbon accumulation patterns of large tight oil and gas fields

Zhao, Jingzhou (1, 2); Li, Jun (1, 2); Cao, Qing (1, 2); Bai, Yubin (1, 2); Er, Chuang (1, 2); Wang, Xiaomei (1, 2); Xiao, Hui (1, 2); Wu, Weitao (1, 2)
Source: *Oil and Gas Geology*, v 34, n 5, p 573-583, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130501; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Shaanxi Key Lab. of Petroleum Accumulation Geology, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: Three patterns of hydrocarbon accumulation in large tight oil/gas fields are proposed, namely, continuous accumulation (or basin-centered gas type or deep-basin gas type), quasi-continuous accumulation, and discontinuous (conventional trap type) accumulation. Like the continuous accumulation, the quasi-continuous accumulation also features in large area, without clear boundaries and water lags, reservoir being adjacent to source rocks and pervasive distribution. In addition, non-buoyancy-driven hydrocarbon migration is dominant. The major driving forcers of migration are overpressure, diffusion and capillary pressure, while buoyancy is limited. The migration is largely in the form of non-Darcy surge flow and diffusion flow. However, the quasi-continuous accumulation is different from the continuous accumulation in many aspects. The quasi-continuous accumulation commonly consists of many adjacent medium to small oil/gas reservoirs and the hydrocarbons are in quasi-continuous distribution. Oil/gas and water contact is complex and no regional updip water present. Hydrocarbon charging is mainly vertical and pervasive expulsion. Hydrocarbon accumulation is characte-rized by direct accumulation via primary migration or short-distance secondary migration. The reservoirs get tight prior to or contemporaneous with the hydrocarbon charging and are highly heterogeneous. The traps have certain controlling effect on hydrocarbon accumulation. The continuous unconventional accumulation represented by the basin-centred gas or deep-basin gas and the typical discontinuous conventional accumulation are representative of two end-member types of tight hydrocarbon accumulations in complicated geological settings. Hence some transitional varieties must exist between them and the quasi-continuous accumulation is just such a transitional type that might be a universal and predominated pattern for large oil/gas accumulation to occur in tight formations. In reality, a typical continuous accumulation ought to be that occurs within a source rock interval like shale gas or coalbed methane, while a typical discontinuous accumulation is that occurs within the conventional reservoirs outside or even far away from source rocks, and it is not only strictly confined by conventional traps but also possesses bottom or edge water. The hydrocarbon accumulations in tight reservoirs out of but close to source rocks are predominantly quasi-continuous accumulation, followed by atypical discontinuous accumulations. In contrast, continuous accumulations such as basin-centered gas or deep-basin gas are, if any, uncommon. (40 refs)
Main heading: Natural gas fields
Controlled terms: Buoyancy - Gases - Hydrocarbons - Oil fields - Petroleum reservoirs
Uncontrolled terms: Continuous accumulation - Discontinuous accumulation - Quasi-continuous accumulations - Tight gas - Tight oil
Classification Code: 511 Oil Field Equipment and Production Operations - 512.1.1 Oil Fields - 512.2.1 Natural Gas Fields - 803 Chemical Agents and Basic Industrial Chemicals - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

235. Reservoir characteristics of the organic-rich shales of the Triassic Yanchang Formation in Ordos Basin

Er, Chuang (1, 2); Zhao, Jingzhou (1, 2); Bai, Yubin (1, 2); Fan, Hao (1); Shen, Wuxian (1, 2)
Source: *Oil and Gas Geology*, v 34, n 5, p 708-716, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130519; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Shaanxi Key Lab. of Petroleum Accumulation Geology, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: Reservoir characteristics study is very important to understand the hydrocarbon potential of organic-rich shales. A series of analyses and tests, including thin sections, SEM, XRD, physical property, total organic carbon (TOC), specific surface area and pore size distribution, were made to reveal the reservoir characteristics of the organic-rich shales of the Triassic Yanchang Formation (Fm) in Ordos Basin. This paper also defined the lithofacies, mineral types, diagenesis, pore types and physical properties. Three types of lithofacies are identified in the organic-rich shales, including muddy shale, silt-bearing shale and silty shale. The muddy shale has the highest TOC content, clay content of more than 50% and relatively weak diagenesis. The dominant pore types of the organinc-rich shales in the Yanchang Fm are intragranular and intergranular pores. The pore sizes of micropores are mainly within 0.4 to 1 nm and those of mesopores are mainly within 3 to 5 nm. The contribution of the mesopores to pore volume and specific surface area is larger than that of the micropores. The high content of ductile minerals and weak diagenesis of the organic shales in the the Yanchang Fm make the reservoir stimulation more challenging. (24 refs)

Main heading: Shale
Controlled terms: Metamorphic rocks - Microporosity - Organic minerals - Pore size - Pore structure - Sedimentology - Specific surface area
Uncontrolled terms: Lithofacies - Ordos Basin - Organic-rich shales - Pore types - Reservoir characteristic - Yanchang Formation
Classification Code: 481.1 Geology - 481.1.2 Petrology (Before 1993, use code 482) - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

236. Research of prewarning pipe-sticking based on neural network

Zhu, Dan (1); Liu, Guang Xing (1); Zhang, Qi Zhi (1)
Source: *Applied Mechanics and Materials*, v 325-326, p 1734-1737, 2013, *Manufacturing Engineering and Process II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857076; **Conference:** 2013 2nd International Conference on Manufacturing Engineering and Process, ICMEP 2013, April 13, 2013 - April 14, 2013; **Sponsor:** Science and Engineering Institute; University of Ontario Institute of Technology (UOIT), Canada; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi Province, 710065, China
Abstract: According to the process of drilling characteristics which include complexity and uncertainty, this paper will propose using the technology of neural network in order to making stuck drill accident prewarning, setting the model of sticking prewarning, finally shows that the accuracy of the models by field data. Choosing mean impact value(MIV) algorithm for the variables influence screening, then selecting variables which influences on the accident of stuck drill largely as the input of the network, collecting the data of drilling and building the sticking prewarning model, eventually the the accuracy of the models is proved. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Drills
Controlled terms: Manufacture - Neural networks - Accidents
Uncontrolled terms: BP neural networks - Drilling characteristics - Field data - Impact value - Sticking prewarning
Classification Code: 537.1 Heat Treatment Processes - 603.2 Machine Tool Accessories - 913.4 Manufacturing - 914.1 Accidents and Accident Prevention
Database: Compendex
Data Provider: Engineering Village

237. A new resistivity logging method in production well

Ren, Zhiping (1); Dang, Ruirong (1)
Source: *Advanced Materials Research*, v 616-618, p 975-978, 2013, *Sustainable Development of Natural Resources*; **ISSN:** 10226680; **ISBN-13:** 9783037855522; **DOI:** 10.4028/www.scientific.net/AMR.616-618.975; **Conference:** 2nd International Conference on Energy, Environment and Sustainable Development, EESD 2012, October 12, 2012 - October 14, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of electronic engineering, Xi'an Shiyou University, China
Abstract: This paper presents a new method for resistivity logging in production well. Based on electromagnetic theory, an electromagnetic response model is established for multi-cylindrical-layer, and the general expressions for through casing electromagnetic logging are deduced. We further calculate and simulate the effects of casing permeability on electromagnetic response and demonstrate the necessity of casing magnetization. Finally, the effectiveness of casing magnetization is validated by the magnetization experiment. The result shows signal penetration capability is significantly enhanced after casing magnetization. It demonstrates that casing magnetization is an effective method for resistivity logging in production well. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Magnetization
Controlled terms: Electromagnetic logging - Electric fields
Uncontrolled terms: Electromagnetic response - Electromagnetic theories - General expression - Production wells - Resistivity logging - Signal penetration
Classification Code: 512.1.2 Petroleum Deposits : Development Operations - 701 Electricity and Magnetism - 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena
Database: Compendex
Data Provider: Engineering Village

238. Multiscale nonlocal means for image denoising

Liu, Xiao-Yan (1, 2); Feng, Xiang-Chu (1); Han, Yu (1)
Source: *International Conference on Wavelet Analysis and Pattern Recognition*, p 231-234, 2013, *Proceedings of 2013 International Conference on Wavelet Analysis and Pattern Recognition, ICWAPR 2013*; **ISSN:** 21585695, **E-ISSN:** 21585709; **ISBN-13:** 9781479904150; **DOI:** 10.1109/ICWAPR.2013.6599322; **Article number:** 6599322; **Conference:** 2013 International Conference on Wavelet Analysis and Pattern Recognition, ICWAPR 2013, July 14, 2013 - July 17, 2013; **Sponsor:** Chongqing University; et al.; Hebei University; IEEE Systems, Man and Cybernetics Society; South China University of Technology; University of Macau; **Publisher:** IEEE Computer Society
Author affiliation: (1) Department of Mathematics, Xidian University, Xi'an 710071, China (2) Department of Mathematics, Xian Shiyou University, Xi'an710065, China
Abstract: The non-local means method (NLM) is widely used in image denoising. However, the performance of this method heavily depends on the choice of smoothness parameters. In this paper, we present a novel multi-scale non-local means method (MNLM) for image denoising. By introducing the multi-scale decomposition of images, our method can avoid the difficulty of choosing the smoothness parameters. Compared with the classical NLM method, MNLM not only improves the accuracy of the measurement of similarity, but also generates better denoising results. © 2013 IEEE. (9 refs)
Main heading: Image denoising
Controlled terms: Wavelet transforms
Uncontrolled terms: De-noising - Multi-scale Decomposition - Multi-scale transforms - Non local means - Smoothness parameter
Classification Code: 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 921.3 Mathematical Transformations
Database: Compendex
Data Provider: Engineering Village

239. Application of capacitive sensor in measurement of material transportation

Xiao, Zhihong (1)
Source: *Applied Mechanics and Materials*, v 303-306, p 922-925, 2013, *Sensors, Measurement and Intelligent Materials*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856529; **DOI:** 10.4028/www.scientific.net/AMM.303-306.922; **Conference:** 2012 International Conference on Sensors, Measurement and Intelligent Materials, ICSMIM 2012, December 26, 2012 - December 27, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Electronic Engineering, Xi'an Shiyou University, Xi'an, China
Abstract: A detection system of capacitive sensor is designed and the application of capacitive sensor in measurement of material transportation is discussed. On the basis of measuring the dielectric constant change of the material in conveyor, the system can detect density variation of the material. The signal conditioning circuit of measurement system consists of capacity/voltage conversion circuit, phase shifter and programmable gain amplifier etc. It can reduce the influence of cable's distributed capacitance and other parasitic capacitance. The results show that the system has high measurement precision of the relative value, and better anti-interference ability. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Capacitive sensors
Controlled terms: Capacitance - Signal conditioning circuits - Materials handling - Phase shifters
Uncontrolled terms: Anti-interference - Conversion circuits - Detect density - Detection system - Distributed capacitance - Material transportation - Measurement precision - Measurement system - Parasitic capacitance - Programmable gain amplifier - Relative value
Classification Code: 701.1 Electricity: Basic Concepts and Phenomena - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 722.4 Digital Computers and Systems - 732 Control Devices
Database: Compendex
Data Provider: Engineering Village

240. Theoretical study of measuring oil pump efficiency through thermodynamic method

Wang, J.G. (1); Ren, Y.B. (1)
Source: *Frontiers of Energy and Environmental Engineering - Proceedings of the 2012 International Conference on Frontiers of Energy and Environmental Engineering, ICFEEE 2012*, p 841-843, 2013, *Frontiers of Energy and Environmental Engineering - Proceedings of the 2012 International Conference on Frontiers of Energy and Environmental Engineering, ICFEEE 2012*; **ISBN-13:** 9780415661591; **Conference:** 2012 International Conference

on Frontiers of Energy and Environmental Engineering, ICFEEE 2012, December 11, 2012 - December 13, 2012; **Sponsor:** HongKong Control Eng. Information Sci. Res. Assoc.; Int. Front. Sci. Technol. Res. Assoc.; **Publisher:** Taylor and Francis - Balkema
Author affiliation: (1) School of Mechanical Engineering, Xi'an ShiYou University, Xi'an, China
Abstract: The main index of the fuel pump is the pump efficiency, to direct at traditional pump performance test standards unable to meet the requirements of the field performance test, based on the thermodynamic principle of the measurement methods in ISO5189. Proposed simplified formula applicable to field testing while using thermodynamic method to measure the pump efficiency, defined how to determine the various parameters in the formula. Approximately calculate the specific heat through state - contrast method, reference to the "water equivalent" concept, design experiments to seek specific heat, combine these two methods to determine the specific heat finally. © 2013 Taylor & Francis Group. (4 refs)
Main heading: Specific heat
Controlled terms: Efficiency - Hydraulics - Pumps
Uncontrolled terms: Design experiments - Field performance - Measurement methods - Oil pump - Simplified formula - Theoretical study - Thermodynamic approaches - Thermodynamic methods
Classification Code: 618.2 Pumps - 632.1 Hydraulics - 641.1 Thermodynamics - 913.1 Production Engineering
Database: Compendex
Data Provider: Engineering Village

241. A smooth hidden space support vector machine

Liang, Jinjin (1); Wu, De (1)
Source: *Proceedings - International Conference on Natural Computation*, p 1005-1010, 2013, *Proceedings - 2013 9th International Conference on Natural Computation, ICNC 2013*; **ISSN:** 21579555; **ISBN-13:** 9781467347143; **DOI:** 10.1109/ICNC.2013.6818123; **Article number:** 6818123; **Conference:** 2013 9th International Conference on Natural Computation, ICNC 2013, July 23, 2013 - July 25, 2013; **Publisher:** IEEE Computer Society
Author affiliation: (1) School of Mathematical Sciences, Xi'An Shiyou University, Xi'an, China
Abstract: Applying the smoothing techniques to the support vector machine in the hidden space, a smooth hidden space support vector machine (SHSSVM) is presented with some distinct mathematical features, such as the strong convexity and infinite differentiability. Beyond that, SHSSVM broadens the area of admissible kernel functions, where any real-valued symmetry function can be used as the hidden function, including the Mercer kernels and their combinations. Firstly, the input data are transformed to the hidden space by a hidden function. Secondly, the smoothing technique is utilized to derive the unconstrained smooth model. Finally, the Newton algorithm is introduced to figure out the optimal solution. The numerical experiments on benchmark data demonstrate that SHSSVM has much higher training accuracies than HSSVM and SSVM, but with much lower training time. © 2013 IEEE. (16 refs)
Main heading: Vectors
Controlled terms: Vector spaces - Support vector machines
Uncontrolled terms: hidden space - Hidden space support vector machines - Newton algorithm - Numerical experiments - Smoothing techniques - Strong convexities - Symmetry functions - Training accuracy
Classification Code: 723 Computer Software, Data Handling and Applications - 921 Mathematics - 921.1 Algebra
Database: Compendex
Data Provider: Engineering Village

242. Research of a multi-link concurrent P2P communication model

Li, Jiao (1); Liu, Tian-Shi (1)
Source: *Applied Mechanics and Materials*, v 263-266, n PART 1, p 1012-1015, 2013, *Information Technology Applications in Industry*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855744; **DOI:** 10.4028/www.scientific.net/AMM.263-266.1012; **Conference:** 2012 International Conference on Information Technology and Management Innovation, ICITMI 2012, November 10, 2012 - November 11, 2012; **Sponsor:** Information Science School of Guangdong; University of Business Studies; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an, China
Abstract: In order to solve the communication efficiency and the load balancing of P2P network, a multi-link concurrent P2P communication model is proposed. It introduces concurrent communication mechanism, assigns proper communication task to all nodes according to the communication capability of nodes and the communication weight between nodes, implements the traffic load balancing and shortens communication time. The model has high concurrency, strong robustness, and effective load balancing, so it is suitable for multicast communication and network data mass transmit. © (2013) Trans Tech Publications, Switzerland. (4 refs)

Main heading: Peer to peer networks
Controlled terms: Information theory
Uncontrolled terms: Communication capabilities - Communication efficiency - Communication mechanisms - Communication task - Communication time - Concurrency - Multi-link - Multicast communication - Network data - P2p communications - P2P network - Traffic loads
Classification Code: 716.1 Information Theory and Signal Processing - 722 Computer Systems and Equipment
Database: Compendex
Data Provider: Engineering Village

243. The application of cross-domain single sign-on in municipal portal

Hu, Hongtao (1); Guo, Zifang (1)
Source: *IEEE Region 10 Annual International Conference, Proceedings/TENCON*, 2013, *2013 IEEE International Conference of IEEE Region 10, IEEE TENCON 2013 - Conference Proceedings*; **ISSN:** 21593442, **E-ISSN:** 21593450; **ISBN-13:** 9781479928262; **DOI:** 10.1109/TENCON.2013.6718522; **Article number:** 6718522; **Conference:** 2013 IEEE International Conference of IEEE Region 10, IEEE TENCON 2013, October 22, 2013 - October 25, 2013; **Sponsor:** 'IEEE Xi'an Section'; 'Xi'an Jiaotong University'; et al.; IEEE Region 10 (Asia Pacific Region); National Natural Science Foundation of China; Northwestern Polytechnical University; **Publisher:** Institute of Electrical and Electronics Engineers Inc.
Author affiliation: (1) School of Computer Science, Xi'An ShiYou University, Xi'an, China
Abstract: According to the requirements of the multiple municipal management information system integration, the principle and method for realizing cross-domain single sign-on in the municipal portal system is proposed. Based on analysis of the common single sign-on technology, this paper discusses designs of a CAS-based municipal portal single sign-on system. By storing user's authentication information on CAS server, this method solves the problems in cross-domain authentication and realizes the cross-domain single sign-on. Practical application shows that through the improvement of common CAS, the authentication and authorization can be separated, and municipal information system integration and sharing can be realized through established single sign-on municipal portal, thus providing convenience for the users to quickly access to the resources. © 2013 IEEE. (10 refs)
Main heading: Information management
Controlled terms: Information systems - Authentication - Management information systems - Information use
Uncontrolled terms: Authentication and authorization - Authentication information - Cross-domain - Cross-domain authentication - Information system integration - Municipal managements - Single sign on - Single sign-on technology
Classification Code: 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 903.2 Information Dissemination - 903.3 Information Retrieval and Use
Database: Compendex
Data Provider: Engineering Village

244. A numerical approach to uncertainty in rough logic (*Open Access*)

She, Yan-Hong (1); He, Xiao-Li (1)
Source: *International Journal of Uncertainty, Fuzziness and Knowldege-Based Systems*, v 21, n 3, p 391-413, June 2013; **ISSN:** 02184885; **DOI:** 10.1142/S0218488513500207; **Publisher:** World Scientific
Author affiliation: (1) College of Science, Xi'An Shiyou University, Xi'an 710065, China
Abstract: Rough set theory, initiated by Pawlak, is a mathematical tool in dealing with inexact and incomplete information. Numerical characterizations of rough sets such as accuracy measure, roughness measure, etc, which aim to quantify the imprecision of a rough set caused by its boundary region, have been extensively studied in the existing literatures. However, very few of them are explored from the viewpoint of rough logic, which, however, helps to establish a kind of approximate reasoning mechanism. For this purpose, we introduce a kind of numerical approach to the study of rough logic in this paper. More precisely, we propose the notions of accuracy degree and roughness degree for each formula in rough logic with the intension of measuring the extent to which any formula is accurate and rough, respectively. Then, to measure the degree to which any two formulae are roughly included in each other and roughly similar, respectively, the concepts of rough inclusion degree and rough similarity degree are also proposed and their properties are investigated in detail. Lastly, by employing the proposed notions, we develop two types of approximate reasoning patterns in the framework of rough logic. © 2013 World Scientific Publishing Company. (16 refs)
Main heading: Rough set theory
Controlled terms: Approximation theory - Computer circuits
Uncontrolled terms: Accuracy degree - Inclusion degrees - Numerical approaches - Rough inclusion degree - Rough inclusions - Rough logic - Rough similarity degrees - Rough truth degree - Roughness degree - Truth degree

Classification Code: 721.3 Computer Circuits - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.6 Numerical Methods
Funding Details: Number: 2012QN011, Acronym: -, Sponsor: -; Number: 61103133, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: 11JK0473, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: We would like to thank the anonymous referees for their valuable comments and suggestions for improving this paper. This work was supported by the NSF of China under Grant 61103133, Scientific Research Program Funded by Shaanxi Provincial Education Department (Program No. 11JK0473) and The Innovation Foundation of Science and Technology, Xi'an Shiyou University (No. 2012QN011).
Open Access type(s): All Open Access, Green
Database: Compendex
Data Provider: Engineering Village

245. A new method to reduce the size of lut in digital frequency synthesizer

Cao, Yinping (1); Dou, Yihua (1)
Source: *Applied Mechanics and Materials*, v 241-244, p 618-622, 2013, *Industrial Instrumentation and Control Systems*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855461; **DOI:** 10.4028/www.scientific.net/AMM.241-244.618; **Conference:** 2012 International Conference on Measurement, Instrumentation and Automation, ICMIA 2012, September 15, 2012 - September 16, 2012; **Sponsor:** Queensland University of Technology; Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University, Korea; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an, China
Abstract: In this paper, the principal and application of digital frequency synthesizer are analyzed firstly. Then, the phase truncation error of phase accumulator is discussed theoretically and is eliminated by the real-time scrambling code from Linear Feedback Shift Registers (LFSR) for the purpose of engineering. At last, a new method combined difference method with coarse and fine lookup table (LUT) is proposed to reduce the length and amplitude of LUT. From the simulation of the new method, it is found that the LUT is reduced from 214 ×16 bit to 210 ×14 bit and 214 × 7 bit. Also, the spurious free dynamic range of the power of output signal is more than 100dBc.The method can meet the request of project efficiently and save a lot of cost. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Table lookup
Controlled terms: Shift registers - Frequency synthesizers
Uncontrolled terms: Coarse LUT and Fine LUT - Digital frequency synthesizer - LUT - Phase truncation - Scrambling codes
Classification Code: 713.2 Oscillators - 721.3 Computer Circuits - 723.1 Computer Programming
Database: Compendex
Data Provider: Engineering Village

246. Non-smooth multiple objective mixed duality

Dang, Linli (1)
Source: *International Journal of Applied Mathematics and Statistics*, v 44, n 14, p 120-127, 2013; **ISSN:** 09731377, **E-ISSN:** 09737545; **Publisher:** CESER Publications
Author affiliation: (1) College of Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The purpose of this paper is to consider the mixed dual models for a class of non-smooth multiobjective programming problem. Several duality results involving weak, strong and strictly converse duality theorems are derived and proved for mixed type multiobjective dual programs, using the generalized uniform K -(F,# ,#,d)- convexity on the functions involved. Some previous duality results for differentiable multiobjective programming problems turn out to be special cases for the results described in the paper. The results extend and improve the corresponding results in the literature. © 2013 by CESER Publications. (14 refs)
Main heading: Multiobjective optimization
Controlled terms: Computer programming
Uncontrolled terms: Converse duality - Dual model - Duality - Mixed duality - Multi objective - Multi-objective programming problem - Multiobjective programming - Multiple-objectives
Classification Code: 723.1 Computer Programming - 921.5 Optimization Techniques
Database: Compendex
Data Provider: Engineering Village

247. Large-scale data classification based on ball vector machine

Zheng, Minjuan (1); Cheng, Guojian (1); Zhao, Fei (1)
Source: *Applied Mechanics and Materials*, v 312, p 771-776, 2013, *Applied Research and Engineering Solutions in Industry*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856901; **DOI:** 10.4028/www.scientific.net/AMM.312.771; **Conference:** International Conference on Electrical Information and Mechatronics, ICEIM 2012, December 23, 2012 - December 25, 2012; **Sponsor:** Chinese Academy of Science; Society of Intelligent Aerospace Systems, China; Linear Motor Committees of China Electrotechnical Society; Zhejiang University; Beihang University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Xi'an Shiyou University Information Center, Xi'An, Shaanxi, 710065, China
Abstract: The quadratic programming problem in the standard support vector machine (SVM) algorithm has high time complexity and space complexity in solving the large-scale problems which becomes a bottleneck in the SVM applications. Ball Vector Machine (BVM) converts the quadratic programming problem of the traditional SVM into the minimum enclosed ball problem (MEB). It can indirectly get the solution of quadratic programming through solving the MEB problem which significantly reduces the time complexity and space complexity. The experiments show that when handling five large-scale and high-dimensional data sets, the BVM and standard SVM have a considerable accuracy, but the BVM has higher speed and less requirement space than standard SVM. © (2013) Trans Tech Publications, Switzerland. (10 refs)
Main heading: Support vector machines
Controlled terms: Quadratic programming - Clustering algorithms - Vector spaces - Problem solving - Vectors
Uncontrolled terms: Ball vector machines - Core vector machines - Enclosed ball - High dimensional data - Large-scale data classifications - Minimum enclosed ball - Quadratic programming problems - Support vector machine algorithm
Classification Code: 723 Computer Software, Data Handling and Applications - 903.1 Information Sources and Analysis - 921 Mathematics - 921.1 Algebra
Database: Compendex
Data Provider: Engineering Village

248. Study on wall-flow of a new type of efficient uniform-flow packed equipment

Zhou, San Ping (1)
Source: *Advanced Materials Research*, v 791, p 786-789, 2013, *Chemical and Mechanical Engineering, Information Technologies*; **ISSN:** 10226680; **ISBN-13:** 9783037858363; **DOI:** 10.4028/www.scientific.net/AMR.791-793.786; **Conference:** 2013 3rd International Symposium on Chemical Engineering and Material Properties, ISCEMP 2013, June 22, 2013 - June 24, 2013; **Sponsor:** INTIEA Informatization and Engineering; Trans Tech Publication inc.; Scientific.Net; Cross ref; Engineering Village; et al; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Mechanical Engineering institute, Xi'an Shiyou University, Xi'an, 710065, China
Abstract: In order to deal with the "wall flow effect" and the "scaling effect" because of uneven distribution of fluid overall that commonly exist in packed tower, a new type efficient symmetrical-flow packed equipment was developed. In the same condition, the symmetrical-flow packed equipment was studied comparatively with the common packed equipment by experiments and numerical simulation, and the results such as pressure drop, wall-flow contours and velocity distribution were given. The study results show that the pressure drop of two kinds of packed tower have no significant differences, wall flow is significantly reduced by about 31%, gas-liquid velocity uniformly distribute compared with ordinary packing. The result demonstrate that the symmetrical-flow packed equipment has good effect tin improving the uniform distribution of the macroscopic flowing of fluid, the "wall flow effect" of the symmetrical-flow packed equipment can be effectively reduced, and the "scaling effect" eliminated. So the mass transfer efficiency of the packed tower is improved. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Mass transfer
Controlled terms: Pressure drop - Drops - Wall flow
Uncontrolled terms: Flow effects - Gas liquids - Hydrodynamic performance - Mass transfer efficiency - Packed tower - Scaling effects - Uniform distribution
Classification Code: 631.1 Fluid Flow, General - 641.3 Mass Transfer
Database: Compendex
Data Provider: Engineering Village

249. Research on the adaptive prediction model for drilling accidents based on PSO-SVM (*Open Access*)

Xu, Yingzhuo (1); Sun, Wanhai (1)
Source: *Information Technology Journal*, v 12, n 14, p 2635-2640, 2013; **ISSN:** 18125638, **E-ISSN:** 18125646; **DOI:** 10.3923/itj.2013.2635.2640; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) Institute of Computer, Xi'an Shiyou University, 710065, Xi'an, China
Abstract: Drilling accidents, complex and diverse, occur dynamically uncertain, as the traditional predictioi methods are generally of low prediction accuracy and poor adaptability. In order to improve the accuracy o: drilling accidents prediction, an adaptive prediction model for drilling accidents based on support vectoi machine with particle swarm optimization (PSO-SVM) is proposed. The model optimizes SVM parameters b] means of the strong global search ability of PSO algorithm to reduce the blindness of SVM parameter; selection; it retrain, re-optimize and regenerate the new prediction model after the mis classification accident; have been added to the sample set in order to correctly identify the similar misclassified accidents. Tht innovation of this model is the adaptive mechanism introduced on the basis of the traditional PSO-SVM mode which can be initiative to re-generate prediction model for complex drilling accidents to improve the accuracy of drilling accidents prediction and adapt with different drilling conditions. Finally, verification of the model is completed through predicting the actual accident instances and comparing with the traditional PSO-SVM model The results show that this model has stronger adaptive ability and higher prediction accuracy, so it will be o: great significance for accurately predicting drilling accidents and reducing the cost of drilling. © 2013 Asian Network for Scientific Information. (7 refs)
Main heading: Forecasting
Controlled terms: Complex networks - Particle swarm optimization (PSO) - Accidents
Uncontrolled terms: Adaptive - Adaptive ability - Adaptive mechanism - Adaptive predictions - Global search ability - Prediction accuracy - Prediction model - PSO algorithms
Classification Code: 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 914.1 Accidents and Accident Prevention - 921.5 Optimization Techniques
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

250. The research of parallel plate capacitor measurement circuit

Xiao, Zhi Hong (1)
Source: *Applied Mechanics and Materials*, v 380-384, p 959-962, 2013, *Vehicle, Mechatronics and Information Technologies*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858202; **DOI:** 10.4028/www.scientific.net/AMM.380-384.959; **Conference:** 2013 International Conference on Vehicle and Mechanical Engineering and Information Technology, VMEIT 2013, August 17, 2013 - August 18, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Electronic Engineering, Xi'an Shiyou University, Xi'an, China
Abstract: Capacitive sensor plays an important role in electrical measuring technology. A new method of a set of parallel plate capacitor measurement circuit was proposed. The system adopted the self-excited balanced measuring method to gauge the change amount of capacitive sensor. The results show that the system has a high level of measurement accuracy and an anti-jamming capability. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Capacitive sensors
Controlled terms: Jamming - Capacitance - Security systems
Uncontrolled terms: Anti-jamming capability - Measurement accuracy - Measurement circuit - Measuring method - Measuring technology - Parallel plate capacitors - Parasitic capacitance
Classification Code: 701.1 Electricity: Basic Concepts and Phenomena - 711 Electromagnetic Waves - 732 Control Devices - 914.1 Accidents and Accident Prevention
Database: Compendex
Data Provider: Engineering Village

251. Application of advertising aesthetic appreciation in university aesthetic teaching

Zhou, Mingyong (1)
Source: *Lecture Notes in Electrical Engineering*, v 208 LNEE, p 413-420, 2013, *Informatics and Management Science V*; **ISSN:** 18761100, **E-ISSN:** 18761119; **ISBN-13:** 9781447147954; **DOI:** 10.1007/978-1-4471-4796-1_53; **Conference:** International Conference on Informatics and Management Science, IMS 2012, December 21, 2012 - December 23, 2012; **Sponsor:** National Natural Science Foundation of China, (NSFC); **Publisher:** Springer Verlag
Author affiliation: (1) Design Department, Humanities College, Xi'an Shiyou University, Xi'an, China
Abstract: As a form of aesthetic activities, the development of aesthetic education has a close relationship with Chinese education and China's destiny. The university is the cradle training high-level talents, in current aesthetic

education, there are still many imperfections. There are some university educators believe that the aesthetic education only refers to the art aesthetic education, which neglecting the natural aesthetic, craft aesthetic (technological aesthetic and practical aesthetic), social aesthetic. For these three artistic components, the educational content is single and boring and the educational form is inflexible, so that the aesthetic education is not so ideal. This article thoroughly understands and analyzes the status quo of university aesthetic education, proposes to apply the advertising aesthetic appreciation in the university aesthetic education, it regards the practicality of advertising aesthetic appreciation form as a brand new teaching resource of university aesthetic education, so as to realize the purposes of enrich the content and form of university aesthetic education. © 2013 Springer-Verlag. (5 refs)
Main heading: Marketing
Uncontrolled terms: Aesthetic appreciations - Chinese educations - Educational contents - New teaching - Social aesthetic - Status quo
Classification Code: 911.4 Marketing
Database: Compendex
Data Provider: Engineering Village

252. A review and prospect for dynamic load and stability check method for dual derrick

Zhu, Lin (1); Chen, Yan (1)
Source: *Applied Mechanics and Materials*, v 372, p 309-313, 2013, *Advanced Materials Design and Mechanics II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857977; **DOI:** 10.4028/www.scientific.net/AMM.372.309; **Conference:** 2013 2nd International Conference on Advanced Materials Design and Mechanics, ICAMDM 2013, May 17, 2013 - May 18, 2013; **Sponsor:** Trans Tech Publications inc.; BOSI EDU Professional Organizer for Academic Conference; AMDM; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Abstract: The article introduces the dynamic characteristics researches for dual derrick, they are wind load response analysis, the vibration characteristics analysis, seismic response analysis and wave load analysis. On the stability of the dual derrick check, the article recommends the nonlinear finite element method and the treatment of boundary conditions. Although these studies have a certain guiding significance for the practical engineering, but there is a relative lack of the study for the dual derrick on deep-water drilling rigs. To this end, the article points out research contents for the further study of dual derrick dynamic characteristics, proposes the idea that using the reliability analysis theory of large truss structure to research the reliability of the double derrick. © (2013) Trans Tech Publications, Switzerland. (16 refs)
Main heading: Cranes
Controlled terms: Design - Dynamic analysis - Dynamic loads - Reliability analysis - Reliability theory - Research
Uncontrolled terms: Dynamic characteristics - Guiding significances - Large truss structure - Nonlinear finite element method - Practical engineering - Seismic response analysis - Stability check - Vibration characteristics analysis
Classification Code: 408 Structural Design - 408.1 Structural Design, General - 422.2 Strength of Building Materials : Test Methods - 693.1 Cranes - 901.3 Engineering Research - 922.2 Mathematical Statistics
Database: Compendex
Data Provider: Engineering Village

253. Design and research of remote terminal unit based on light weight IP stack

Meng, Kai Yuan (1)
Source: *Advanced Materials Research*, v 791, p 1613-1617, 2013, *Chemical and Mechanical Engineering, Information Technologies*; **ISSN:** 10226680; **ISBN-13:** 9783037858363; **DOI:** 10.4028/www.scientific.net/AMR.791-793.1613; **Conference:** 2013 3rd International Symposium on Chemical Engineering and Material Properties, ISCEMP 2013, June 22, 2013 - June 24, 2013; **Sponsor:** INTIEA Informatization and Engineering; Trans Tech Publication inc.; Scientific.Net; Cross ref; Engineering Village; et al; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: This paper puts forward a design scheme of remote terminal unit for oil-gas storage and transportation fields, adopts AT91SAM7X256 and DM9000A chip as the core hardware platform, accomplishs the Light Weight IP network protocol transplantation into the hardware platform, implements remote access and control functions from the host computer to the RTU through Internet. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Internet protocols
Controlled terms: Petroleum transportation - Materials handling - Access control - Computer hardware
Uncontrolled terms: Control functions - Hardware platform - Host computers - Light weight - Network protocol stack - Remote access control - Remote terminal units - Storage and transportations

Classification Code: 722 Computer Systems and Equipment - 722.3 Data Communication, Equipment and Techniques - 723 Computer Software, Data Handling and Applications
Database: Compendex
Data Provider: Engineering Village

254. Theoretical analysis of mechanism kinematics for boom crane of marine drilling platform

Li, Jun Qiang (1); Peng, Yong (1); Yan, Wen Hui (1)
Source: *Applied Mechanics and Materials*, v 433-435, p 53-58, 2013, *Advances in Mechatronics and Control Engineering II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858943; **DOI:** 10.4028/www.scientific.net/AMM.433-435.53; **Conference:** 2013 2nd International Conference on Mechatronics and Control Engineering, ICMCE 2013, August 28, 2013 - August 29, 2013; **Sponsor:** Queensland University of Technology; Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Mechanical Engineering Institute, Xi'an Shiyou University, shaanxi xi'an, 710065, China
Abstract: The boom crane of marine drilling platform is an important part of the automated pipe racking system. It has important engineering significance to study the kinematics of boom crane for the automatic control and accurate positioning. Using the method of robot mechanisms, the kinematics of mechanism for boom crane on marine drilling platform is discussed in this paper. According to the structure and motion characteristics of the boom crane, a special joint coordinate system is chosen. The kinematics model of the boom crane is established. The forward kinematics equations, inverse kinematics calculation formulas are derived. The correctness of formulas is verified by examples. The theoretical basis is provided for the movement automatic control and subsequent dynamics and boom crane mechanics analysis when considering the elastic deformation. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Automation
Controlled terms: Inverse kinematics - Process control - Cranes - Drilling platforms
Uncontrolled terms: Analysis of mechanisms - Boom crane - Calculation formula - Forward kinematics equations - Joint coordinate systems - Kinematics modeling - Pipe racking systems - Structure and motions
Classification Code: 511.2 Oil Field Equipment - 674.2 Marine Drilling Rigs and Platforms - 693.1 Cranes - 731 Automatic Control Principles and Applications - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

255. Small molecule flow improvers for heavy oil and their interaction mechanism

Zhang, Jie (1); Li, Xiaolong (1); Chen, Gang (1)
Source: *Shiyou Xuebao, Shiyou Jiagong/Acta Petrolei Sinica (Petroleum Processing Section)*, v 29, n 6, p 1072-1077, December 2013; **Language:** Chinese; **ISSN:** 10018719; **DOI:** 10.3969/j.issn.1001-8719.2013.06.022; **Publisher:** Science Press
Author affiliation: (1) College of Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The effects of small molecule flow improver of fatty acid-amine complex on the pour point depression and viscosity decrease of heavy oil from Nanyang oil field were evaluated, and the effects of small molecule flow improvers on saturated hydrocarbon and asphaltene component of the heavy oil was also analyzed by DSC. The result indicated that this series of small molecule flow improver could depress the pour point of heavy oil with the highest pour point depression of 7°C. This series of small molecule flow improver also could reduce the viscosity of heavy oil, for which the amine part of fatty-amine complex structure played a great role, while the effect of fatty acid part was insignificant. The complexes of the stearic acid-hydroxylamine showed the highest viscosity reduction with the reduction rate of 57.1%. The addition of stearic acid-triethanolamine complex in the asphaltene component of heavy oil could reduce the exothermal amount during the temperature range of 29.08-109.08°C in DSC analysis, which indicated that the complex could change the aggregation way and the state of asphaltene, so that the asphaltene would not be gathered or deposited easily and would be more stable. (11 refs)
Main heading: Crude oil
Controlled terms: Amines - Asphaltenes - Stearic acid - Molecules - Heavy oil production - Viscosity
Uncontrolled terms: Acid-amine complexes - Flow improvers - Interaction mechanisms - Pour points - Saturated hydrocarbons - Small molecules - Temperature range - Viscosity reduction
Classification Code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 513 Petroleum Refining - 631.1 Fluid Flow, General - 804.1 Organic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics
Database: Compendex

Data Provider: Engineering Village

256. Measurement range validation of the through casing resistivity logging instruments

Zhang, Jiatian (1); Huang, Miaozi (1)
Source: *Applied Mechanics and Materials*, v 239-240, p 344-347, 2013, *Measurement Technology and its Application*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855454; **DOI:** 10.4028/www.scientific.net/AMM.239-240.344; **Conference:** 2012 International Conference on Measurement, Instrumentation and Automation, ICMIA 2012, September 15, 2012 - September 16, 2012; **Sponsor:** Queensland University of Technology; Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University, Korea; **Publisher:** Trans Tech Publications
Author affiliation: (1) Xi'an Shiyou University, No.18, Dianzi'erlu Road(East), Xi'an, China
Abstract: This paper introduces the principles of the through casing resistivity logging. By calibration test, the measurement range of the through casing resistivity logging instruments designed by Xi'an Shiyou University has been verified, and the results prove that the performance of this instruments meet its design requirements. The measurement range of the instruments is 0-100 Ohms, and the absolute error is less than 7%. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Uncontrolled terms: Absolute error - Calibration tests - Design requirements - Laboratory models - Measurement range - Resistivity logging
Classification Code: 931.1 Mechanics - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

257. Research on internet marketing methods and strategies of small and medium-size enterprises in China

Yuan, Jing (1)
Source: *Lecture Notes in Electrical Engineering*, v 207 LNEE, p 563-570, 2013, *Informatics and Management Science IV*; **ISSN:** 18761100, **E-ISSN:** 18761119; **ISBN-13:** 9781447147923; **DOI:** 10.1007/978-1-4471-4793-0-71; **Conference:** International Conference on Informatics and Management Science, IMS 2012, December 21, 2012 - December 23, 2012; **Sponsor:** National Natural Science Foundation of China, (NSFC); **Publisher:** Springer Verlag
Author affiliation: (1) College of Economics and Management, Xi'An Shiyou University, Xi'an, China
Abstract: This paper focuses on a narrow sense of network marketing, defining it as a way, with the help of the internet, to more effectively meet customer needs and desires, to complete market research, marketing communication, product sales, and payment for goods, after-sale service and other marketing aspects in order to achieve corporate marketing goals. On the basis of careful analysis of the present situation and problems of the small and medium enterprises (SMEs) network marketing and the obstacles that small and medium enterprises face when carrying out the network marketing, this paper presents the specific methods and strategies of network marketing for SMEs in China. © 2013 Springer-Verlag London. (5 refs)
Main heading: Market Research
Controlled terms: Commerce
Uncontrolled terms: Corporate marketing - Internet marketing - Market researches - Marketing communications - Network marketing - Present situation - Small and medium enterprise - Small and medium-size enterprise
Classification Code: 911.4 Marketing
Funding text: With the intensification of competition among SMEs in current era the survival environment of SMEs is tense and stressful. "The Global Enterprise Operating Environment Report in 2005" published by the World Bank, shows that the aspect of through reform to help SMEs create employment opportunities is lagged in China. In the aspect of relaxed business environment, China ranked 91 in 155 countries and regions. According to the analysis of World Bank officials, compared with foreign-funded enterprises and large enterprises, the survival environment of SMEs in China is more difficult. In the context of the Government’s macro-control, it is difficult to obtain financial support from the domestic financial system. In the stages of venture and the subsequent development, the SEMs will encounter great difficulties.
Database: Compendex
Data Provider: Engineering Village

258. Stability analysis of differential strategy with surface topography by second-order elastic wave modeling

Tang, W. (1); Wang, S.X. (2); Yuan, S.Y. (2)
Source: *75th European Association of Geoscientists and Engineers Conference and Exhibition 2013 Incorporating SPE EUROPEC 2013: Changing Frontiers*, p 590-594, 2013; **ISBN-13:** 9781629937915; **DOI:** 10.3997/2214-4609.20130669; **Conference:** 75th European Association of Geoscientists and Engineers Conference and Exhibition 2013 Incorporating SPE EUROPEC 2013: Changing Frontiers, June 10, 2013 - June 13, 2013; **Sponsor:** BG Group; bp; Chevron; et al.; ExxonMobil; Shell; **Publisher:** European Association of Geoscientists and Engineers, EAGE
Author affiliation: (1) Xi'an Shiyou University, China (2) China University of Petroleum, Beijing, China
Abstract: In this paper, a curved grid with surface topography is mapped onto a rectangular grid with horizontal surface and second-order elastic wave equation is deduced by using coordinate mapping. For ensuring the stability of numerical modeling, one of the difficulties of elastic wavefield modeling is how to handle the free surface. In this paper, three kinds of free boundary conditions of the flat surface, including implicit and unilateral pseudo node and mixed free surface boundary conditions, are introduced and the concrete difference schemes are given. Numerical modeling results show that the second-order elastic wave equation modeling method with surface topography is effective and feasible, and different surface treatment methods have different influence on the stability, the implicit free boundary condition has the best stability of the other free boundary conditions. Copyright © (2012) by the European Association of Geoscientists & Engineers All rights reserved. (6 refs)
Main heading: Surface topography
Controlled terms: Boundary conditions - Elastic waves - Numerical methods - Numerical models - Stability - Surface treatment - Topography - Wave equations
Uncontrolled terms: Coordinate mapping - Difference schemes - Elastic wavefields - Free boundary conditions - Free-surface boundary conditions - Horizontal surfaces - Rectangular grids - Stability analysis
Classification Code: 921 Mathematics - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

259. Design and application of students' learning mode in science and engineering universities under ESP environment

Chen, Ke (1); Li, Fang Lei (1)
Source: *Advanced Materials Research*, v 753-755, p 3169-3172, 2013, *Materials Processing and Manufacturing III*; **ISSN:** 10226680; **ISBN-13:** 9783037857649; **DOI:** 10.4028/www.scientific.net/AMR.753-755.3169; **Conference:** 3rd International Conference on Advanced Engineering Materials and Technology, AEMT 2013, May 11, 2013 - May 12, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Foreign Languages, Xi'an Shiyou University, Xi'an 710075, China
Abstract: With the development of world economy and trade, as well as the reform of college English teaching and learning in China, the teaching and study of English for Specific Purposes (ESP) has also been developing rapidly. However, according to the functional theory of Halliday and the meaningful learning theory of Ausubel, ESP education and teaching in universities at different levels should suit students various professional needs and bear their own traits, therefore ESP teaching and learning mode should be designed with the intent to bring the improvement to students' competitive ability. This paper attempts to discuss the design and application ESP teaching and learning mode in science and engineering universities so as to provide some reference to the reform of Xi 'an education and teaching. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Teaching
Controlled terms: Students
Uncontrolled terms: College english teachings - Competitive ability - Design and application - English for specific purpose - ESP Environment - Learning mode - Science and engineering - Teaching and learning
Classification Code: 451.2 Air Pollution Control - 901.2 Education
Database: Compendex
Data Provider: Engineering Village

260. Application of variable frequency speed control to beam pumping units based on mechanical properties in mechanical controlling engineering

Peng, Yong (1); Liu, Xin (1)
Source: *Advanced Materials Research*, v 648, p 365-369, 2013, *Advanced Research on Material, Energy and Control Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037856147; **DOI:** 10.4028/www.scientific.net/AMR.648.365; **Conference:** 3rd International conference on Engineering Materials, Energy, Management and Control, MEMC 2013, January 19, 2013 - January 20, 2013; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China
Abstract: According to the present production conditions of the beam pumping unit and the features of low permeable oil field, in order to meet the need of low permeable oil field, a successful approach was invited to change the stroke frequency of beam pumping unit by comparing. By analyzing the past and present ways of adjusting stroke frequency, a new technology by adopting variable frequency speed control technology is introduced for adjusting stroke frequency, and its principle is simply described. Through the simulation of inverter and vvvf system based on Matlab software, it's obvious that inverter could output better three-phase voltage and current diagrams, vvvf speed control system could output relative stable speed and torque in a certain range with robust abilities to overcome fluctuation. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Electric inverters
Controlled terms: MATLAB - Pumps - Oil well flooding - Pumping plants - Speed - Speed control
Uncontrolled terms: Beam pumping unit - Matlab- software - New technologies - Past and present - Stroke frequency - Three-phase voltages - Variable frequencies - Variable frequency speed controls
Classification Code: 446 Waterworks - 511.1 Oil Field Production Operations - 618.2 Pumps - 723.5 Computer Applications - 731.3 Specific Variables Control - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

261. Design and development of petrochemical corrosion and protection case base on B/S model and material properties

Zhang, Gao Chao (1); Zhou, San Ping (1)
Source: *Advanced Materials Research*, v 788, p 65-68, 2013, *Advanced Research on Material Engineering, Chemistry and Environment*; **ISSN:** 10226680; **ISBN-13:** 9783037858226; **DOI:** 10.4028/www.scientific.net/AMR.788.65; **Conference:** 2013 International Conference on Material Engineering, Chemistry and Environment, MECE 2013, August 24, 2013 - August 25, 2013; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Institute of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A large number of petrochemical enterprise typical equipment corrosion and protection cases were collected. By using B/S model and ASP.NET development tools & SQL Server2008 database development program, the petrochemical corrosion and protection case base of web model was built. The case can be input, skimmed, queried and modified. All cases can be consulted through the Internet, which realizes the sharing of corrosion information and improves the level of petrochemical industry corrosion protection greatly, also provides guidance for anti-corrosion work of the materials with different properties. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Corrosion protection
Controlled terms: Petrochemicals
Uncontrolled terms: Anti-corrosion - B/S model - Database development - Design and Development - Development tools - Petrochemical enterprise - Petrochemical industry - Web modeling
Classification Code: 513.3 Petroleum Products - 539.2 Corrosion Protection - 804.1 Organic Compounds
Database: Compendex
Data Provider: Engineering Village

262. A bom generation algorithm of erp

Liu, Xia (1); Wang, Kuisheng (1)
Source: *2013 IEEE 3rd International Conference on Information Science and Technology, ICIST 2013*, p 681-684, 2013, *2013 IEEE 3rd International Conference on Information Science and Technology, ICIST 2013*; **ISBN-13:** 9781467351379; **DOI:** 10.1109/ICIST.2013.6747637; **Article number:** 6747637; **Conference:** 2013 IEEE 3rd International Conference on Information Science and Technology, ICIST 2013, March 23, 2013 - March 25, 2013; **Publisher:** IEEE Computer Society

Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: This article propose a Bill of Material (BOM)structure generation algorithm through the analysis of the two most common BOM structures as well as two BOM generalalgorithms, which respectively are hierarchical and recursive in nature. The method proposed in this paper has improved running time complexity in BOM tree generation compared to the existing algorithms and can directly show the parent-child relationship in terms of the materials involved. The conclusion part of this paper describes a real-world application of it that proves the versatility, interoperability of the new BOM tree generation algorithm. © 2013 IEEE. (9 refs)
Main heading: Forestry
Controlled terms: Trees (mathematics)
Uncontrolled terms: Bill of materials - Generation algorithm - Real-world - Running time - Structure generation - Tree generation
Classification Code: 821 Agricultural Equipment and Methods; Vegetation and Pest Control - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
Database: Compendex
Data Provider: Engineering Village

263. Analysis of loads and stresses of drilling tool in trenchless directional drilling

Dou, Yihua (1); Yang, Jingwen (1); Cao, Yinping (1)
Source: *ICPTT 2012: Better Pipeline Infrastructure for a Better Life - Proceedings of the International Conference on Pipelines and Trenchless Technology 2012*, p 1781-1788, 2013, *ICPTT 2012: Better Pipeline Infrastructure for a Better Life - Proceedings of the International Conference on Pipelines and Trenchless Technology 2012*; **ISBN-13:** 9780784412619; **DOI:** 10.1061/9780784412619.179; **Conference:** International Conference on Pipelines and Trenchless Technology 2012: Better Pipeline Infrastructure for a Better Life, ICPTT 2012, October 19, 2012 - October 22, 2012; **Sponsor:** Buried Asset Management Institute - International (BAMI-I); CUG, CTRD; Pipeline Div. Am. Soc. Civ. Eng. (ASCE); Soil Rock Drill. Dep. Eng. Res. Cent. China Minist. Educ. (MOE); UTA, CUIRE; Wuhan Deawon Trenchless Technology Co. Ltd.; **Publisher:** American Society of Civil Engineers (ASCE)
Author affiliation: (1) College of Mechanical Engineering, Xi'An Shiyou University, Xi'an 710065, China
Abstract: To evaluate the capabilities of horizontal directional drilling (HDD), the loads and stresses must be determined first. The loads of directional drilling tools, such as weight of drill string, torque and thrust at the cutterhead exerted by the drilling rig, reaction force at the rig, axial friction, circular resistance torque from friction as well as fluid pressure are analyzed with the consideration of structural characteristics of drilling tools. Axial stress, bending and shear stresses from torsion, shear stress from buoyancy force, tangential stress and radial stress from shear force are analyzed. Then, the influence of bottom hole assembly, drill-bit pressure, pulling back force, size of the borehole and density of drilling fluid on stresses of drilling tool with specifying parameters of drill string are analyzed. From the loads and stresses analysis above, the failure reasons of trenchless directional drilling are extrapolated and suggestions for preventing HDD failures are provided. © 2013 American Society of Civil Engineers. (5 refs)
Main heading: Stress analysis
Controlled terms: Drills - Friction - Directional drilling - Drilling fluids - Shear stress - Drill pipe - Drill strings - Horizontal drilling - Trenching
Uncontrolled terms: Drilling tool - Fluid pressures - Horizontal directional drilling - Load analysis - Resistance torques - Structural characteristics - Tangential stress - Trenchless
Classification Code: 511.1 Oil Field Production Operations - 511.2 Oil Field Equipment - 603.2 Machine Tool Accessories - 619.1 Pipe, Piping and Pipelines - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

264. Mechanical analysis of trenchless directional drill string in horizontal section and slant section

Cao, Yinping (1); Dou, Yihua (1); Xia, Hui (1)
Source: *ICPTT 2012: Better Pipeline Infrastructure for a Better Life - Proceedings of the International Conference on Pipelines and Trenchless Technology 2012*, p 1789-1797, 2013, *ICPTT 2012: Better Pipeline Infrastructure for a Better Life - Proceedings of the International Conference on Pipelines and Trenchless Technology 2012*; **ISBN-13:** 9780784412619; **DOI:** 10.1061/9780784412619.180; **Conference:** International Conference on Pipelines and Trenchless Technology 2012: Better Pipeline Infrastructure for a Better Life, ICPTT 2012, October 19, 2012 - October 22, 2012; **Sponsor:** Buried Asset Management Institute - International (BAMI-I); CUG, CTRD; Pipeline Div. Am. Soc.

Civ. Eng. (ASCE); Soil Rock Drill. Dep. Eng. Res. Cent. China Minist. Educ. (MOE); UTA, CUIRE; Wuhan Deawon Trenchless Technology Co. Ltd.; **Publisher:** American Society of Civil Engineers (ASCE)
Author affiliation: (1) College of Mechanical Engineering, Xi'An Shiyou University, Xi'an 710065, China
Abstract: Trajectory of trenchless directional drill strings included slant section, bending section and horizontal section. Trenchless directional drill strings were under axial compression force during drilling process, while under axial tension force during hole reaming process and pulling back process. Because the trajectory and strength of trenchless directional drill string were influenced by the force exerted on each section, mechanical models of directional drill string were established to analyze the deflection equations and reaction forces in slant section and horizontal section under axial tension force and axial compression force. The boundary conditions in each section were taken as fixed constraint at one end and active constraint at the other end. After the analysis, the expressions of reaction forces as well as the deflection equations were deduced. And also, the reaction forces in horizontal section were got with given parameters of trenchless directional drill string based on the expression of reaction forces. © 2013 American Society of Civil Engineers. (5 refs)
Main heading: Drills
Controlled terms: Axial compression - Drill strings - Compressive strength - Trenching
Uncontrolled terms: Active constraints - Deflection equations - Drilling process - Horizontal section - Mechanical analysis - Mechanical model - Slant Section - Trenchless technologies
Classification Code: 511.2 Oil Field Equipment - 603.2 Machine Tool Accessories - 619.1 Pipe, Piping and Pipelines
Database: Compendex
Data Provider: Engineering Village

265. Stability of tubing string in vertical well based on transfer matrix method (*Open Access*)

Cao, Yinping (1); Xia, Hui (1); Dou, Yihua (1)
Source: *Information Technology Journal*, v 12, n 21, p 6263-6267, 2013; **ISSN:** 18125638, **E-ISSN:** 18125646; **DOI:** 10.3923/itj.2013.6263.6267; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) College of Mechanical Engineering, Xi'An Shiyou University, Xi'an, 710065, China
Abstract: The tubing string will be deformed or even broken when subjected to axial compression load. In the study, the stability of tubing string was discussed when the joint was taken into consideration. First, the tubing and the joint was dispersed into various elements and their element matrices were derived separately. Secondly, the whole transfer matrix of the tubing string was derived based on transfer matrix method by sequential matrix multiplication of tubing element matrix and joint element Then, the critical buckling load was derived by taking into consideration the boundary condition. At last, the influence of the outer diameter and the length of joint on the critical buckling load in vertical well were discussed with partial tubing and joints in API Spec 5CT as the objects. The derived critical buckling load of tubing string considering the joint will be more accurate than that derived by the ordinary method in which the tubing string was simply taken as a thin-wall cylinder of uniform cross-section. © 2013 Asian Network for Scientific Information. (7 refs)
Main heading: Transfer matrix method
Controlled terms: Buckling - Tubing
Uncontrolled terms: Axial compression load - Critical buckling loads - Element matrix - MAtrix multiplication - Outer diameters - Tubing string - Vertical wells - Whole transfer matrix
Classification Code: 619.1 Pipe, Piping and Pipelines - 921 Mathematics
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

266. Double-arc interpolation and simulation of free curve based on Keller

Zhu, Lin (1); Li, Ji Lin (1)
Source: *Advanced Materials Research*, v 740, p 238-241, 2013, *Materials, Mechatronics and Automation II*; **ISSN:** 10226680; **ISBN-13:** 9783037857472; **DOI:** 10.4028/www.scientific.net/AMR.740.238; **Conference:** 2013 International Conference on Materials, Mechatronics and Automation, ICMMA 2013, April 21, 2013 - April 22, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Abstract: The free curve as bus bar has increasing number of application in the field of modern machining. While the Keller was not perfect which was found in more and more production practice, in particular doesn't draw and machining of freeform curves. In this paper apply stretching step method to get key nodes, then make use of the double-arc method to approach the free curve, using Visual Basic to preparation of the supporting software, to generate DXF file

that can be recognized by Keller, and then achieve the purpose that increasing the ability of free surface processing. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Application programs
Controlled terms: Visual BASIC
Uncontrolled terms: Double-arc method - DXF files - Free curves - Free form curve - Free surfaces - Key nodes - Production practice - Step method
Classification Code: 723 Computer Software, Data Handling and Applications - 723.1.1 Computer Programming Languages
Database: Compendex
Data Provider: Engineering Village

267. Artificial neural network for 4D reservoir modeling system design

Liumei, Zhang (1); Tianshi, Liu (1); Shaowei, Pan (1)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 1783-1789, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.1783; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Shaanxi Xi'an, China
Abstract: In quantitative geological modeling with an artificial neural network approach, time information can be considered as input variable to better describe dynamic evolution patterns of reservoir parameters. Such approach requires independent programming to implements 4D reservoir modeling systems and thus introduces a new research area with great development potential. This paper is dedicated to implement a 4D reservoir modeling system by neural network. It explains the development process with detailed activities vary from determine the execution process and organization structure at one extreme to determine the sequence diagram at the other extreme. Between two extremes besides analyzing essential object class functions, UML modeling language has been used to define the use case model, static structure model and dynamic behavior model. It has practical meaning for further development of eastern oil field in China. © (2013) Trans Tech Publications, Switzerland. (12 refs)
Main heading: Neural networks
Controlled terms: Sustainable development - Modeling languages - Oil fields
Uncontrolled terms: Artificial neural network approach - Development potential - Development process - Dynamic behaviors - Dynamic evolution - Execution process - Geological modeling - Input variables - Object class - Organization structures - Reservoir modeling - Reservoir parameters - Sequence diagrams - Static structures - Time information - UML - UML modeling languages - Use case model
Classification Code: 512.1.1 Oil Fields
Database: Compendex
Data Provider: Engineering Village

268. The design and control of the humanoid walking robot

Bao, Ze Fu (1); Zang, Peng (1); Wang, Jiang Ping (1)
Source: *Applied Mechanics and Materials*, v 380-384, p 328-331, 2013, *Vehicle, Mechatronics and Information Technologies*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858202; **DOI:** 10.4028/www.scientific.net/AMM.380-384.328; **Conference:** 2013 International Conference on Vehicle and Mechanical Engineering and Information Technology, VMEIT 2013, August 17, 2013 - August 18, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710075, China
Abstract: The paper focuses on researching the biped humanoid walking robot about its dynamic characteristics and the control technology. The humanoid robot adopts the structure of a human body. There are a total of 19 DOF full body which results in a high balanced capacity and easily controlled arms and legs. In this way, the robot can make all kinds of imitation of human actions, such as tai chi, dancing and so on. My robot can serve as a development platform. By installing different modules of sensors to change or expand the functions of the body, the robot can satisfy the users' demand in an economical way. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Intelligent systems
Controlled terms: Motion analysis - Machine design - Mobile robots - Anthropomorphic robots
Uncontrolled terms: Balanced capacity - Control technologies - Design and control - Development platform - Dynamic characteristics - Humanoid robot - Humanoid walking robots - Motion simulation analysis
Classification Code: 601 Mechanical Design - 723.2 Data Processing and Image Processing - 723.4 Artificial Intelligence - 731.5 Robotics

Database: Compendex
Data Provider: Engineering Village

269. On yarn unevenness test and its influence factor analysis

Jin, Jing (1); Wang, Jiangping (2)
Source: *Applied Mechanics and Materials*, v 251, p 460-464, 2013, *New Trends in Mechanical Engineering and Materials*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855591; **DOI:** 10.4028/www.scientific.net/AMM.251.460; **Conference:** 2012 International Conference on Mechatronics and Materials Engineering, ICMME 2012, July 13, 2012 - July 14, 2012; **Sponsor:** Institute of Electronic and Information Technology; Zhejiang Economic and Trade Polytechnic; Dalian University of Technology; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Mechanical and Electronic Engineering, Xian Polytechnic University, Xian, China (2) School of Mechanical Engineering, Xian Shiyou University, Xian, China
Abstract: Yarn unevenness is one of the important indexes which presents the evenness of polyester POY filament and affects the performances of the filament. The principle of capacitive evenness tester Uster and the measurement method are described in this paper. The influences of operating environment and the measuring conditions on determining the unevenness of polyester POY filament are discussed. The reasonable conditions are also pointed out, which will have the directive function for the evenness test work with Uster. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Yarn
Controlled terms: Wool
Uncontrolled terms: Influence factors - Measurement methods - Operating environment - Test - Yarn unevenness
Classification Code: 819.4 Fiber Products - 821.4 Agricultural Products
Database: Compendex
Data Provider: Engineering Village

270. Experiment investigation of superfine deep hole drilling mechanism for high temperature alloy 718

Liu, Z.F. (1); He, S.M. (1)
Source: *Materials Research Innovations*, v 17, n SUPPL. 1, p s229-s233, July 2013; **ISSN:** 14328917, **E-ISSN:** 1433075X; **DOI:** 10.1179/1432891713Z.000000000221; **Publisher:** Maney Publishing
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In this paper, the physical properties of high temperature alloy 718, the cutting machinability as well as the characteristics of deep hole drilling were discussed. Superfine deep hole drilling experiments for this alloy were performed with different drilling technological parameters. Tools made of different raw materials with different angles were discussed. Chips were removed from the inner side of the tagger tooth. The morphologies of drilling chip and disabled tool, as well as their formation mechanisms, were analysed. Identified from the wear and breakage of the tools, as well as the chip morphology, the optical tool material is YG813 for the superfine deep hole drilling of high temperature alloy 718, and the reasonable drilling parameters are explored. In addition, wear and breakage of the tool in the drilling process are extremely serious, and the mechanism of tool wear is mainly adhesive and abrasive wear. The ideal morphology of chips is in short conical spiral shape. © W. S. Maney & Son Ltd. 2013. (7 refs)
Main heading: Morphology
Controlled terms: Cutting tools - Wear of materials
Uncontrolled terms: Adhesive and abrasive wears - Cutting machinability - Deep holes - Drilling parameters - Experiment investigation - Formation mechanism - Technological parameters - Wear of tools
Classification Code: 603.2 Machine Tool Accessories - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

271. Training mode design of ESP teachers in universities of science and engineering

Chen, Ke (1)
Source: *Advanced Materials Research*, v 712-715, p 3129-3132, 2013, *Advances in Manufacturing Science and Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037857243; **DOI:** 10.4028/www.scientific.net/AMR.712-715.3129; **Conference:** 4th International Conference on Manufacturing Science and Engineering, ICMSE 2013, March 30, 2013

- March 31, 2013; **Sponsor:** Northeastern University; Harbin Institute of Technology; Jilin University; Hong Kong Industrial Technology Research Centre; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Foreign Languages, Xi'an Shiyou University, Xi'an, 710075, China
Abstract: With the development of global economy and science, the research on ESP teaching has become increasingly the focus of scholars at home and abroad, and the development of ESP teachers is the key factor to ESP teaching. Through the research on professional development of ESP teacher in University of Science and Engineering of Shaanxi Province, we analyze the factors that have influence on ESP teachers development, finally put forward the idea that training mode of ESP teachers in University of Science and Engineering must be based on students' occupation demand, and ESP teachers should constantly update their knowledge structure. Only in this way, can the quality of ESP teacher in University of Science and Engineering be promoted, and they will develop into "applied teachers" who can be in line with the future direction of economic development in China. © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Teaching
Controlled terms: Economic and social effects - Personnel training - Economics
Uncontrolled terms: Economic development - ESP teachers - Global economies - Key factors - Knowledge structures - Professional development - Science and engineering - Training mode
Classification Code: 912.4 Personnel - 971 Social Sciences
Database: Compendex
Data Provider: Engineering Village

272. Experimental study on low-temperature cold cutting technology

Li, Ji Lin (1); Zhu, Lin (1)
Source: *Advanced Materials Research*, v 834-836, p 795-798, 2013, *Research in Materials and Manufacturing Technologies*; **ISSN:** 10226680; **ISBN-13:** 9783037859162; **DOI:** 10.4028/www.scientific.net/AMR.834-836.795; **Conference:** 2013 3rd International Conference on Materials and Products Manufacturing Technology, ICMPMT 2013, September 25, 2013 - September 26, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Abstract: With the development of environment-friendly cutting technology, the low-temperature MQL technology emerged. In order to solve the problem that caused by cutting heat, it adds the cold air on the foundation of MQL. In the view of low-temperature MQL studies which could reduce the cutting force and heat, we have done a lot of experiments. The experimental results show that the most important reason why the low-temperature MQL can reduce the cutting force effectively is a reliable lubricant film that between tool and chip. At the same time, the cold air take away a large amount of heat thereby is reducing the temperature of the tool, so that extending the tool's service life. © (2014) Trans Tech Publicutions, Switzerland. (5 refs)
Main heading: Temperature
Controlled terms: Cutting
Uncontrolled terms: Cutting forces - Cutting technology - Environment friendly - Film formations - Large amounts - Low temperatures - Lubricant films - MQL technology
Classification Code: 641.1 Thermodynamics
Database: Compendex
Data Provider: Engineering Village

273. Study on the flow- induced corrosion of P110 oil tube with an electrochemical method

Wang, Zhi-Guo (1); Li, Zhen (1); Liu, Xiao-Yan (1); Dou, Yi-Hua (1)
Source: *Advanced Materials Research*, v 683, p 396-399, 2013, *Advanced Materials and Engineering Materials II*; **ISSN:** 10226680; **ISBN-13:** 9783037856666; **DOI:** 10.4028/www.scientific.net/AMR.683.396; **Conference:** 2nd International Conference on Advanced Materials and Engineering Materials, ICAMEM 2012, December 29, 2012 - December 30, 2012; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Electrochemical measurements have been used to investigate the flow-induced corrosion behaviors of P110 oil tube in 3.5wt% NaCl solution. The corrosion rates were calculated by linear polarization resistance method and weak polarization method respectively. The results demonstrated that corrosion rate of P110 steel increases sharply with the flow velocity increase when the impact angle is 30°, but it reach the first plateau when the fluid velocity changes from 5.6 m/s to 7.8 m/s and the corrosion rate increases sharply again when the velocity beyond 7.8 m/s. After that, corrosion rate decrease when the velocity is more than 10.0m/s. It is demonstrated that the corrosion rate of

steel P110 is controlled by cathode reaction of oxygen diffusion in the 3.5 wt % NaCl solution when the flow velocity is over 10.0m/s. © (2013) Trans Tech Publications, Switzerland. (12 refs)
Main heading: Corrosion rate
Controlled terms: Polarization - Sodium chloride - Corrosive effects - Steel corrosion - Electrochemical corrosion - Flow velocity - Velocity
Uncontrolled terms: 3.5 wt% NaCl solution - Cathode reactions - Electrochemical measurements - ELectrochemical methods - Flow induced corrosion - Fluid velocities - Linear polarization resistance - Weak polarization
Classification Code: 539.1 Metals Corrosion - 545.3 Steel - 631 Fluid Flow - 801.4.1 Electrochemistry - 802.2 Chemical Reactions - 943.2 Mechanical Variables Measurements
Database: Compendex
Data Provider: Engineering Village

274. KED modeling of PLS mechanism

Peng, Yong (1); Bai, Xiao-xu (1)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 1319-1326, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.1319; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China
Abstract: For the super-size and large flexibility of Pipe Lay-down System, considering the influence on the mechanism from elastic deformation and mechanical vibration during the movements, the kineto-elastodynamics model is established by using the KED theory which is based on the analysis of kinematics. The PLS mechanism is divided into several finite elements. Dynamic equations of beam element are established in the local coordinate by using Lagrange's equation. In the process of changing from local coordinate into global coordinate, no longer considering the instantaneous structure assumes. In consideration of the first and second derivative of the coordinate transformation matrix versus time are not zero. The mass matrix, damping matrix and stiffness matrix of the final system kinematic differential equation are the function of time. It realizes the continuity of variable in the time domain. Derivation of the results in this paper lays a foundation for the next more accurate and efficient methods being applied to solve the KED equation of PLS mechanism. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Stiffness matrix
Controlled terms: Kinematics - Vibration analysis - Time domain analysis - Differential equations - Linear transformations
Uncontrolled terms: Beam elements - Co-ordinate transformation - Damping matrices - Dynamic equations - Finite Element - Function of time - Global coordinates - KED - Lagrange's equation - Large flexibility - Local coordinate - Mass matrices - PLS - Second derivatives - Super-size - System kinematics - Time domain
Classification Code: 921 Mathematics - 921.1 Algebra - 921.2 Calculus - 921.3 Mathematical Transformations - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

275. Second development of keller based on double-arc method

Chen, Yan (1); Zhu, Lin (1)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 1453-1456, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.1453; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Abstract: Keller SYMPlus CNC is developed by Germany Keller Software Company, which has powerful simulation function of NC machining. Based on the current Keller software (version 5.1) can't simulate and machine noncircular curve, only can machine circular arcs and straight lines.This article uses telescopic step method and double-arc method simulation noncircular curve, then imports DXF into Keller, finally realizes the machining and simulation of parts with non-circle curve. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Computer software
Controlled terms: Mechanics
Uncontrolled terms: Circular arc - DXF files - NC-machining - Non-circle curve - Non-circular - Second development - Software company - Step method

Classification Code: 723 Computer Software, Data Handling and Applications - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

276. Study on fluid-flow characteristics of a new type efficient uniform-flow packed equipment

Wang, Li (1); Zhou, Sanping (1)
Source: *Advanced Materials Research*, v 634-638, n 1, p 1643-1647, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.1643; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) Institute of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In order to deal with the "wall flow effect" and the "scaling effect" that commonly exist in packed tower, a new type of efficient symmetrical-flow packed equipment was developed. In the same condition, the symmetrical-flow packed equipment was studied comparatively with the common packed equipment by experimental and numerical simulation, and the results such as wall-flow contours and velocity distribution were given. The study results showed that the wall flow was significantly reduced by about 31% and the gas-liquid velocity was more uniformly distributed compared to the normal packed tower. The results showed that the symmetrical-flow packed equipment had a very good effect on improving the uniform distribution of the macroscopic flowing of fluid. The symmetrical-flow packed equipment, therefore, can effectively reduce the "wall-flow effect" and eliminated the "scaling effect", and also increase the mass transfer efficiency of the packed tower is improved. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Mass transfer
Controlled terms: Wall flow - Velocity distribution
Uncontrolled terms: Flow effects - Gas liquids - Hydrodynamic performance - Mass transfer efficiency - Packed tower - Scaling effects - Uniform distribution - Wall-flow effect
Classification Code: 631.1 Fluid Flow, General - 641.3 Mass Transfer - 922.2 Mathematical Statistics
Database: Compendex
Data Provider: Engineering Village

277. Theoretical analysis of seismic response for marine drilling risers

Li, Jun Qiang (1); Li, Yi Fan (1); Peng, Yong (1)
Source: *Applied Mechanics and Materials*, v 423-426, p 1531-1536, 2013, *Applied Materials and Technologies for Modern Manufacturing*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858882; **DOI:** 10.4028/www.scientific.net/AMM.423-426.1531; **Conference:** 3rd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2013, August 24, 2013 - August 25, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Mechanical Engineering Institute, Xi'an Shiyou University, shaanxi xi'an 710065, China
Abstract: With the continuous development of the marine oil industry, risers have become necessary equipment in offshore drilling engineering. On the basis of mode-superposition response spectrum method which is used commonly in anti-seismic design, the seismic responses of the marine drilling riser is analyzed on the theoretical and the related anti-seismic calculation formulas of the discrete system are promoted to the continuous system. The earthquake force and the resultant internal forces when the earthquake happening are analyzed and calculated. The calculation formulas of shear force and bending moment for each cross section of a riser under the earthquake action are deduced, which can offers some theoretical reference for riser engineering design when considering earthquake action. © (2013) Trans Tech Publications, Switzerland. (9 refs)
Main heading: Bending moments
Controlled terms: Offshore oil wells - Earthquakes - Offshore drilling - Drilling platforms - Seismic design - Seismic response
Uncontrolled terms: Calculation formula - Continuous development - Drilling engineering - Earthquake action - Engineering design - Response spectrum methods - Riser - Shear force
Classification Code: 408 Structural Design - 408.2 Structural Members and Shapes - 484 Seismology - 484.2 Secondary Earthquake Effects - 484.3 Earthquake Resistance - 511.2 Oil Field Equipment - 512.1.1 Oil Fields - 674.2 Marine Drilling Rigs and Platforms
Database: Compendex
Data Provider: Engineering Village

278. Preliminary study on mechanism of superalloy deep-hole honing technology

Lin, Pan (1); Lin, Zhu (1)
Source: *Applied Mechanics and Materials*, v 271, n PART 1, p 353-356, 2013, *Frontiers of Manufacturing and Design Science III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855782; **DOI:** 10.4028/www.scientific.net/AMM.271-272.353; **Conference:** 3rd International Conference on Frontiers of Manufacturing and Design Science, ICFMD 2012, December 11, 2012 - December 13, 2012; **Sponsor:** Control Eng. Inf. Sci. Res. Assoc.; International Frontiers of science; and technology Research Association; National Chin-Yi University of Technology; Integrated Research Center for Green Living Techniques; Trans Tech Publication; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an; 710065, China
Abstract: Anglicizing the superalloy mechanical and cutting characteristics, and according to the oil-stone grinding characteristics, choose the current commonly abrasives in the domestic. Processing performance test of inconel 718 deep-hole honing is carried out. The comparison test results show that the grinding performance of ceramic corundum is better than other oilstones at test condition. Grinding characteristics of ceramic corundum is carried on, study show that the size of ceramic alumina grits range from 0.067 to 0.005 μm, The grinding passivated tiny grains of ceramic corundum oil-stone broken and fall off timely, which is beneficial to oil-stones, self-sharpness. The excellent performance of ceramic corundumcan self-sharpening can improves the efficiency of honing effectively. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Corundum
Controlled terms: Honing - Aluminum oxide - Superalloys - Ceramic materials - Grinding (machining) - Abrasives
Uncontrolled terms: Comparison test - Cutting characteristics - Grinding characteristics - Grinding performance - Inconel-718 - Processing performance - Self-sharpening - Test condition
Classification Code: 482.2 Minerals - 531 Metallurgy and Metallography - 604.2 Machining Operations - 606.1 Abrasive Materials - 804.2 Inorganic Compounds - 812.1 Ceramics
Database: Compendex
Data Provider: Engineering Village

279. Research of mechanical system on rotary steering drilling tool

Yan, Wen Hui (1); Peng, Yong (1); Zhang, Shao Huai (1); Wu, Heng (1)
Source: *Applied Mechanics and Materials*, v 345, p 511-515, 2013, *Advanced Research on Mechanical Engineering, Industry and Manufacturing Engineering III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857793; **DOI:** 10.4028/www.scientific.net/AMM.345.511; **Conference:** 2013 3rd International Conference on Mechanical Engineering, Industry and Manufacturing Engineering, MEIME 2013, June 22, 2013 - June 23, 2013; **Sponsor:** International Science and Education Researcher Association, China; Beijing Gireida Education Research Center; VIP-Information Conference Center, China; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) Mechanical Engineering School, Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: The paper introduces rotary steering drilling tool developed by authors' research group in detail. The tool is composed of four modules of the power, measurement, control and executive mechanism. The composition and detailed mechanical structure of stable platform section and executive mechanism have been revealed. The main units and field test in the process of research have been introduced briefly, including disc valve friction in executive mechanism, test device for back up plate force, indoor synthesis waterpower test and field test of the tool. Key difficulties of design, machining, install and field test in research has been summarized. The tool has realized drilling function, and has been developed better for industrialized application. © (2013) Trans Tech Publications, Switzerland. (13 refs)
Main heading: Testing
Controlled terms: Mechanics
Uncontrolled terms: Drilling tool - Executive mechanism - Mechanical structures - Mechanical systems - Research groups - Rotary steering - Rotary steering drilling tools - Stable platform
Classification Code: 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

280. Modeling and analysis of IoT real-time system using TCPN (*Open Access*)

Yang, Huaizhou (1); Pan, Shaowei (1)
Source: *Information Technology Journal*, v 12, n 9, p 1707-1716, 2013; **ISSN:** 18125638, **E-ISSN:** 18125646; **DOI:** 10.3923/itj.2013.1707.1716; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) College of Computer Science, Xi'an Shiyou University, Xi'an 710065, China

Abstract: The time-sensibility is an important feature of Internet of Things (IoT). For the purpose of accurately modeling the IoT real-time systems with complex timing constraints and eliminating timing constraint conflicts, in this study, Timing Constraint Petri Net (TCPN) is chosen as an unitized modeling method of timing constraints and system orchestration process. A method of temporal behavior analysis and verification is presented to find and eliminate timing constraint conflicts from local and global viewpoints, respectively. Some important analysis and verification formulas are presented and proved. Via model analysis and verification, the period of validity of each system activity can be obtained, which facilitates the system monitoring and management. By an example, the effectiveness of the proposed method is illustrated. The proposed method can help to guarantee the timely and successful response of each system activity and furthermore, it can help to guarantee the stability and reliability of IoT real-time system. © 2031 Asian Network for Scientific Information. (13 refs)
Main heading: Petri nets
Controlled terms: Interactive computer systems - Timing circuits - Internet of things - Real time systems
Uncontrolled terms: Analysis and verifications - Important features - Internet of Things (IOT) - Model and analysis - Stability and reliabilities - Temporal behavior - Timing Analysis - Timing constraints
Classification Code: 713.4 Pulse Circuits - 722.3 Data Communication, Equipment and Techniques - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

281. Mechanism of the effect of components interaction on wax precipitation process in crude oil

Chen, Gang (1); Li, Xiaolong (1); Zhang, Jie (1)
Source: *Shiyou Xuebao, Shiyou Jiagong/Acta Petrolei Sinica (Petroleum Processing Section)*, v 29, n 5, p 844-850, October 2013; **Language:** Chinese; **ISSN:** 10018719; **DOI:** 10.3969/j.issn.1001-8719.2013.05.016; **Publisher:** Science Press
Author affiliation: (1) College of Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: With chromatogram separation, differential scanning calorimetry (DSC) and optical microscope methods the components of two crude oils from Changqing and Yumen oil field were separated and their effect mechanisms on the wax precipitation process were studied. The results indicated that the compositions of the two crude oils were quite different. The interaction between the components of the crude oil could inhibit the precipitation of wax crystal effectively. For the crude oil from Changqing oil field, the wax-appearing temperature decreased by 6.45°C, and the wax-appearing peak temperature decreased by 6.64°C, compared to that of the saturated hydrocarbon component (Ch1). For the crude oil from Yumen oil field, the wax-appearing temperature decreased by 3.46°C, and wax-appearing peak temperature decreased by 6.14°C, compared to that of the saturated hydrocarbon component (Y1). The behaviors of Ch1 with different polarity components added were quite different from the crude oil. The addition of resin and asphaltene to Ch1 increased the number of wax crystal particles and decreased their dimensions during the cooling crystallization process, which prevented the particles from contact and crosslink each other to form bulk wax crystal aggregation. (15 refs)
Main heading: Differential scanning calorimetry
Controlled terms: Chromatographic analysis - Calorimeters - Precipitation (chemical) - Crude oil - Hydrocarbons - Oil well flooding
Uncontrolled terms: Components interaction - Cooling crystallization - Effect mechanism - Peak temperatures - Saturated hydrocarbons - Wax crystals - Wax precipitation
Classification Code: 511.1 Oil Field Production Operations - 512.1 Petroleum Deposits - 802.3 Chemical Operations - 804.1 Organic Compounds - 944.5 Temperature Measuring Instruments - 944.6 Temperature Measurements
Database: Compendex
Data Provider: Engineering Village

282. Towards pumping unit energy-saving: A fuzzy networks approach (*Open Access*)

Tian-Shi, Liu (1); Yu, Wei (1); Liu-Mei, Zhang (1)
Source: *Information Technology Journal*, v 12, n 22, p 6557-6560, 2013; **ISSN:** 18125638, **E-ISSN:** 18125646; **DOI:** 10.3923/itj.2013.6557.6560; **Publisher:** Asian Network for Scientific Information
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, 710065, Xi'an, China

Abstract: This study firstly defines a resource waste problem of oil exploration. It combines the interval pumping mechanism and fuzzy neural network algorithm to forecast the amount of liquid pumping capacity. Then it determines the reasonable interval time for the pumping unit by comparing the predicted liquid production and the standard liquid production. The algorithm simulates by Matlab to verify the accuracy of its economic value. The experimental results show that the energy-saving algorithm reduces the energy consumption and increases the profit sharply. © 2013 Asian Network for Scientific Information. (12 refs)
Main heading: Energy conservation
Controlled terms: Liquids - Pumps - Fuzzy inference - Energy utilization - Fuzzy neural networks - Pumping plants - Production efficiency
Uncontrolled terms: Economic values - Liquid pumping - Oil exploration - Production efficiency - Pumping mechanism - Pumping unit - Resource wastes - Standard liquids
Classification Code: 446 Waterworks - 525.2 Energy Conservation - 525.3 Energy Utilization - 618.2 Pumps - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.4 Artificial Intelligence - 723.4.1 Expert Systems - 913 Production Planning and Control; Manufacturing - 913.4 Manufacturing
Open Access type(s): All Open Access, Bronze
Database: Compendex
Data Provider: Engineering Village

283. Research on technology test of 304 stainless steel super long deep-hole drilling

Liu, Zhan Feng (1); Xu, Meng (1)
Source: *Advanced Materials Research*, v 774-776, p 1137-1140, 2013, *Advanced Technologies in Manufacturing, Engineering and Materials*; **ISSN:** 10226680; **ISBN-13:** 9783037858004; **DOI:** 10.4028/www.scientific.net/AMR.774-776.1137; **Conference:** 2013 International Forum on Mechanical and Material Engineering, IFMME 2013, June 13, 2013 - June 14, 2013; **Sponsor:** Korea Maritime University; Inha University; Hong Kong Industrial Technology Research Centre; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an ShiYou University, Xi'an 710065, China
Abstract: In this paper, through the analysis of 304 stainless steel to elaborate the influence of various factors in the process of drilling from the blade material,tool geometry parameters,cutting parameters and drilling methods.It is proved by selecting reasonable processing, cutting tools and cutting parameters (f{cyrillic}D50mm × 4700mm) 304 stainless steel parts of the drilling process issues can be resolved. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Austenitic stainless steel
Controlled terms: Cutting tools - Cutting - Turning
Uncontrolled terms: 304 stainless steel - Cutting parameters - Deep-hole drilling - Drilling process - Drilling technology - Super longs - Tool geometry
Classification Code: 545.3 Steel - 603.2 Machine Tool Accessories - 604.2 Machining Operations
Database: Compendex
Data Provider: Engineering Village

284. Study of the erosion-corrosion behavior of p110, n80 and vm140 steel in 3.5wt.%nacl solutions with sand

Dou, Yi-Hua (1); Li, Yang (1); Wang, Zhi-Guo (1); Li, Zhen (1)
Source: *Advanced Materials Research*, v 683, p 353-356, 2013, *Advanced Materials and Engineering Materials II*; **ISSN:** 10226680; **ISBN-13:** 9783037856666; **DOI:** 10.4028/www.scientific.net/AMR.683.353; **Conference:** 2nd International Conference on Advanced Materials and Engineering Materials, ICAMEM 2012, December 29, 2012 - December 30, 2012; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: With the development of hydraulic fracturing technology, the failure of the equipments during production test and completion well becomes more and more severe due to the behaviors of erosion-corrosion. In this paper, the erosion-corrosion behaviors of N80, P110 and VM140 materials were investigated with the jet impingement experimental device. The corrosive rate of these materials by the weight loss method was carried out under different flow velocities and jet angles. It was observed that the weight loss of the three materials is increased by the rising of the impact velocity. The relation of erosion-corrosion weight loss to impact velocity is well described as the equation E=KVn (E is the speed, V is fluid velocity, k and n are the fitting parameters). As a results, the resistance ability for corrosion-erosion under experimental conditions is P110>N80>VM140. © (2013) Trans Tech Publications, Switzerland. (6 refs)

Main heading: Erosion
Controlled terms: Jets - Steel corrosion - Velocity - Hydraulic fracturing - Sodium chloride - Corrosive effects - Hydraulic machinery
Uncontrolled terms: 3.5wt.% nacl - Erosion-corrosion - Erosion-corrosion behavior - Experimental conditions - Experimental devices - Fitting parameters - Jet impingement - Weight loss method
Classification Code: 512.1.2 Petroleum Deposits : Development Operations - 539.1 Metals Corrosion - 545.3 Steel - 631.1 Fluid Flow, General - 632.2 Hydraulic Equipment and Machinery
Database: Compendex
Data Provider: Engineering Village

285. Accumulation conditions and characteristics of the Chang 7 tight oil reservoir of the the Yanchang Formation in Zhidan area, Ordos Basin

Bai, Yubin (1, 2); Zhao, Jingzhou (1, 2); Zhao, Zilong (1); Yin, Yueyue (1); Tong, Jiangnan (1)
Source: *Oil and Gas Geology*, v 34, n 5, p 631-639, October 2013; **Language:** Chinese; **ISSN:** 02539985; **DOI:** 10.11743/ogg20130508; **Publisher:** Editorial Department of Oil and Gas Geology
Author affiliation: (1) School of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) Key Laboratory of Shaanxi Province for Oil and Gas Accumulation Geology, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: Through integration of geological and geochemical data, this paper comprehensively analyzed the conditions, main controlling factors and characteristics of oil accumulation in the Chang 7 tight oil reservoir from such aspects as the tight oil distribution, physical properties, geochemical features of the oil source, reservoir characteristics and heterogeneity, trap conditions, and oil and water distribution. The following results were obtained. The Chang 7 tight oil reservoirs own the geological conditions and characteristics for the formation of quasi-continuous oil and gas accumulation. The Chang 7 reservoir interval contains high-quality source rocks, of which the Zhangjiatan shale in the Chang 73 layer is the best one. The outer boundary of the tight oil reservoirs is controlled by the distribution of the source rocks. The favorable area of hydrocarbon accumulation occur in where the thickness of hydrocarbon source rocks is over 20 m. The Chang 7 tight oil accumulation has favorable source-reservoir-seal assemblages and the gravity flow sandbodies occur in the mudstone or source rocks mainly in lenticular or stripped shapes, thus are advantageous in trapping oil and gas. The importance of trapping conditions is relatively low for the accumulation of oil in the Chang 7 tight reservoir, as the main seals are lithological, physical property and diagenesis boundaries. Dynamic trap is also an important trap type. Oil enrichment in the Chang 7 tight reservoir has no direct relationship with the local tectonic background, instead is mainly controlled by reservoir distribution and their physical properties. The high intensity of hydrocarbon generation, expulsion and charging results in the relatively high original oil saturation in the Chang 7 reservoir. Due to the influences of the origin material composition and diagenetic intensity, the Chang 7 reservoir is of strong heterogeneity, resulting in the poor differentiation of oil, gas and water, and a complicated oil-water contact in the tight reservoir. (27 refs)
Main heading: Petroleum reservoir engineering
Controlled terms: Geochemistry - Lithology - Metamorphic rocks - Oil wells - Petroleum prospecting - Petroleum reservoirs - Physical properties - Rocks - Water supply systems
Uncontrolled terms: Accumulation characteristics - Accumulation condition - Ordos Basin - Tight oil - Yanchang Formation - Zhidan area
Classification Code: 446.1 Water Supply Systems - 481 Geology and Geophysics - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 931.2 Physical Properties of Gases, Liquids and Solids
Database: Compendex
Data Provider: Engineering Village

286. Theoretical investigations on phase stability, elastic constants and electronic structures of D022- and L12-Al3Ti under high pressure

Li, Jian (1, 2); Zhang, Ming (3); Luo, Xian (2)
Source: *Journal of Alloys and Compounds*, v 556, p 214-220, April 15, 2013; **ISSN:** 09258388; **DOI:** 10.1016/j.jallcom.2012.12.135; **Publisher:** Elsevier Ltd
Author affiliation: (1) School of Materials Science and Engineering, Xi'An Shiyou University, Xi'an 710065, China (2) School of Materials, Northwestern Polytechnical University, Xi'an 710072, China (3) School of Petroleum Engineering, Xi'An Shiyou University, Xi'an 710065, China
Abstract: Phase stability, elastic and thermodynamic properties, and electronic structure of titanium trialuminide (Al3Ti) with Ll2 and D022 structures under pressure up to 40 GPa have been investigated using first-principles

calculations. The equilibrium structure and formation energy show that L12-Al3Ti is stable when the pressure is higher enough, approximately above than 20-30 GPa. The elastic constants, anisotropy index and Debye temperature of both phases increase with the pressure going up, and L12-Al3Ti has better ductility, smaller anisotropy and lower Debye temperature than D022-A13Ti. The pressure-induced Ti-3d delocalization can strengthen its orbital hybridization with Al(s,p), which leads to stronger atomic bonding, and subsequently makes the L12-Al3Ti more stable under high pressure. (64 refs)
Main heading: Titanium alloys
Controlled terms: Calculations - Titanium compounds - Anisotropy - Phase stability - Electronic structure - Aluminum alloys - Binary alloys - Elastic constants
Uncontrolled terms: Anisotropy indices - Equilibrium structures - First principles - First-principles calculation - High pressure - Orbital hybridization - Theoretical investigations - Titanium tri-aluminide
Classification Code: 541.2 Aluminum Alloys - 542.3 Titanium and Alloys - 801.4 Physical Chemistry - 921 Mathematics - 931.2 Physical Properties of Gases, Liquids and Solids
Funding Details: Number: YS32030203,Z08038, Acronym: XSYU, Sponsor: Xi'an Shiyou University;
Funding text: The authors acknowledge the financial support for the research from the material processing key subject of Xi’an Shiyou University (YS32030203) and Technology Creative Foundation of Xi’an Shiyou University (Z08038).
Database: Compendex
Data Provider: Engineering Village

287. First-principles investigation on the electronic and magnetic properties of cubic Be0.75Mn0.25X (X = S, Se, Te)

Li, Jian (1, 3); Xu, Xueli (1); Zhou, Yong (1); Zhang, Ming (2); Luo, Xian (3)
Source: *Journal of Alloys and Compounds*, v 575, p 190-197, 2013; **ISSN:** 09258388; **DOI:** 10.1016/j.jallcom.2013.04.096; **Publisher:** Elsevier Ltd
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (3) School of Materials, Northwestern Polytechnical University, Xi'an 710072, China
Abstract: The structural, electronic and magnetic parameters of Be0.75Mn0.25X (X = S, Se, Te) are investigated using first-principles calculations. The thermodynamic stability of these Mn-doped semiconductors can be confirmed by the negative energetic quantities of formation energy and cohesive energy, and the stability decrease from Be0.75Mn0.25S to Be0.75Mn0.25Te with the magnitude of energetic quantities decrease as the same order. Calculated from the band structures, Be0.75Mn0.25X have smaller band gaps (1.49 eV, 1.36 eV, 0.78 eV for X = S, Se, Te, respectively) than BeX. The density of states and valence electron distribution plots indicate that the atomic bonding of Be0.75Mn0.25X is mainly contributed from the interactions between Mn-d and X-p. And the electronic interaction weakens from Be0.75Mn0.25S to Be0.75Mn0.25Te. The local magnetic moment of Mn, the exchange splitting energies, and exchange constants can be obtained from the spin-polarized electronic structures and density of states plots, the splitting energy Dx(d) is positive while Dx(pd) is negative, the exchange constants N0a and N0b are negative. And all of them increase along with X atom radius increasing, which implies the effective potential for down-spin is more attractive than that for up-spin, and it decreases along with the X atom changing from S to Te. N0a and N0b suggest that the interactions of Be(2s)-Mn(3d) states and X(p)-Mn(3d) states are all attractive, and the interactions of s-d and p-d weakens with the same sequence. (103 refs)
Main heading: Thermodynamic stability
Controlled terms: Electronic structure - Magnetic moments - Sulfur compounds - Diluted magnetic semiconductors - Energy gap - Atoms - Calculations - Semiconducting tellurium compounds - Inorganic compounds
Uncontrolled terms: Dilute magnetic semiconductors - Electronic and magnetic properties - Electronic interactions - First principles - First-principles calculation - First-principles investigations - Local magnetic moments - Mn-doped
Classification Code: 641.1 Thermodynamics - 701.2 Magnetism: Basic Concepts and Phenomena - 708.4 Magnetic Materials - 712.1 Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 804.2 Inorganic Compounds - 921 Mathematics - 931.3 Atomic and Molecular Physics
Funding Details: Number: Z08038,YS32030203, Acronym: -, Sponsor: -;
Funding text: The authors acknowledge the financial support for the research from the material processing key subject of Xi’an Shiyou University (YS32030203) and Technology Creative Foundation of Xi’an Shiyou University (Z08038).
Database: Compendex
Data Provider: Engineering Village

288. The study of thread parameter based on machine vision for automatic measurement

Chao, Jing (1); Liu, Zhan Feng (1); Liu, Yan Shu (1)
Source: *Applied Mechanics and Materials*, v 401-403, p 1158-1161, 2013, *Frontiers of Manufacturing Science and Measuring Technology III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858462; **DOI:** 10.4028/www.scientific.net/AMM.401-403.1158; **Conference:** 3rd International Conference on Frontiers of Manufacturing Science and Measuring Technology, ICFMM 2013, July 30, 2013 - July 31, 2013; **Sponsor:** Control Engineering and Information Science; Research Association; International Frontiers of science and technology; Research Association; Trans Tech Publications; Chin-Yi University of Technology; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: In order to improve the measurement accuracy of thread parameter and can realize the automatic measurement of parameter, this paper propose a non-contact measuring method which is based on machine vision, we use the industrial linear array CCD with high-precision scan the projection of the thread which in the field of parallel light, using the image recognition, image acquisition, image data processing technology enable your computer finish the pitch diameter, thread pitch, tooth type angle on a non-contact of real-time, on-line measurement. This article also provides detailed measuring method with the main parameters of thread. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Parameter estimation
Controlled terms: Image enhancement - Manufacture - Computer vision - Data handling - Image acquisition - Image recognition
Uncontrolled terms: Automatic measurements - Image data processing - Measurement accuracy - Measurement methods - Measuring method - Non-contact measuring - On-line measurement - Thread parameter
Classification Code: 537.1 Heat Treatment Processes - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 723.5 Computer Applications - 741.2 Vision - 913.4 Manufacturing
Database: Compendex
Data Provider: Engineering Village

289. The research and application of reactive compensation technology for oilfield 10kV lines

Wu, Xiao Meng (1); Feng, Yuan (1); Xiang, Xiao Mei (1)
Source: *Applied Mechanics and Materials*, v 397-400, p 1906-1908, 2013, *Advanced Design and Manufacturing Technology III*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858431; **DOI:** 10.4028/www.scientific.net/AMM.397-400.1906; **Conference:** 3rd International Conference on Advanced Design and Manufacturing Engineering, ADME 2013, July 13, 2013 - July 14, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Electronic Engineering, Xi'an Shiyou university, Shanxi, Xi'an 710065, China
Abstract: There are three modes of reactive compensation. Analysis on the present situation of oilfield distribution, the on-spot mode is adopted in this paper. An approach for 10kV lines reactive power compensators of oil field distribution networks is put forward. At the same time, combined with the concentrated compensation and grouping compensation, the total number of capacitors and the investment are calculated. The feasibility of the proposed method is showed by the results of an example. the power factor is improved, the quality and reliability are also mended. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Oil well flooding
Controlled terms: Electric power factor
Uncontrolled terms: 10kV - Power factors - Present situation - Reactive compensation - Reactive power compensator - Research and application
Classification Code: 511.1 Oil Field Production Operations
Database: Compendex
Data Provider: Engineering Village

290. Supplement of several problems in roller chain drive design

Lu, Pin (1)
Source: *Advanced Materials Research*, v 774-776, p 176-179, 2013, *Advanced Technologies in Manufacturing, Engineering and Materials*; **ISSN:** 10226680; **ISBN-13:** 9783037858004; **DOI:** 10.4028/www.scientific.net/AMR.774-776.176; **Conference:** 2013 International Forum on Mechanical and Material Engineering, IFMME 2013, June 13, 2013 - June 14, 2013; **Sponsor:** Korea Maritime University; Inha University; Hong Kong Industrial Technology Research Centre; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou Univercity, Shanxi, Xi'an, 71006, China

Abstract: Some important problems in roller chain drive design are not full explaned in the textbooks and manuals of machain design.The issues such as basic parameters,geometric dimensioning, sprocket's part drawings,the design of roller chain drive while low velocity, which are discussed here. © (2013) Trans Tech Publications, Switzerland. (2 refs)
Main heading: Sprockets
Controlled terms: Chains - Rollers (machine components)
Uncontrolled terms: Basic parameters - Low velocities - Problems supplement - Roller-chain drive
Classification Code: 601.2 Machine Components - 602.1 Mechanical Drives
Database: Compendex
Data Provider: Engineering Village

291. Simulating on a new elastic element of FBG accelerometer

Shao, Jun (1); Jia, Zhenan (2); Liu, Junhua (3)
Source: *Advanced Materials Research*, v 655-657, p 689-692, 2013, *Engineering Solutions for Manufacturing Processes*; **ISSN:** 10226680; **ISBN-13:** 9783037856482; **DOI:** 10.4028/www.scientific.net/AMR.655-657.689;
Conference: 2012 3rd International Conference on Advances in Materials and Manufacturing Processes, ICAMMP 2012, December 22, 2012 - December 23, 2012; **Sponsor:** University of Wollongong, Australia; Northeastern University, China; University of Science and Technology Beijing; Hong Kong Industrial Technology Research Centre;
Publisher: Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) Key Lab. of Optical Fiber Sensing, Xi'an Shiyou University, Xi'an, 710065, China (3) School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, 710049, China
Abstract: A new elastic element of fiber Bragg grating(FBG) accelerometer which is four peripheral clamped trapezoidal beams is developed. The simulation of this elastic element with ANSYS is carried out. From the results, it shows that as an elastic element, four beams have the advantages of lower cross-axis sensitivity which is smaller than 52 dB and nearly uniform strain along the grating area. In addition, its work frequency is higher than the single beam constituting four beams. This kind of elastic element not only can be used with fiber Bragg grating accelerometer, but also other types of sensors. © (2013) Trans Tech Publications, Switzerland. (12 refs)
Main heading: Accelerometers
Controlled terms: Elasticity - Fiber Bragg gratings
Uncontrolled terms: Cross-axis sensitivity - Elastic element - Fiber bragg grating accelerometer - Fiber gratings - Four trapezoidal beams - Simulation - Single beam - Work frequency
Classification Code: 943.1 Mechanical Instruments
Database: Compendex
Data Provider: Engineering Village

292. Research on critical chain multi-project scheduling optimization

Li, Jun-Ting (1); Yang, Rui-Juan (1)
Source: *Jisuanji Jicheng Zhizao Xitong/Computer Integrated Manufacturing Systems, CIMS*, v 19, n 3, p 631-640, March 2013; **Language:** Chinese; **ISSN:** 10065911; **Publisher:** CIMS
Author affiliation: (1) School of Economics and Management, Xi'an Shiyou University, Xi'an 710065, China
Abstract: CCPM (Critical Chain Project Management) considered people's behavior factors in project scheduling, but project scheduling theory didn't directly relate to people's behavior factors, therefore it was difficult to include them and got effective project network planning. The relationship of people's behavior factors and critical chain project scheduling, people's behavior factors on critical chain multi-project scheduling were analyzed. Then a mathematical optimization model, heuristic scheduling rules were proposed, and activity selection method was designed by adopting reverse topological sort for multi-project network, which based on critical chain multi-project planning to solve this problem. Further the relevant optimization algorithm was presented. Finally a case study was conducted to illustrate the solving processes of approach which revealed that it's effective to overcome the people's bad behavior, balance the resources for multi-project, and reduce the transfer of resources among projects. (10 refs)
Main heading: Scheduling
Controlled terms: Topology - Chains - Heuristic methods - Optimization - Behavioral research
Uncontrolled terms: Behavior factor - Critical chain - Critical Chain Project Management - Mathematical optimization model - Multi-project scheduling - Multi-projects - Optimization algorithms - Scheduling optimization
Classification Code: 461.4 Ergonomics and Human Factors Engineering - 602.1 Mechanical Drives - 912.2 Management - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.5 Optimization Techniques - 971 Social Sciences

Database: Compendex
Data Provider: Engineering Village

293. Research on the change of energy in the process of the micro bubble formation with dissolved air method

Yuguang, Fan (1); Zhao, Liu (1); Jingming, Li (1); Sanping, Zhou (1); Bing, Chen (1); Hongxian, Lin (1)
Source: *Advanced Materials Research*, v 664, p 390-394, 2013, *Environmental and Materials Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037856017; **DOI:** 10.4028/www.scientific.net/AMR.664.390; **Conference:** 2012 International Conference on Environmental and Materials Engineering, EME 2012, December 9, 2012 - December 10, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: The generation method of dissolved gas micro bubble is introduced in the paper. The micro bubble producing process can be divided into two stages-nucleation and expansion through analysis. The formation process and the free energy change of the micro bubble is analyzed according to the homogeneous nucleation theory, free energy change formula of the two process is derived, and relation between bubble radius and formation bubble number under certain conditions is also discussed. It is concluded that the smaller the radius of formed bubbles, the more free energy change and initial energy are needed according to the analysis of the relation above © (2013) Trans Tech Publications, Switzerland. (8 refs)
Main heading: Dissolution
Controlled terms: Bubble formation - Bubbles (in fluids) - Nucleation - Free energy
Uncontrolled terms: Bubble radius - Dissolved gas - Formation process - Free energy change - Generation method - Homogeneous nucleation - Initial energy - Micro-bubble
Classification Code: 631.1.2 Gas Dynamics - 641.1 Thermodynamics - 802.3 Chemical Operations - 933.1.2 Crystal Growth
Database: Compendex
Data Provider: Engineering Village

294. Study on redundant constraint in mechanism design

Lu, Pin (1)
Source: *Advanced Materials Research*, v 734-737, p 2788-2791, 2013, *Resources and Sustainable Development*; **ISSN:** 10226680; **ISBN-13:** 9783037857441; **DOI:** 10.4028/www.scientific.net/AMR.734-737.2788; **Conference:** 2013 2nd International Conference on Energy and Environmental Protection, ICEEP 2013, April 19, 2013 - April 21, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou Univercity, Shanxi, Xi'an 710065, China
Abstract: Two kinds of redundant constraints in mechanism and the application are discussed in this article. The calculation method of degree of freedom are given about two kinds of redundant constraints. The roles of redundant constraint for mechanism' s function is analysed. Some questions is noticed in mechanism design. © (2013) Trans Tech Publications, Switzerland. (1 refs)
Main heading: Degrees of freedom (mechanics)
Controlled terms: Machine design
Uncontrolled terms: Degree of freedom - Kinematic pairs - Mechanism design - Redundant constraints
Classification Code: 601 Mechanical Design - 931.1 Mechanics
Database: Compendex
Data Provider: Engineering Village

295. Interactive digital campus visual navigation system design and development

Yang, Wen Yang (1); Zhang, Liu Mei (1); Pan, Shao Wei (1); Fan, Zhi Xuan (1)
Source: *Applied Mechanics and Materials*, v 336-338, p 1422-1425, 2013, *Industrial Instrumentation and Control Systems II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037857519; **DOI:** 10.4028/www.scientific.net/AMM.336-338.1422; **Conference:** 2013 2nd International Conference on Measurement, Instrumentation and Automation, ICMIA 2013, April 23, 2013 - April 24, 2013; **Sponsor:** Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Xi'an, Shanxi 710065, China

Abstract: Designing an interactive virtual navigation system needs consideration of compositive features such as modelling, movement control and object selection. Those features are key to meet end user requirements. Current virtual navigation systems are not beneficial to popularize in the case of development environment, methods and technologies. That is because such systems have limited application area and costs. Proprietary development environment result in limited selection in system components while new development technologies are unlikely to be accepted as staggering capital costs. In this paper, we propose a feasible scheme and development environment to design an interactive virtual navigation system for creating and utilizing digital campus models. Furthermore, the scheme also captures user interactivities via mouse and keyboard for further controls and selections in virtual campus. By adequate consideration of user preferences and personalities, this system benefits in portability, flexibility; has a high degree of standardization and lower cost. © (2013) Trans Tech Publications, Switzerland. (11 refs)
Main heading: Navigation systems
Controlled terms: User interfaces - Costs - Human computer interaction
Uncontrolled terms: Development environment - Development technology - Digital campus - End user requirements - Man-machine interaction - Proprietary development - Virtual navigation - Visual navigation systems
Classification Code: 722.2 Computer Peripheral Equipment - 911 Cost and Value Engineering; Industrial Economics
Database: Compendex
Data Provider: Engineering Village

296. The origin of deep-water sandbody in Well LW3-1-1 in the Zhujiang Formation of Baiyun sag, Pearl River Mouth Basin

Xiao, Ling (1); Wang, Han (1); Wei, Qinlian (1)
Source: *Applied Mechanics and Materials*, v 295-298, p 2838-2841, 2013, *Progress in Environmental Protection and Processing of Resource*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037856499; **DOI:** 10.4028/www.scientific.net/AMM.295-298.2838; **Conference:** 2012 International Conference on Sustainable Energy and Environmental Engineering, ICSEEE 2012, December 29, 2012 - December 30, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Earth Sicences and Engineering, Xi'an Shiyou University, Xi'an, China
Abstract: According to comprehensive researches on indicators of lithology, indicators of primary sedimentary structures, bioclasts and matrix, summarize sedimentary characteristics and origin for sandbody in the Zhujiang formation of the Well LW3-1-1. The main rock types are mid-coarse grained sandstone with heavy coloured mudstone at its top and bottom,followed by very coarse grained sandstone with fine gravel occurs locally. It is showed that the sandstones are well sorted with very low content of mud, and possess high compositional maturity and textural maturity. Massive bedding, typical inverse graded bedding and inverse-normal graded bedding occur in the sandstones. So in general, it is a set of sedimentation of grain flow and density-modified grain flow. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Sandstone
Controlled terms: Sediment transport - Sustainable development - Ocean currents - Lithology - Sedimentology
Uncontrolled terms: Coarse-grained - Comprehensive research - Grain flow - Pearl River Mouth basin - Primary sedimentary structures - Sedimentary characteristics - Turbidity current - Zhujiang
Classification Code: 471.4 Seawater, Tides and Waves - 481.1 Geology - 482.2 Minerals
Database: Compendex
Data Provider: Engineering Village

297. Photocell surface contamination level detection instrument based on the microprocessor

Li, Kejian (1); Jia, Huiqin (1); Li, Huijuan (1)
Source: *Proceedings - 2013 5th Conference on Measuring Technology and Mechatronics Automation, ICMTMA 2013*, p 803-806, 2013, *Proceedings - 2013 5th Conference on Measuring Technology and Mechatronics Automation, ICMTMA 2013*; **ISBN-13:** 9780769549323; **DOI:** 10.1109/ICMTMA.2013.200; **Article number:** 6493851; **Conference:** 2013 5th Conference on Measuring Technology and Mechatronics Automation, ICMTMA 2013, January 16, 2013 - January 17, 2013; **Sponsor:** Central South University; Harbin Engineering University; **Publisher:** IEEE Computer Society
Author affiliation: (1) School of Electronic Engineering, Xi'An Shiyou University, Xi'an, Shanxi 710065, China
Abstract: This paper presented a method to test the photocell surface Contamination level, developed an instrument for detecting the contamination, which uses the microprocessor to decide which photocell is contamination. Inspection of photocell surface contamination is detected on the surface area of solid Comparison test to determine the use of

photovoltaic cells work under different light conditions, verifying the design of the optical cell of the feasibility of the proposed method. And this instrument includes such components: microprocessor, photoelectric sensor, A/D converter and display. If the level of acquired signal is not equal to zero, then Photocell is contaminated. The experiments show that the design can determine whether the contaminated surface of photovoltaic cells, as well as the degree of pollution can obtain the more accurate measurement. This instrument can meet the photocell contamination test requirements, and have the features of high performance price ratio. © 2013 IEEE. (8 refs)
Main heading: Photoelectrochemical cells
Controlled terms: Analog to digital conversion - Integrated circuit design - Cells - Contamination
Uncontrolled terms: Accurate measurement - Contaminated surfaces - Contamination levels - Degree of pollutions - Different lights - Photoelectric sensors - Surface contaminations - Test requirements
Classification Code: 461.2 Biological Materials and Tissue Engineering - 702.1 Electric Batteries - 714.2 Semiconductor Devices and Integrated Circuits
Database: Compendex
Data Provider: Engineering Village

298. Study on a new elastic element of fiber bragg grating accelerometer

Shao, Jun (1); Jia, Zhenan (2); Liu, Junhua (3)
Source: *Applied Mechanics and Materials*, v 278-280, p 813-816, 2013, *Advances in Mechatronics and Control Engineering*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855959; **DOI:** 10.4028/www.scientific.net/AMM.278-280.813; **Conference:** 2012 International Conference on Mechatronics and Control Engineering, ICMCE 2012, November 29, 2012 - November 30, 2012; **Sponsor:** Queensland University of Technology, Australia; Korea Maritime University; Hong Kong Industrial Technology Research Centre; Inha University, Korea; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Key Lab. of Optical Fiber Sensing, Xi'an Shiyou University, Xi'an 710065, China (3) School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, 710049, China
Abstract: A new elastic element of fiber Bragg grating accelerometer which is four peripheral clamped trapezoidal beams is developed. On the basis of analyzing the mechanical condition of this elastic element, the theoretical model is obtained. This kind of elastic element not only can be used with fiber Bragg grating accelerometer, but also other types of sensors. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Accelerometers
Controlled terms: Elasticity - Manufacture - Fiber Bragg gratings
Uncontrolled terms: Elastic element - Fiber bragg grating accelerometer - Fiber gratings - Four trapezoidal beams - Theoretical models
Classification Code: 537.1 Heat Treatment Processes - 913.4 Manufacturing - 943.1 Mechanical Instruments
Database: Compendex
Data Provider: Engineering Village

299. PEEK polymer nonmetallic materials replace research in drillable metal bridge plug

Xu, Jianning (1); Gao, Yanxiong (1); Zhu, Duanyin (1); Lv, Wenjie (1)
Source: *Advanced Materials Research*, v 664, p 491-495, 2013, *Environmental and Materials Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037856017; **DOI:** 10.4028/www.scientific.net/AMR.664.491; **Conference:** 2012 International Conference on Environmental and Materials Engineering, EME 2012, December 9, 2012 - December 10, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: The bridge plug as a downhole plugging tool, bridge plug is mainly used in oil recovery position, fracturing, water plugging, testing, temporarily seal technology measures ect, have simple construction and high pressure difference, long seal time and accurate position etc., become an effective technology in reservoir reconstruction, which has been widely used in underground work process. After decades research and application, foreign bridge plug in the high temperature resistance, high pressure resistance, multi-purpose, new materials, recycling and reliability etc have made considerable progress. In recent years, domestic also initially formed series bridge plugging technology, and in constant development and improvement, but the present commonly used metal bridge plug mill deblocking exist great difficulties, especially in large slope, horizontal milling deblocking more difficulty and complex than vertical well, in order to solve this problem, develop nonmetallic material bridge plug. © (2013) Trans Tech Publications, Switzerland. (5 refs)
Main heading: Nonmetallic materials
Controlled terms: Materials testing - Bridges - Metal recovery - Finite element method - High pressure engineering

Uncontrolled terms: Finite Element - High pressure resistance - High temperature resistance - Oil recoveries - Plugging technologies - Research and application - Simulation - Water plugging
Classification Code: 401.1 Bridges - 921.6 Numerical Methods - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

300. Exploration about the cutting force reducing of low-temperature MQL cutting technology

Zhu, Lin (1); Li, Jinlin (1)
Source: *Journal of Chemical and Pharmaceutical Research*, v 5, n 9, p 472-477, 2013; **E-ISSN:** 09757384; **Publisher:** Journal of Chemical and Pharmaceutical Research
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi Provence, China
Abstract: With the development of green cutting technology, the low-temperature MQL technology emerged. In order to solve the problem that caused by cutting heat, it adds the low-temperature air on the foundation of MQL. In the view of low-temperature MQL studies which could reduce the cutting force, we have done a lot of experiments and theoretical pushovers. The experimental results show that the most important reason why the low-temperature MQL can reduce the cutting force effectively is a reliable lubricant film that between tool and chip. It describes the forming process of the oil film and derives the friction coefficient relationship between dry cutting and oil film cutting. (5 refs)
Main heading: Cutting
Controlled terms: Lubricating oils - Temperature - Friction
Uncontrolled terms: Cutting forces - Cutting technology - Film formations - Friction coefficients - Green cutting - Low temperatures - Lubricant films - MQL technology
Classification Code: 607.1 Lubricants - 641.1 Thermodynamics
Database: Compendex
Data Provider: Engineering Village

301. The influence of different stirring methods on crystallization process of ammonium persulfate

Yuguang, Fan (1); Hewei, Hua (1); Bing, Chen (1); Sanping, Zhou (1); Hongxian, Lin (1)
Source: *Advanced Materials Research*, v 634-638, n 1, p 1672-1676, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.1672; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: Thorough research is performed on crystallization process of ammonium persulfate, the influence of different mixing method on crystallization process of the ammonium persulfate is discussed in this paper, the influence of temperature on crystallization process is also discussed, and then the optimum mixing method for the crystallization of ammonium persulfate is achieved. All these will do great favor to improve the stability of crystallization process of ammonium persulfate. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Velocity
Controlled terms: Ammonium persulfate - Mixing
Uncontrolled terms: Ammonium persulfate - Crystallization process - Mixing method - Stirring - Velocity field
Classification Code: 802.3 Chemical Operations - 804 Chemical Products Generally
Database: Compendex
Data Provider: Engineering Village

302. Influence by casing geometric imperfection on anti-collapse strength with finite element calculation

Xue, Ji Jun (1); Wang, Peng (1)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 1114-1118, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.1114; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Shaanxi, Xi'an, 710065, China

Abstract: This essay was to build a finite element model to find the influence by oil casing geometric imperfection on anti-collapse strength. Two types of oil casing, F#177.8×10.36mm/P110 andF#127×9.19mm/ P110, was taken for the calculation, considering the influence on anti-collapse strength by casing with two elements separately, ovality and non-uniformity of wall thickness. The calculation show that the anti-collapse strength of perfect casing perform better than that of imperfect casing. Ovality is an important factor for the anti-collapse strength, and the anti-collapse strength decrease rapidly as the ovality increase. Non-uniformity of wall thickness is the less important factor for anti-collapse strength, and the anti-collapse strength decrease slightly and slowly while the non-uniformity of wall thickness increase. © (2013) Trans Tech Publications, Switzerland. (3 refs)
Main heading: Finite element method
Uncontrolled terms: Anti-collapse strength - Finite Element - Oil casing - Ovality - Wall thickness
Classification Code: 921.6 Numerical Methods
Database: Compendex
Data Provider: Engineering Village

303. Simulation and parameter optimization of the crank-slider pumping unit based on ADAMS virtual prototyping technology

Ren, Tao (1); Liao, Dongsheng (1); Qu, Wentao (1); Sun, Wen (1)
Source: *Advanced Materials Research*, v 645, p 497-500, 2013, *Intelligent System, Applied Materials and Control Technology*; **ISSN:** 10226680; **ISBN-13:** 9783037856048; **DOI:** 10.4028/www.scientific.net/AMR.645.497; **Conference:** 2013 International Conference on Intelligent System, Applied Materials and Control Technology, GSAMCT 2013, January 13, 2013 - January 15, 2013; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Shaanxi, Xi'an, 710065, China
Abstract: Crank-slider type cluster wells pumping unit is a new generation of energy efficient pumping unit whose structure is simple and it is safe to use. Crank torque is one of the key factors affecting the efficiency and efficiency of the pumping unit, which is closely related to its structural parameters. Using ADAMS mechanical system dynamics simulation software to build a virtual prototype of the slider-crank cluster wells pumping unit, taking which as a basis, carried out virtual test aiming to the length of the crank and connecting rod, which was two factors affecting the crank torque. The result of the study has a guiding significance to the structural design and optimization of slider-crank cluster wells pumping unit. © (2013) Trans Tech Publications, Switzerland. (6 refs)
Main heading: Structural optimization
Controlled terms: Manufacture - Software testing - Virtual reality - Pumping plants - Structural design - Virtual prototyping - Energy efficiency - Pumps
Uncontrolled terms: ADAMS - Parameter optimization - Pumping unit - Slider-crank - Virtual prototyping - Working efficiency
Classification Code: 408.1 Structural Design, General - 446 Waterworks - 525.2 Energy Conservation - 537.1 Heat Treatment Processes - 618.2 Pumps - 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 913.4 Manufacturing - 921.5 Optimization Techniques
Database: Compendex
Data Provider: Engineering Village

304. Study on the degree of strain uniformity of a new FBG accelerometer

Shao, Jun (1); Jia, Zhenan (2); Liu, Junhua (3)
Source: *Applied Mechanics and Materials*, v 268, n PART 1, p 1544-1547, 2013, *Materials, Mechanical Engineering and Manufacture*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855799; **DOI:** 10.4028/www.scientific.net/AMM.268-270.1544; **Conference:** 2nd International Conference on Applied Mechanics, Materials and Manufacturing, ICAMMM 2012, November 17, 2012 - November 18, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) Key Lab. of Optical Fiber Sensing, Xi'an Shiyou University, Xi'an, 710065, China (3) School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, 710049, China
Abstract: A new elastic element of fiber Bragg grating accelerometer which is four peripheral clamped trapezoidal beams is developed. On the basis of analyzing the mechanical condition of this elastic element, the theoretical model is obtained. Furthermore, the degree of strain uniformity of the beam will be discussed. The elastic element has nearly uniform stain near the fixed end, where can be as grating area. This kind of elastic element not only can be used with fiber Bragg grating accelerometer, but also other types of sensors. © (2013) Trans Tech Publications, Switzerland. (12 refs)
Main heading: Accelerometers

Controlled terms: Elasticity - Fiber Bragg gratings - Manufacture
Uncontrolled terms: Elastic element - Fiber bragg grating accelerometer - Fiber gratings - Four trapezoidal beams - Theoretical models
Classification Code: 537.1 Heat Treatment Processes - 913.4 Manufacturing - 943.1 Mechanical Instruments
Database: Compendex
Data Provider: Engineering Village

305. Microscopic geologic origin for ultra-low permeability reservoir of Yanchang groups, Ordos basin

Gao, Yongli (1); Sun, Wei (2); Zhang, Xin (3)
Source: *Jilin Daxue Xuebao (Diqiu Kexue Ban)/Journal of Jilin University (Earth Science Edition)*, v 43, n 1, p 13-19, January 2013; **Language:** Chinese; **ISSN:** 16715888; **Publisher:** Editorial Board of Jilin University
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) State Key Laboratory of Continental Dynamics, Northwest University, Xi'an 710069, China (3) College of Earth Sciences and Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Ultra-low permeability reservoirs have the characteristics of tremendous development potential and complex pore structure. In order to make definite the microscopic geologic origin of Yanchang Formation in Ordos basin, the authors integratedly use a lot of advanced technology test methods, such as convention thin section, cast thin section, X-ray, high pressure mercury penetration, constant rate mercury penetration, NMR, EMS techniques. The results show that the key elements of cause physical property variation are high cement content, high chlorite content and complex form, halite content, high ferrocalcite content, illite cement upgrowth, lomontite cement corrosion bad. All those elements cause ultra-low permeability reservoir showed the characteristics of poor scope-pore coefficient, high displacement pressure, fine pore-throat upgrouth, low movable liquid saturation. (14 refs)
Main heading: Cements
Controlled terms: Magnetite - Metamorphic rocks - Petroleum reservoir engineering - Calcite - Reservoirs (water) - Sodium chloride - Testing
Uncontrolled terms: Development potential - Displacement pressure - High pressure mercury - Microscopic origin - Ordos Basin - Ultra low permeability - Ultra-low permeability reservoirs - Yanchang Formation
Classification Code: 412.1 Cement - 441.2 Reservoirs - 482.2 Minerals - 512.1.2 Petroleum Deposits : Development Operations - 804.2 Inorganic Compounds
Database: Compendex
Data Provider: Engineering Village

306. Laboratory experimental research on basic characteristics of back pressure jet pump

Xu, Jianning (1); Lv, Wenjie (1); Zhu, Duanyin (1); Gao, Yanxiong (1)
Source: *Applied Mechanics and Materials*, v 248, p 438-442, 2013, *Mechanical Materials and Manufacturing Engineering II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855560; **DOI:** 10.4028/www.scientific.net/AMM.248.438; **Conference:** 2012 International Conference on Mechanical Materials and Manufacturing Engineering, ICMMME 2012, October 5, 2012 - October 6, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi province, 710065, China
Abstract: Jet pump has different basic characteristics when it is used in different working condition. According to the model of jet pump unloading system used in the oilfield, the lab experiment use high pressure pump to provide high power liquid and suction liquid, and also making use of throttle valve providing back pressure condition, to simulate the condition of oil well unloading system much better. The experiment tests pressure and flow of power liquid, suction liquid and mixture liquid, and achieve the basic characteristic curve of jet pump. The result show that according to the different application conditions, can change the jet pump efficient working area range when needed, by adjusting the distance between nozzle and throat, and the optimal distance is the diameter of nozzle 2~3 times. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Liquids
Controlled terms: Pumps - Jets - Oil well flooding - Fighter aircraft - Manufacture - Nozzles - Unloading
Uncontrolled terms: Back pressures - Basic characteristics - Characteristic curve - Experiment tests - Experimental research - High pressure pumps - Lab experimental - Throttle valve - Unloading systems - Working areas
Classification Code: 511.1 Oil Field Production Operations - 537.1 Heat Treatment Processes - 618.2 Pumps - 631.1 Fluid Flow, General - 652.1.2 Military Aircraft - 691.2 Materials Handling Methods - 913.4 Manufacturing
Database: Compendex

Data Provider: Engineering Village

307. A discussion on the determination way to effective thickness of tight sandstone gas pools

Hu, Lin-Nan (1); Zhao, Jing-Zhou (1)
Source: *Natural Gas Geoscience*, v 24, n 1, p 69-77, February 2013; **Language:** Chinese; **ISSN:** 16721926;
Publisher: Science Press
Author affiliation: (1) School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: There is more and more attention being paid to the tight sandstone gas pools which have been the major force of the unconventional petroleum resources.As the tight sandstone gas pools are different from the conventional ones, whose reservoirs are tight, the rock property is bad, and the electrical response is unclear, thus it is necessary to clarify the lower limit of effective thickness for the tight sandstone gas pools. Based on the study of "the four property relationship", this article takes the Upper Paleozoic tight sandstone gas reservoir of some gas field in Ordos basin as example, and systematically describes the method of determining effective thickness lower limit of tight sandstone gas pools, and the test method, the experience statistics method, the mercury injection parameter method and the logging curves method are respectively discussed. Compared with the actual gas testing data, the effective thickness lower limit determined by these methods is reasonable and meets up with the actual geological characters, of which the operation is simple and applies well. (15 refs)
Main heading: Gases
Controlled terms: Sandstone - Tight gas - Geochronology - Petroleum reservoirs - Natural gas fields - Lakes - Gas industry
Uncontrolled terms: Effective thickness - Electrical response - Geological character - Lower limits - Mercury injection - Statistics method - Tight sandstone gas - Unconventional petroleums
Classification Code: 481.1 Geology - 481.3 Geophysics - 482.2 Minerals - 512.1.1 Oil Fields - 512.2 Natural Gas Deposits - 512.2.1 Natural Gas Fields - 522 Gas Fuels
Database: Compendex
Data Provider: Engineering Village

308. Catalytic voltammetric determination of vanadium in crude oil at carbon nanotube paste electrode

Zheng, Li (1); Zhang, Ying (1)
Source: *Advanced Materials Research*, v 634-638, n 1, p 64-67, 2013, *Advances in Chemical, Material and Metallurgical Engineering*; **ISSN:** 10226680; **ISBN-13:** 9783037855898; **DOI:** 10.4028/www.scientific.net/AMR.634-638.64; **Conference:** 2012 2nd International Conference on Chemical, Material and Metallurgical Engineering, ICCMME 2012, December 15, 2012 - December 16, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Chemistry and Chemical-Engineering, Xi'an Shiyou University, Xi'an, 710065, China
Abstract: A catalytic voltammetric method for the determination of vanadium(V) at a multi-wall carbon nanotube paste electrode (MWCNT-PE) in a 4-(2-pyridylazo)-resorcinol(PAR)-bromate system is proposed. The voltammetric response of V(V)-PAR complex at MWCNT-PE was significantly enhanced because of a catalytic cycle consisting of electrochemical reduction of V(V) ion in the complex and subsequent chemical oxidation of the reduction product of V(V) by bromate. In pH 2.70 H2SO4 solution containing 5.0×10-6 mol&middotL-1 PAR and 3.0×10-2 mol&middotL-1 KBrO3 without any preconcentration, the linear sweep voltammetric peak current of the catalytic wave was proportional to the vanadium concentration in the range of 8.0×10-9 to 3.0×10-6 mol&middotL-1. The detection limit was 2.5×10-9 mol&middotL-1. Using the proposed method, the vanadium concentration in crude oil was evaluated and the results were compared with those of atomic absorption spectrometry. © (2013) Trans Tech Publications, Switzerland. (21 refs)
Main heading: Crude oil
Controlled terms: Absorption spectroscopy - Phenols - Potassium compounds - Multiwalled carbon nanotubes (MWCN) - Catalytic oxidation - Electrodes - Electrolytic reduction - Yarn - Atomic absorption spectrometry
Uncontrolled terms: 4-(2-pyridylazo)-resorcinol - Carbon nanotube paste - Catalytic cycles - Chemical oxidation - Detection limits - Electrochemical reductions - Pre-concentration - Reduction products - Vanadium concentration - Voltammetric - Voltammetric determination - Voltammetric peak - Voltammetric response
Classification Code: 451.2 Air Pollution Control - 512.1 Petroleum Deposits - 533.1 Ore Treatment - 741.3 Optical Devices and Systems - 761 Nanotechnology - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 819.4 Fiber Products - 933.1 Crystalline Solids - 941.4 Optical Variables Measurements
Database: Compendex

Data Provider: Engineering Village

309. Grooving corrosion of electric-resistance-welded oil well casing of J55 steel

Wang, Rong (1); Luo, Sheji (1)
Source: *Corrosion Science*, v 68, p 119-127, March 2013; **ISSN:** 0010938X; **DOI:** 10.1016/j.corsci.2012.11.002;
Publisher: Elsevier Ltd
Author affiliation: (1) School of Materials Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Constant potential polarization approach was used to investigate the grooving corrosion performance of electric resistance welded oil well casings of J55 steels with different carbon content. The grooving corrosion sensitivity coefficient, α, depends intensively on the carbon content, microstructure of the steels and post-weld heat treatment. The steel with higher carbon content and fibrous pearlitic microstructure has higher grooving corrosion susceptibility. Post-weld heat treatment is shown to decrease the α value to some extent. The test solution and temperature have no apparent effects on the grooving corrosion sensitivity coefficient. The reasons for the grooving corrosion are discussed from the microstructure. © 2012. (30 refs)
Main heading: Polarization
Controlled terms: Oil well flooding - Heat resistance - Electric resistance - Steel corrosion - Welds - Microstructure - Resistance welding - Carbon - Heat treatment
Uncontrolled terms: Constant Potential - Electric resistance welded - Grooving Corrosion - Pearlitic microstructure - Post weld heat treatment - Potential parameters - Sensitivity coefficient - Test solutions
Classification Code: 511.1 Oil Field Production Operations - 537.1 Heat Treatment Processes - 538.2 Welding - 538.2.1 Welding Processes - 539.1 Metals Corrosion - 545.3 Steel - 701.1 Electricity: Basic Concepts and Phenomena - 804 Chemical Products Generally - 951 Materials Science
Database: Compendex
Data Provider: Engineering Village

310. Welding quality controlling by describing the shape of weld joint of pipeline steel through computer software

Zhao, Ji Dong (1)
Source: *Applied Mechanics and Materials*, v 395-396, p 1077-1081, 2013, *Advanced Materials and Processes III*;
ISSN: 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037858424; **DOI:** 10.4028/www.scientific.net/AMM.395-396.1077;
Conference: 3rd International Conference on Advanced Design and Manufacturing Engineering, ADME 2013, July 13, 2013 - July 14, 2013; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Computer Science of Xi'an Shiyou University, Xi'an, Shanxi, 710065, China
Abstract: The relationship between welding quality and the shape of weld joint of pipeline steel and the factors which can make large influence over the shape of weld joint is analyzed in this paper. The pictures of weld joint in all kinds of welding conditions are taken into computer by some special ways in order to the pictures can be used to producing mathematic curves of weld joint shape. Welding quality and the shape of weld joint of pipeline steel can be forecasted and controlled by finding the best mathematic curve among all the curves which are fitted from the pictures of the weld joint of pipeline steel in all kinds of welding conditions by the computer software. © (2013) Trans Tech Publications, Switzerland. (4 refs)
Main heading: Computer software
Controlled terms: Quality control - Submerged arc welding - Pipelines - Welds - Steel pipe
Uncontrolled terms: Pipeline steel - Weld joints - Welding conditions - Welding quality
Classification Code: 538.2 Welding - 538.2.1 Welding Processes - 545.3 Steel - 619.1 Pipe, Piping and Pipelines - 723 Computer Software, Data Handling and Applications - 913.3 Quality Assurance and Control
Database: Compendex
Data Provider: Engineering Village

311. AcOH catalyzed three-component synthesis of spirooxindole derivatives

Yang, Peng Hui (1); Qu, Cheng Tun (1); Wang, Wen Zhen (1)
Source: *Research on Chemical Intermediates*, v 39, n 2, p 463-468, February 2013; **ISSN:** 09226168, **E-ISSN:** 15685675; **DOI:** 10.1007/s11164-012-0570-5; **Publisher:** Kluwer Academic Publishers
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'An Shiyou University, Xi'an 710065, China

Abstract: An efficient one-pot synthesis of hereto unknown indenoquinoline- spirooxindole derivatives by a three-component reaction of isatins, indan-1,3-dione, and 3-aminocyclohex-2-enone under the catalysis of acetic acid was developed. The procedure had the advantages of simplicity and efficiency. © 2012 Springer Science+Business Media B.V. (12 refs)
Main heading: Synthesis (chemical)
Controlled terms: Organic compounds - Catalysis
Uncontrolled terms: Indan-1,3-dione - One-pot synthesis - Spirooxindole - Three component - Three component reactions
Classification Code: 802.2 Chemical Reactions - 804.1 Organic Compounds
Funding Details: Number: Z08012, Acronym: -, Sponsor: -;
Funding text: This work was supported by the Foundation of Xi'an Shiyou University (Z08012).
Database: Compendex
Data Provider: Engineering Village

312. Nano-structured Ni(II)-baicalein modified multiwall carbon nanotube paste electrode for the electrocatalytic oxidation of hydroxylamine

Zheng, Li (1)
Source: *Advanced Materials Research*, v 631-632, p 30-34, 2013, *Materials Engineering for Advanced Technologies (ICMEAT 2012)*; **ISSN:** 10226680; **ISBN-13:** 9783037855874; **DOI:** 10.4028/www.scientific.net/AMR.631-632.30; **Conference:** 2012 2nd International Conference on Materials Engineering for Advanced Technologies, ICMEAT 2012, December 27, 2012 - December 28, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A nano-structured Ni(II)-baicalein(BA) film is electrodeposited on a multiwall carbon nanotube paste electrode in alkaline solution. The modified electrode shows electrocatalytic activity toward the oxidation of hydroxylamine. Kinetic parameters such as the electron transfer coefficient α, rate constant ks of the electrode reaction and the catalytic rate constant kcat of the catalytic reaction are determined. The catalytic currents present linear dependence on the concentration of hydroxylamine from 2.5×10-6 mol&middotL-1 to 4.0×10-4 mol&middotL-1 by amperometry. The detection limit and sensitivity are 6.0×10-7 mol&middotL-1 and 31.2 mA&middotL&middotmol-1, respectively. The modified electrode has been applied to determine hydroxylamine in water samples with satisfactory results. © (2013) Trans Tech Publications, Switzerland. (13 refs)
Main heading: Multiwalled carbon nanotubes (MWCN)
Controlled terms: Rate constants - Yarn - Electrocatalysis - Electrodes - Nickel compounds - Amines
Uncontrolled terms: Alkaline solutions - Amperometry - Baicalein - Carbon nanotube paste - Catalytic current - Catalytic rates - Catalytic reactions - Chemically modified electrode - Detection limits - Electro-catalytic oxidation - Electrocatalytic activity - Electrode reactions - Electron transfer coefficient - Hydroxylamine - Linear dependence - Modified electrodes - Nano-structured - Rate constant K - Water samples
Classification Code: 761 Nanotechnology - 801.4.1 Electrochemistry - 802.2 Chemical Reactions - 804.1 Organic Compounds - 819.4 Fiber Products - 933.1 Crystalline Solids
Database: Compendex
Data Provider: Engineering Village

313. Research on numerical simulation of jet pump design system parameters matching in the oilfield

Zhu, Duanyin (1); Xu, Jianning (1)
Source: *Applied Mechanics and Materials*, v 248, p 124-128, 2013, *Mechanical Materials and Manufacturing Engineering II*; **ISSN:** 16609336, **E-ISSN:** 16627482; **ISBN-13:** 9783037855560; **DOI:** 10.4028/www.scientific.net/AMM.248.124; **Conference:** 2012 International Conference on Mechanical Materials and Manufacturing Engineering, ICMMME 2012, October 5, 2012 - October 6, 2012; **Publisher:** Trans Tech Publications
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi province, 710065, China
Abstract: Jet pump has different basic characteristics when it is used in different application condition. According to jet pump structural design matching technological parameter used in the oilfield unloading system, research on four kinds of numerical simulation algorithms. They are work characteristics of ground power pump model, target liquid production model, current pressure model and pump setting depth model. The results show that the four models can meet the needs of structural design and technological parameter calculation in different conditions. This paper form

system theory, provide for pump design and selection matching for jet pump unloading system used in well. © (2013) Trans Tech Publications, Switzerland. (7 refs)
Main heading: Numerical models
Controlled terms: Manufacture - Pumps - Oil well flooding - Structural design - Unloading
Uncontrolled terms: Depth models - Ground power - Numerical simulation algorithms - Pressure models - Production models - Pump design - System parameters matching - Technological parameters - Unloading systems
Classification Code: 408.1 Structural Design, General - 511.1 Oil Field Production Operations - 537.1 Heat Treatment Processes - 618.2 Pumps - 691.2 Materials Handling Methods - 913.4 Manufacturing - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village