1. Study on ultralow interfacial tension chemical flooding in low permeability reservoirs

Chen, Tao-Ping ; Pu, Chun-Sheng
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 30-33, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Institute of Porous Flow and Fluid Mechanics, Chinese Academy of Sciences, Langfang 065007, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In accordance with the low recovery efficiency of water flooding in low permeability reservoirs, the comparative study of 8 chemical flooding schemes of surfactant (SLB Lycine type) system and surfactant-polymer compound system (relative molecular mass of 480 ×104) is carried out with the artificial isotropic cores of low permeability in the lab. The study shows: when SLB ultralow interfacial tension surfactant flooding system is applied to undeveloped or just putting into water flooding blocks, higher recovery efficiency can be obtained if the activated water slug of SLB surfactant is injected at the first time and then the traditional water flooding is carried out; for the waterflooding blocks with the water cut of above 98%, higher recovery efficiency is obtained by injecting polymer slug firstly and then injecting the activated water slug of SLB surfactant than by directly injecting SLB surfactant-polymer compound slug. (4 refs)
Database: Compendex
Data Provider: Engineering Village

2. Study on heat treatment induced stacking faults in CdZnTe crystals

Zeng, Dong-Mei (1); Zhang, Li (2); Zha, Gang-Qiang (1); Jie, Wan-Qi (1)
Source: *Gongneng Cailiao/Journal of Functional Materials*, v 37, n 7, p 1070-1072, July 2006; **Language:** Chinese; **ISSN:** 10019731; **Publisher:** Journal of Functional Materials
Author affiliation: (1) School of Materials Science and Engineering, Northwest Polytechnical University, Xi'an 710072, China (2) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In this paper, the formation mechanism and microstructure of heat treatment induced stacking faults in CdZnTe crystals are studied. It is shown that etched pits of the heat treatment induced stacking faults on {111} appear as straight lines oriented in three directions, which across each other with the angle of 120° or 60°. The formation of the heat treatment induced stacking faults are related to the stress induced from the thermo-migration of the Te-rich phases in the CdZnTe crystals, redundant Te inserted in the perfect-crystal layer sequence, and destroyed the continuity of the crystal. The rims of the induced stacking faults are composed of Frank dislocations. (11 refs)
Main heading: Crystals
Controlled terms: Crystal defects - Heat treatment - Microstructure - Stacking faults
Uncontrolled terms: Frank dislocations - Thermomigration
Classification Code: 537.1 Heat Treatment Processes - 933 Solid State Physics
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

3. Analysis of steady and unsteady well testing for two phase of gas and water flow through porous medium

Cheng, Suimin (1); Cheng, Zhen (1); Yang, Qintao (1); Li, Lianming (2); Hao, Yuhong (2); Qiang, Xiaolong (2)
Source: *Well Testing*, v 15, n 3, p 4-8+75, 2006; **Language:** Chinese; **ISSN:** 10044388; **Publisher:** Well Testing
Author affiliation: (1) Xi'an Petroleum University (2) NO. 2 Producing Gas Factory, Changqing Oilfield
Abstract: For deeply studying on theory of gas and water two phase flow through porous medium and its well testing analysis and producibility calculation of gas field, an analyzed method of that has been established and put forward. These theories of gas and water two phase of gas well and experience to Yulin gas field of Changqing oilfield have been built and a good result has been reached by data process of about 10 gas wells of producing water. (18 refs)
Main heading: Natural gas wells
Controlled terms: Flow of water - Natural gas fields - Porous materials - Two phase flow - Well testing
Uncontrolled terms: Gas and water two phase flow through porous medium - Gas well of producing water - Producibility analysis - Steady and unsteady well testing
Classification Code: 446.1 Water Supply Systems - 512.2.1 Natural Gas Fields - 631.1.1 Liquid Dynamics
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

4. Preparation of inverse microemulsion of acrylamide copolymer with higher solid mass fraction

Liu, Xiang ; Fan, Xiao-Dong ; Chao, Fen
Source: *Huaxue Gongcheng/Chemical Engineering (China)*, v 34, n 11, p 55-58, November 2006; **Language:** Chinese; **ISSN:** 10059954; **Publisher:** Editorial Office of Chemical Engineering (China)
Author affiliation: (1) Department of Applied Chemistry, School of Science, Northwestern Polytechnical University, Xi'an 710072, China (2) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The effects of relative factors on the inverse microemulsion polymerization of acrylamide (AM)/ 2-acrylamido-2-methyl propane sulfonic acid (AMPS) were investigated. The experiment shows that the relative molecular mass of P(AM-co-AMPS) increases with the increase of mass fraction of AM/AMPS, and decreases with the increase of reaction temperature and the mass fraction of emulsifier. Increasing the mass fraction of initiator and pH value can increase the relative molecular mass at the beginning of reaction, but then make it lower at following last reaction time. When m(AM) : m(AMPS) =5, the relative molecular mass of P(AM-co-AMPS) is higher at the same experimental condition. Under the condition that the reaction temperature was 35 °C, and the mass fraction of initiator was 0. 23% of monomers mass, the stable and transparent inverse microemulsion of acrylamide copolymer P(AM-co-AMPS) with higher solid mass fraction w [P (AM-co-AMPS)] =31. 0% was obtained by inverse microemulsion polymerization. (6 refs)
Database: Compendex
Data Provider: Engineering Village

5. Diageneses of Chang-6 sandstone reservoir in Wuqi Oilfield, Erdos Basin and their effects on reservoir property

Wu, Shao-Bo ; Zhao, Jing-Zhe ; Li, Jian
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 4, p 42-45, July 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Oil and Gas Resource, Xi'an Shiyou University, Xi'an 710065, China (2) Research Institute of Exploration and Development, Changqing Oilfield Branch Company, Xi'an 710021, China
Abstract: The Chang-6 sandstone reservoir in this area is a set of medium-low porosity, super-low permeability reservoir. Through the analyses of cast thin sections, scanning electron microscope(SEM), X-ray diffraction, vitrinite(specular) reflectance of more than 50 sandstone samples, the diagenesis types of the sandstone reservoir and their effects on reservoir property are studied. It is held that mechanical compaction and carbonate cementation are the main factors of leading to the bad property of the reservoir, while dissolution improves the property of the reservoir in some degree. But the improvement of dissolution is relatively faint. Therefore, compared with near zones, the property of Chang-6 reservoir in this area is worse. (5 refs)
Database: Compendex
Data Provider: Engineering Village

6. Study on fiber Bragg grating pressure sensor of high sensitivity based on chemical bonding between polymer and FBG

Wei, Ting ; Qiao, Xueguang ; Wang, Hongliang
Source: *Guangzi Xuebao/Acta Photonica Sinica*, v 35, n 8, p 1199-1202, August 2006; **Language:** Chinese; **ISSN:** 10044213; **Publisher:** Chinese Optical Society
Author affiliation: (1) Xi'an institute of Optics and Precision Mechanics, The Chinese Academy of Sciences, Xi'an 710068, China (2) Optical Fiber Sensing Laboratory, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A new approach for packed FBG (fiber Bragg grating) pressure sensor using chemical bonding technics between polymer and FBG was proposed and demonstrated. A kind of chemical bonding material was used to strengthen the bonding between fiber and polymer in order to improve the pressure response of FBG sensor. This technics resolved the problem of avulsion in high pressure due to the big difference elastic modulus between polymer and fiber. The experimental result indicated that, within 0.04 MPa~0.6 MPa, the pressure response sensitivity was -4. 48 nm / MPa and the resolution pressure measurement was ±0. 01 MPa, which is 1463 times higher than that of the bare FBG. The linearity of the temperature response curves is 0. 9978. Reflection spectrum showed a steady figure through repeated measurement. (8 refs)
Database: Compendex
Data Provider: Engineering Village

7. Method to eliminating the stress delay from fiber grating pressure sensors

Hu, Zhixin ; Zhu, Jun ; Zhang, Ling ; Wang, Hongliang
Source: *Guangzi Xuebao/Acta Photonica Sinica*, v 35, n 9, p 1329-1332, September 2006; **Language:** Chinese; **ISSN:** 10044213; **Publisher:** Chinese Optical Society
Author affiliation: (1) School of Aerospace, Xi'an Jiaotong University, Xi'an 710049, China (2) Construction Machinery School, Chang'an University, Xi'an 710061, China (3) College of Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A method to eliminating the stress delay from fiber grating pressure sensors by means of dual fiber grating is proposed. The tuning for Bragg wavelength disparity of the dual grating can be realized in the case of the effect of external pressure by a method that symmetrically adheres two FBGs with the same wavelength respectively to the upper and down surfaces of the cantilever beam and links them up in series. The result of the research shows that the technology can eliminate the stress delay of the fiber-grating pressure sensor caused by the elastic material of the devices, and improve the linear response characteristic and repeatability. Under the condition of the pressure range of 0~40 MPa, the tuning range of the system dual-peak wavelength disparity is 5.12 nm (two times of the range of single-peak wavelength tuning) and the sensitivity of dual-peak wavelength disparity in pressure tuning can reach the high degree of 0.128 nm/MPa (also two times of the single-peak one. (5 refs)
Database: Compendex
Data Provider: Engineering Village

8. Synthetical classification and evaluation of Chang 21 low permeability sandstone reservoirs in Shunning oil field, north of Shaanxi province

Wang, Jian-Min (1)
Source: *Kuangwu Yanshi*, v 26, n 4, p 89-94, December 2006; **Language:** Chinese; **ISSN:** 10016872; **Publisher:** Kuangwu Yanshi
Author affiliation: (1) Department of Resource and Engineering, Xi'an Petroleum University, Xi'an 710065, China
Abstract: Based on experimental analysis, combined with feedbacks of well logging and test production, analytical study and overall evaluation of Chang21 low permeability sandstone is carried out. The porosity and permeability distributional characteristics of Chang 21 reservoirs show that the reservoir beds are mainly composed of middle-porosity and special low-permeability type. Its microscopic textures are mainly of assemblage of mid-macropore, fine to mid-coarse throat and the pore throat feature has crucial influence on reservoir is permeability, and the filtration capability of reservoir provided by major pore-throat. Chang 21 reservoir beds may be divided into four major type of I, II, III, IV and into two subtypes of A and B. Chang 21 reservoir beds belong to low-special low permeability type mainly composed of type I and II two. Of the subtypes, pore-throat microstructure of subtype A is better than those of subtype B. It is found that the different parts of distributary channel and cyclotheric sedimentation controls the development regime of reservoir bed types. (15 refs)
Main heading: Petroleum reservoirs
Controlled terms: Filtration - Mechanical permeability - Oil well logging - Porosity - Sandstone - Textures
Uncontrolled terms: Reservoir bed - Sedimentation control
Classification Code: 482.2 Minerals - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 931.2 Physical Properties of Gases, Liquids and Solids
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

9. Influence of coupling agent's self-assembly upon performance of polymer coated FBG pressure sensors

Zhou, Hong (1); Qiao, Xue-Guang (1); Luo, Jun (1); Wang, Hong-Liang (1); Huo, Han-Ping (1)
Source: *Guangdianzi Jiguang/Journal of Optoelectronics Laser*, v 17, n 10, p 1181-1185, October 2006; **Language:** Chinese; **ISSN:** 10050086; **Publisher:** Board of Optronics Lasers
Author affiliation: (1) Lab. of Optical Fiber Sensing, Xi'an Petroleum University, Xi'an 710065, China
Abstract: Using super-molecule and entropy-driven self-assembly mechanisms, the coupling agent has been evolved into colloidal spheres with average diameter of 2.0-2.3 Mm on the fiber Bragg grating (FBG) with silicon substrate, and the coupling mechanism among polymer, coupling agent, and FBG has been analysed. The polymer coated FBG pressure sensors have been uniformly capsulated by using uniform coupling mode and self-assembly coupling

mode of the coupling agent respectively, and their performance parameters have been tested. Adopting self-assembly coating of the coupling agent, and under the same condition of other capsulated technologies, the test results show that the measuring range of the sensor is expanded from 0.6 MPa to 1.6 MPa, the repeated times for coupling failure is increased from 54 to 125 times, and the pressure sensitivity coefficient is enhanced from 1.09 to 2.98. Through controlling the diameter of the spheres and their density along the lines, the measuring range and sensitivity of FBG pressure sensors can be obviously improved. (7 refs)
Main heading: Optical sensors
Controlled terms: Couplings - Fiber Bragg gratings - Polymers - Self assembly - Strain
Uncontrolled terms: Coupling agent - Entropy driven self assembly - Fiber Bragg grating(FBG) pressure sensors - Pressure sensitivity enhancement - Strain sensing
Classification Code: 732.2 Control Instrumentation - 741.3 Optical Devices and Systems - 815.1 Polymeric Materials
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

10. Experimental study on the gas displacement process in natural gas pipeline putting into production

Zhang, Peng-Yun ; Xue, Ji-Jun ; Wu, Xi-Huai ; Zeng, Xue-Jun
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 6, p 49-52, November 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Oil and Gas Technology Service Department, Changqing Oilfield Company, Xi'an 710021, China (2) Tubular Goods Research Center, CNPC, Xi'an 710065, China (3) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The gas displacement is a key link in natural gas pipeline putting into production. In order to ensure the safety of the displacement process, the gas mixing law in this process is studied. The experimental simulation system of the process is built up based on the diffusion principle of binary gas turbulent flow. The diffusion process of the gases in the pipeline is simulated under different flow velocities and different back-pressures, and the diffusion laws of natural gas-nitrogen gas and nitrogen gas-air systems are obtained. The obtained diffusion laws can provide theoretical basis for determining the reasonable use volume of nitrogen gas in the displacement process. (6 refs)
Database: Compendex
Data Provider: Engineering Village

11. Synthesis and application of nanorare-earth fluoride lubricating oil additives

Gao, Li-Hua ; Li, Ju-Yuan ; Fu, Li-Fang ; Zhang, Yao-Jun ; Zhang, Li
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 83-86, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) School of Material Science and Engineering, Xi'an University of Architecture and Technology, Xi'an 710055, China
Abstract: The optimal synthesis conditions of DDP-18 are obtained by orthogonal experiments. Using C18 and P2S5 as material, the solid powder of DDP-18 surface modifying agent can be synthesized when initial temperature is 90°C , reaction temperature is 120°C, the actual dose of P2S5 is more 10% than its theoretical dose and reaction time is 6 h, whose purity is close to 80%. The rare-earth fluoride nanoparticles whose surface is modified by DDP-18-PyDDP-18 is synthesized in water-ethanol solvent. The structure of the surface-modified rare-earth fluoride nanoparticles is characterized using infrared spectrum and transmission electron microscopy. The surface-modified rare-earth fluoride nanoparticles may be used as the additive for lubricating oil. The lubricating capability of the additive is measured by four-ball antiwear test. The test results indicate that the lubricating oil additive can be well dispersed in organic solvent and has better antiwear and friction reducing capacity. (7 refs)
Database: Compendex
Data Provider: Engineering Village

12. Study on variation of indoor radon concentration in multi-storey buildings

Li, Dongming ; Hu, Huasi ; Chu, Jun
Source: *He Jishu/Nuclear Techniques*, v 29, n 9, p 705-709, September 2006; **Language:** Chinese; **ISSN:** 02533219; **Publisher:** Science Press

Author affiliation: (1) Xi'an Jiaotong University, Xi'an 710049, China (2) Xi'an Petroleum University, Xi'an 710065, China
Abstract: The paper aims at the study on the indoor radon concentration in high buildings. The two-filter method is chosen as the experimental method to detect radon concentrations by a FT-648 radon counter. The simple mass balance model is used to simulate the relationships among the indoor radon concentration, height, and ventilation rates. The results show a good agreement between the simulation calculation and the measurement data for the height of more than about 9 meters (third floor) in high buildings. This study indicates that the indoor radon concentration in high buildings is decided mainly by the radon emission of building materials and by ventilation rate. (13 refs)
Database: Compendex
Data Provider: Engineering Village

13. Division of the reservoir flow units of Zhong-1 block in Maling Oilfield

Zhang, Zhi-Guo ; Zhang, Fu-Tian ; Gao, Yong-Li
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 35-38, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) No.2 Production Plant, Changqing Oilfield Company, Qingyang 751001, China (3) College of Petroleum Engineering, Changjiang University, Jingzhou 434023, China
Abstract: The correct division of the flow units of a reservoir can deepen the understanding of its heterogeneity, and it is important to predicting residual oil distribution, adjusting the development plan and enhancing recovery factor. The sandstone reservoir of Y9 and Y10 in Zhong-1 block is divided into four types of flow units by means of gray system theory based on the reservoir parameters such as flow zone indicator, porosity, permeability, shale content, grain-size median, etc; the plane distribution of the flow units of five interconnected sandstone formations of Y9 and Y10 is obtained based on the fine logging interpretation of 314 wells in the area; the main characteristics of the four types of flow units are discussed on the basis of the actual geological property and production situation in the area; the relationships between reservoir flow units and reservoir absorbability, liquid yield and remaining oil distribution are also analyzed. It is pointed that the zones of I and II types of flow units are the enrichment zones of remaining oil and they are the main targets of the oilfield tapping potentiality. (5 refs)
Database: Compendex
Data Provider: Engineering Village

14. Techniques for oil increasing of extra-low permeability Triassic Yanchang Formation, Ansai Oilfield, Northern Shaanxi

Li, Yong-Tai ; Song, Xiao-Feng
Source: *Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development*, v 33, n 5, p 638-642, October 2006; **Language:** Chinese; **ISSN:** 10000747; **Publisher:** Science Press
Author affiliation: (1) Xi'an Petroleum University, Xi'an 710065, China (2) Changqing Chemical Preparations Limited Company, Xianyang 712000, China
Abstract: The geology of Triassic Yanchang Formation in Ansai Oilfield is extra-low permeability (0.96-2.90 mD) , extra-low porosity (11.00%-13. 25%), fractured oil reservoir with dominant small pores and throats, little differences between formation and saturation pressure (2.94-3.66 MPa), high percentage of acid-sensitive minerals in cements (6.19%), and high formation water salinity (89 850 mg/L). Severe scaling problems and production reductions appear in water flooding production wells. Fracturing treatments were performed in 16 production wells leading to an average increase of 1.85 t/d per well in oil production, the average effective life was 84.1 d; foam flushing was operated in 10 production wells, leading to an average increase of 1.13 t/d per well, the average effective life was 52. 8d; acidizing treatments in 99 production wells led to an average increase of 1.l0 t/d per well, the average effective life was 128. 9d; scale control and removal treatments in 18 production wells led to an average increase of 1.90t/d per well, the average effective life was 330d. The better result of the scale control and removal treatment is mainly attributed to its larger radius. Enhancing the radius in fracturing and acidizing treatments can further improve their performance. (7 refs)
Database: Compendex
Data Provider: Engineering Village

15. Study on the generation and diffusion of CO in high-energy gas fracture (HEGF)

Zheng, Wei-Lin ; Zou, Hong-Jiang ; Pu, Chun-Sheng ; Qin, Wen-Long

Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 5, p 59-61, September 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Institute of Mechanics, Chinese Academy of Sciences, Beijing 100080, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (3) Faculty of Petroleum Engineering, China University of Petroleum, Dongying 257061, China
Abstract: In order to avoid the poisoning events of CO in the high-energy gas fracture of low-permeability oil-gas fields, the generation of CO is deeply studied. It is shown that the formulation of the explosive for HEGF is the direct cause of producing CO. The diffusion model of CO in atmosphere is established using physical and mathematical stimulations, and the effects of well depth, gas to oil ratio, gas exhausting speed and atmosphere stability on the diffusion of CO are discussed. This study can provide technical basis for establishing CO monitoring system. (5 refs)
Database: Compendex
Data Provider: Engineering Village

16. Microwave hydrothermal synthesis of barium titanate powders

Guo, Litong (1); Luo, Hongjie (2); Gao, Jiqiang (1); Guo, Lizhi (3); Yang, Jianfeng (1)
Source: *Materials Letters*, v 60, n 24, p 3011-3014, October 2006; **ISSN:** 0167577X; **DOI:** 10.1016/j.matlet.2006.02.035; **Publisher:** Elsevier
Author affiliation: (1) State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, Xi'an, 710049, China (2) Shanghai Institute of Ceramic, Chinese Academy of Science, Shanghai, 200050, China (3) Xi'an Shiyou University, Xi'an, 710065, China
Abstract: Microwave hydrothermal method was used to synthesize BaTiO3 powders. XRD, SEM and EDS were used to characterize the obtained BaTiO3 powder. The obtained BaTiO3 powder is monosized distribution equi-axed particles of size 150 nm. The BaTiO3 powder of Ba / Ti ratio close to 1 can be obtained at ratio 1.6 of [Ba] / [Ti] in precursor in 2.0 M [NaOH] solution. The results showed that with the increase the reaction time, the grain size of BaTiO3 powder increases. There is an optimal reaction temperature 80 °C, at which the best crystallization is attained. © 2006 Elsevier B.V. All rights reserved. (12 refs)
Main heading: Barium titanate
Controlled terms: Crystallization - Hydrothermal synthesis - Microwaves - Particle size analysis - Powder metals - Synthesis (chemical)
Uncontrolled terms: Grain size - Hydrothermal - Microwave assisted hydrothermal - NaOH solution
Classification Code: 933.1 Crystalline Solids - 812.1 Ceramics - 804.2 Inorganic Compounds - 943.3 Special Purpose Instruments - 802.3 Chemical Operations - 711 Electromagnetic Waves - 536 Powder Metallurgy - 802.2 Chemical Reactions
Funding Details: Number: -, Acronym: SUST, Sponsor: Shaanxi University of Science and Technology;
Funding text: The authors gratefully acknowledge the financial support of this work by the Shaanxi University of Science and Technology.
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

17. Study on the remaining oil distribution in the central-western Wangyao area of Ansai Oilfield by the numerical simulation of reservoir

Liu, Hua ; Zhang, Ning-Sheng ; Li, Xiang-Fang ; Wang, Zhi-Wei ; Zhang, Yi ; Li, Yu-Zheng
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 32-34, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Faculty of Petroleum and Natural Gas Engineering, China University of Petroleum, Beijing 102249, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (3) Production Plant, Changqing Oilfield Company, Yan'an 716000, China
Abstract: The remaining oil distribution in the area is studied by numerical simulation to provide the basis and guidance for the readjustment of the water injection development in the area. The remaining oil saturation distribution diagram is obtained through the accurate fittings of reserves in place, water cut, water injection quantity, accumulative production and pressure from 1988 to 2002. The distribution diagram is analyzed combining the production practice, and some measures are proposed for the readjustment of water injection development plan. (4 refs)
Database: Compendex
Data Provider: Engineering Village

18. Formation mechanism of carbon monoxide in high-energy gas fracturing

Pu, Chunsheng (1, 2); Qin, Wenlong (1); Zou, Hongjiang (1); Ma, Nengping (3); He, Zhirong (3)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 6, p 100-102, November 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) College of Petroleum Engineering, China University of Petroleum, Dongying 257000, China (3) Department of Engineering Management, Changqing Oilfield Company, PetroChina, Xi'an 710021, China
Abstract: The formation mechanism of carbon monoxide in high-energy gas fracturing (HFGF) of low-permeability reservoirs was studied. The result indicated that carbon monoxide and other poisoning gases were resulted from HFGF and high-temperature gases of HFGF reaction with reservoir associated gases and crude oil. On the basis of this, the mathematical models of carbon monoxide flow and diffusion in wellbore were established. The poisoning reinforcement measures of carbon monoxide were presented. The study is theoretically valuable to explain the formation mechanism and reinforcement of carbon monoxide for stimulation treatment of low-permeability reservoirs, and is instructive for safe stimulation treatment of HFGF in similar reservoirs. (8 refs)
Main heading: Crude petroleum
Controlled terms: Carbon monoxide - Fracturing (oil wells) - Low permeability reservoirs - Mathematical models - Petroleum reservoirs - Well stimulation
Uncontrolled terms: Formation mechanism - High-energy gas fracturing - Safe stimulation treatment
Classification Code: 481.1 Geology - 512.1 Petroleum Deposits - 804.2 Inorganic Compounds - 921 Mathematics
Treatment: Applications (APP) - Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

19. Synthesis and crystal structure of a new charge transfer salt [NBu4]6H[Fe(C5H5)2][PMoVMo11O40]2

Liu, Xuemei (1, 3); Xue, Ganglin (1); Hu, Huaiming (1); Gao, Quanchang (1); Fu, Feng (2); Wang, Jiwu (2)
Source: *Journal of Molecular Structure*, v 787, n 1-3, p 101-105, April 17, 2006; **ISSN:** 00222860; **DOI:** 10.1016/j.molstruc.2005.11.002; **Publisher:** Elsevier
Author affiliation: (1) Department of Chemistry, Shaanxi Key Laboratory of Physico-Inorganic Chemistry, Northwest University, Xi'an, 710069, China (2) Department of Chemistry, Yanan University, Yan'an, 716000, China (3) Department of Applied Chemistry, Xi'an Shiyou University, Xi'an, 710065, China
Abstract: A new charge transfer salt, [NBu4]6H[Fe(C5H5)2][PMo12O40]2, based on Fe(C5H5)2 (ferrocene) and Keggin-type anion [PMo12O40]3- was electrochemically synthesized and its structure was determined by single-crystal X-ray diffraction. Monoclinic, C2/c, M=4068.12, a=50.383(18) A, b=14.113(5) A, c=26.554(10) A, β=115.318°, V=17068(11) A3, Z=6, R1=0.0759, wR2=0.1744 (I>2#). The layers of the organic donor and inorganic acceptor in solid state are alternatively arranged in (001) plates and each [Fe(C5H5)2]+ is surrounded by four Keggin-type anions. There are weak interactions between organic and inorganic layers. ESR spectrum at 110 K displays distinct ferrocenyl cation [Fe(C5H5)2]+ and Mo5+ signals, the anion [PMo12O40]3- is reduced by one electron. The CV properties of the complex were also discussed. © 2006 Elsevier B.V. All rights reserved. (17 refs)
Main heading: Aromatic compounds
Controlled terms: Charge transfer - Crystal structure - Electrochemical corrosion - Single crystals - Synthesis (chemical) - X ray diffraction analysis
Uncontrolled terms: Charge transfer salt - Ferrocene - Polyoxometalate
Classification Code: 539.1 Metals Corrosion - 801 Chemistry - 802.2 Chemical Reactions - 804.1 Organic Compounds - 933.1 Crystalline Solids - 933.1.1 Crystal Lattice
Funding Details: Number: 2003B01, Acronym: -, Sponsor: Natural Science Foundation of Shaanxi Province; Number: 03JK077, Acronym: -, Sponsor: Education Department of Shaanxi Province;
Funding text: We sincerely thank the support of the Education Commission of Shaanxi Province (03JK077) and the Natural Science Foundation of Shaanxi Province (2003B01).
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

20. Calculation of short-circuit impedance for power transformer with coupling FEM method of magnetic field and circuit

Wang, Shishan ; Li, Yanming ; Guo, Yingna
Source: *Gaodianya Jishu/High Voltage Engineering*, v 32, n 11, p 11-14, November 2006; **Language:** Chinese; **ISSN:** 10036520; **Publisher:** Science Press
Author affiliation: (1) School of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing 210016, China (2) School of Electrical Engineering, Xi'an Jiaotong University, Xi'an 710049, China (3) School of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: 2D axis-symmetrical FEM model is presented for power transformer. The impedance voltage and short-circuit impedance of transformer is calculated based on the analysis of distribution of leakage field. Voltage applied in primary winding, vector potential and current in coil are selected to be unknown; Load linked to secondary coil, vector magnetic potential, current in coil, electric motive force and terminal voltage are selected to be unknowns, vector magnetic potential is selected to DOF in air or oil. Corresponding parameters' relations can be obtained expediently with this method. Changing load, transformer will work at open-circuit, normal and short-circuit, respectively. While load at short-circuit, short-circuit impedance is calculated by current in coil and rating value. Comparing short-circuit impedance of calculation results and experimentation ones for three PowerformTMs, it is illustrated that the method presented in this paper is of high precision and expedient use. Furthermore, one approach is provided to simulate magnetic distribution for power transformer and other power apparatus. (12 refs)
Database: Compendex
Data Provider: Engineering Village

21. Hydrophilic modification of poly(ether sulfone) used TiO2 nanoparticles by a sol-gel process

Luo, Ming-Liang (1); Tang, Wu (2); Zhao, Jian-Qing (1); Pu, Chun-Sheng (3)
Source: *Journal of Materials Processing Technology*, v 172, n 3, p 431-436, March 10, 2006; **ISSN:** 09240136; **DOI:** 10.1016/j.jmatprotec.2005.11.004; **Publisher:** Elsevier Ltd
Author affiliation: (1) College of Materials Science and Engineering, South China University of Technology, Guangzhou 510640, China (2) LASMIS, University de Technologie de Troyes, Troyes Cedex 10010, France (3) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Poly(ether sulfone)/TiO2 (PES/TiO2) nanoparticle composites with different TiO2 content were prepared by a sol-gel process. These composites exhibited high optical transparency, having nanosized TiO2 rich domains well dispersed within PES matrix. The structure and properties of these composites were characterized by SEM, FT-IR, TGA, DMA and contact angle test method, respectively. Hydrogen bonding interactions between the sulfone groups in the PES and the hydroxyl groups on the inorganic oxide were observed. Comparing with the pure PES polymer, the PES/TiO2 composites exhibited higher glass transition temperature, an increase and flattening of the rubbery plateau modulus and an increase in hydrophilicity. The mechanism of the hydrophilicity improvement of these composites was discussed. © 2005 Elsevier B.V. All rights reserved. (25 refs)
Main heading: Polyethers
Controlled terms: Composite materials - Fourier transform infrared spectroscopy - Hydrophilicity - Nanostructured materials - Scanning electron microscopy - Sol-gels - Thermogravimetric analysis
Uncontrolled terms: Hydrophilic modification - Nanosized metal oxides - optical transparency
Classification Code: 933.1 Crystalline Solids - 931.2 Physical Properties of Gases, Liquids and Solids - 815.1.1 Organic Polymers - 804 Chemical Products Generally - 801 Chemistry - 741.1 Light/Optics - 415 Metals, Plastics, Wood and Other Structural Materials
Funding Details:
Funding text: The authors wish to acknowledge the financial support from the National Basic Research Program-2001CB-2091 grant for this project. Thanks are also due to Jilin University for supplying us with the poly(ether sulfone) and Xi’an Modern Chemistry Research Institute for access to the DMA, FT-IR and TGA equipment. We also would like to thank Prof. Fengji Lu for many valuable discussions.
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

22. A new method for quantitatively describing the lateral heterogeneity of reservoir permeability

Zhao, Yan-Yan ; Li, Liu-Ren ; Wu, Xiao-Dong
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 5, p 62-64, September 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute

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Abstract: A parameter for quantitatively describing the lateral heterogeneity of reservoir permeability - heterogeneity factor is defined based on the percolation flow through porous media. Its value is the least when the reservoir is homogeneous, which is 1, and its value is greater than 1 when the reservoir is heterogeneous. The parameter does not relate to the statistical property of the data series of reservoir permeability, and it only depends on the heterogeneity of the data series. The analysis of common heterogeneity parameters shows that this parameter can well quantitatively evaluate the heterogeneity of the data series of reservoir permeability and the effect of the heterogeneity of reservoir permeability on the percolation flow through porous media. (15 refs)
Database: Compendex
Data Provider: Engineering Village

23. Analysis of toughness in HAZ for X80 pipeline steel welding

Li, Wei-Wei (1, 2); Liu, Ya-Xu (1); Gao, Hui-Lin (2); Zhao, Xin-Wei (1); Feng, Yao-Rong (1); Ji, Ling-Kang (1)
Source: *Hanjie Xuebao/Transactions of the China Welding Institution*, v 27, n 2, p 43-46, February 2006; **Language:** Chinese; **ISSN:** 0253360X; **Publisher:** Harbin Research Institute of Welding
Author affiliation: (1) Key Laboratory for Mechanical and Environmental Behavior of Tubular Goods, CNPC, Xi'an 710065, China (2) Xi'an Petroleum University, Xi'an 710065, China
Abstract: The microstructure and properties of X80 steel will be changed greatly because of heat cycle in welding process. Toughness is a very important property of long distance natural gas transmission pipeline. The toughness characteristic (Charpy-V impact and crack opening displacement, i.e. CTOD) and reason of X80 Coarse Grained Heat Affect Zone (CGHAZ) with different welding heat inputs was analyzed by weld thermal simulation technique, modern test and microstructure analyses methods. The results indicted that the toughness of CGHAZ of higher heat input is better than that of lower heat input in some extend, and the toughness violently decrease as increasing of heat input beyond the extend. The essential reason of these results is the different microstructures of CGHAZ for different heat input. The low carbon martensite constituent found for lower heat input makes CGHAZ toughness be bad. (6 refs)
Main heading: Welding
Controlled terms: Cracks - Heat affected zone - Microstructure - Optical microscopy - Pipelines - Steel - Toughness - Transmission electron microscopy
Uncontrolled terms: Heat input - X80 pipeline steel
Classification Code: 421 Strength of Building Materials; Mechanical Properties - 531.2 Metallography - 538.2 Welding - 545.3 Steel
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

24. An integrated geophysical and archaeological investigation of the Emperor Qin Shi Huang mausoleum

Yuan, Bingqiang (1); Liu, Shiyi (2); Lu, Guoyin (3)
Source: *Journal of Environmental and Engineering Geophysics*, v 11, n 2, p 73-81, June 2006, *Geophysics in China*; **ISSN:** 10831363; **DOI:** 10.2113/JEEG11.2.73; **Publisher:** Environmental and Engineering Geophysical Society (EEGS)
Author affiliation: (1) Department of Resources Engineering, Xi'an Shiyou University, Xi'an, 710065, China (2) Center of Development and Research, China Geological Survey, Beijing, 100037, China (3) Institute of Geophysical and Geochemical Exploration, Ministry of Land Resources, Hebei Province, 065000, China
Abstract: Integrated geophysical methods that included high-precision gravity, magnetic, electrical resistivity tomography, radioactive radon, and ground-penetrating radar surveys were used to investigate the underground palace of China's first Emperor, Qin Shi Huang, his Mausoleum, and its appurtenant structures (i.e., pits and tombs). Successful identification of the underground palace's distribution, as well as a thin-compacted wall and coffin chambers in the burial mound, as interpreted from analysis of the geophysical data, was corroborated by subsequent excavation. The effectiveness of the integrated procedures was also demonstrated on the known auxiliary pits and tombs adjacent to the main buried palace structure. These results are the most significant recent discoveries at the Emperor Qin Shi Huang Mausoleum, as well as the general mausoleum architecture in the Qin dynasty. (6 refs)
Main heading: Geophysics
Controlled terms: Data processing - Electric conductivity - Numerical analysis - Structural analysis - Tomography

Uncontrolled terms: Archaeological investigation - Auxiliary pits - Mausoleum architecture - Radioactive radon
Classification Code: 408.1 Structural Design, General - 481.3 Geophysics - 701.1 Electricity: Basic Concepts and Phenomena - 723.2 Data Processing and Image Processing - 921.6 Numerical Methods
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

25. Application of digital image analysis in the location of hypocenter

Lai, Xiao-Ling ; Li, Jin ; Sun, Yi
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 7-10, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Geophysical Exploration Center, China Earthquake Administration, Zhengzhou 450002, China (2) Department of Resource Engineering, Xi'an Shiyou University, Xi'an 710065, China (3) Department of Water Conservancy Engineering, North China Institute of Water Conservancy and Hydroelectric Power, Zhengzhou 450008, China
Abstract: In order to solve the problem of earthquake distribution point-diagram, no effectively displaying the 3D geometry of the seismic structure in complex hypocenter area, gridding interpolation and 2-D wavelet transformation are used for processing hypocenter location data, and spatial hypocenter distribution image and seism starting time image are obtained. The images display the strike direction and the dip direction of seismic structure and the plane distribution character of seism starting time. The factual seismic data are processed using this method, and the images of the studied area are interpreted. The result shows that the time and spatial features of the seismic structure present obvious NW strike and discontinuous NE strike. And this result relatively accords with the geologic structure of this area and the analysis results according to other data. (17 refs)
Database: Compendex
Data Provider: Engineering Village

26. Factors of influencing the gel-breaking of hydroxypropyl gum / borate gelling fracturing fluid for low temperature reservoirs

Wang, Man-Xue ; Zhang, Jian-Li ; Yang, Yue ; Zhou, Jian-Ying
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 6, p 69-72, November 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Drilling and Production Technology Research Institute, Tuha Oilfield Ltd. Co., Shanshan 838200, China (3) Qilicun Operations Company, Yanchang Petroleum Administration Bureau, Yan'an 716000, China
Abstract: In order to perform the gel-breaking of the fracturing fluid for shallow and low temperature reservoirs, the influencing factors on the gel-breaking of hydroxypropyl gum/borate gelling fracturing fluid for low temperature reservoirs are experimentally studied. The results show that at certain temperature, the dose of the thickener in the fracturing fluid, the pH value of the system and the type and dose of gel breaker all have the influences on the gel-breaking of the fracturing fluid in different degrees. Among gel breakers, the influence of ternary complex gel breaker is the greatest. At 15 °C, compared with single gel breaker (NH4)2S2O8, binary complex gel breaker "(NH4)2S2O8 + accelerator A" makes breaking time shorten 41 h,but ternary complex gel breaker "(NH4)2S2O8 + H2O2 + accelerator A" makes the breaking time shorten 45 h, which can save ¥700 per well. The ternary complex gel breaker has successfully been applied more 30 well times in Shanbei oilfields. (5 refs)
Database: Compendex
Data Provider: Engineering Village

27. Study of solving a Toda dynamic system with loop algebra

Zhu, Qiao ; Yang, Zhan-Ying ; Shi, Kang-Jie ; Wen, Jun-Qing
Source: *Kao Neng Wu Li Yu Ho Wu Li/High Energy Physics and Nuclear Physics*, v 30, n 9, p 838-843, September 2006; **Language:** Chinese; **ISSN:** 02543052; **Publisher:** Science Press
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Abstract: In this paper, we construct a Toda system with Loop algebra, and prove that the Lax equation L = [L, M] can be solved by means of solving a regular Riemann-Hilbert problem. In our system, M in Lax pair is an antisymmetrical matrix, while L = L+ + M, and L+ is a quasi-upper triangular matrix of loop algebra. In order to check our result, we exactly solve a R-H problem under a given initial condition as an example. (13 refs)
Database: Compendex
Data Provider: Engineering Village

28. Application of wavelet analysis in the data interpretation of Tai'an-Xinzhou refraction and wide-angle reflection profile

Lai, Xiao-Ling ; Li, Jin ; Sun, Yi
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 6, p 12-14+19, November 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Geophysical Exploration Center, China Earthquake Administration, Zhengzhou 450002, China (2) College of Resource Engineering, Xi'an Shiyou University, Xi'an 710065, China (3) Department of Water Conservancy Engineering, North China Institute of Water Conservancy and Hydroelectric Power, Zhengzhou 450008, China
Abstract: Tai'an-Xinzhou refraction and wide-angle reflection profile goes throughout the structural units of Luxi uplift, North China depression and Taihang Mountain uplift. And the middle segment of the profile crosses Xingtai seismic area in Hebei Province. A series of waveform records in this profile are processed by using wavelet multi-scale analysis. The phase features of Xingtai seismic area and its adjacent area are obtained. The results show that the Moho below Xingtai seismic area is complex construction, which may be double-layer, but the Moho in the adjacent area presents clearer first-order discontinuity surface. The deep reflection profiles in the researched region also indicate that the Moho below Xingtai seismic area is crust-mantle transitional zone. And in mid-upper crust, there are detachment structure and the deep fault which extends to the Moho. So the complex structure and morphology of the Moho are the deep tectonic background of Xingtai seismic area. (10 refs)
Database: Compendex
Data Provider: Engineering Village

29. Evaluation of the formulas for calculating the interfacial friction factor of the two-phase stratified flow in horizontal condensate natural gas pipeline

Xiao, Rong-Ge ; Wang, Li-Yang ; Deng, Zhi-An ; Guo, Xiong-Ang ; Zhang, Lei
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 55-57+93, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Research Institute of Mechanics (IMECH), Chinese Academy of Sciences, Beijing 100080, China (3) Company of Geophysical Exploration, Zhongyuan Oilfield, Puyang 457001, China (4) Tubular Goods Research Center, CNPC, Xi'an 710065, China
Abstract: Predecessors had obtained many empirical and semi-empirical formulas for calculating the interfacial friction factor of stratified flow. But the formulas are all based on the experimental data obtained on small-scale experimental models. They have generally the shortcomings of narrow applicable range and low accuracy although they accord well with the experimental results themselves. Here, the experimental data are obtained from large-scale multiphase experimental circular pipe, and the data are used for evaluating the empirical and semi-empirical formulas. According to the evaluating results, it is held that, the calculated results using the formula presented by Chen, et al are close to the experimental data when the flow speed of gas phase is lower than 15 m/s, the errors between them is less than 13.2%; whereas the results calculated using the formula presented by Hart, et al are close to the experimental data when the flow speed of gas phase is higher than 15 m/s, the errors between them is in the range of 0~15.94%. Therefore, it is suggested that, the formula presented by Chen, et al should be used for calculating the interfacial friction factor when the flow speed of gas phase is lower, whereas the formula presented by Hart, et al should be used when the flow speed of gas phase is higher. (5 refs)
Database: Compendex
Data Provider: Engineering Village

30. Experimental investigation into scaling laws for conical shells struck by projectiles

Jiang, P. (1); Tian, C.J. (2); Xie, R.Z. (2); Meng, D.S. (3)

Source: *International Journal of Impact Engineering*, v 32, n 8, p 1284-1298, August 2006; **ISSN:** 0734743X; **DOI:** 10.1016/j.ijimpeng.2004.09.015; **Publisher:** Elsevier Ltd
Author affiliation: (1) Southwest Petroleum Institute, Chengdu, 610500, China (2) Institute of Structural Mechanics, CAEP, Chengdu, 610003, China (3) Xi'An Petroleum Institute, Xi'an, 210000, China
Abstract: An experimental investigation is reported into the scaling laws for fully clamped thin-walled mild steel conical shells struck axially by plane-head cylindrical projectiles travelling at velocities between 29.5 and 54 m/s. The test shells and projectiles have scale factors of 1, 2 and 4. Some tests are conducted to determine the critical impact velocities to cause cracking or perforation. The other tests are conducted with impact energies which produce dynamic plastic buckling without any rupture or cracking. The critical velocities and the permanent axial deflections of the shells do not obey the elementary geometrically similar scaling laws. The larger deviations are related with the higher impact velocities and larger scale factors. The material strain rate sensitivity effects may be the main factor causing the deviations. The other factor is the localization of the deformation during dynamic plastic buckling. © 2004 Elsevier Ltd. All rights reserved. (17 refs)
Main heading: Shells (structures)
Controlled terms: Buckling - Crack initiation - Impact testing - Projectiles - Sensitivity analysis - Strain rate
Uncontrolled terms: Conical shells - Experimental investigation - Scaling laws
Classification Code: 404.1 Military Engineering - 408.2 Structural Members and Shapes - 421 Strength of Building Materials; Mechanical Properties - 422.2 Strength of Building Materials : Test Methods - 921 Mathematics
Funding Details: Number: 562(10),1957, Acronym: ONR, Sponsor: Office of Naval Research; Number: -, Acronym: -, Sponsor: Brown University; Number: -, Acronym: -, Sponsor: University of Liverpool; Number: 191320, Acronym: NSFC, Sponsor: National Natural Science Foundation of China;
Funding text: Cowper GR, Symonds PS. Strain hardening and strain rate effects in the impact loading of cantilever beams. Technical Report No.28 from Brown University to the Office of Naval Research under contract No.562(10),1957This work was accomplished in the course of research sponsored by National Natural Science Foundation of China under the contract No. 191320. The authors wish to take this opportunity to express their thanks to their colleagues both in Southwest Petroleum Institute and Institute of Structural Mechanics at Chinese Academy of Engineering Physics for their assistance with the experimental work. The first author acknowledges, with thanks, financial support from Sino–British Fellowship Trust for his visit to the Impact Research Center in the Department of Engineering at the University of Liverpool. He also wishes to express his gratitude to Southwest Petroleum Institute for granting a leave of absence. He is especially grateful to Professor N. Jones for the comments on the draft and helpful discussions.
Treatment: Theoretical (THR) - Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

31. Laboratory study on enhancing recovery factor by microbial oil displacement in Jidong Oilfield

Kong, Xiang-Ping ; He, Yuan-Dan ; Zhang, Han-Shi ; Geng, Xue-Li ; Xu, Peng ; Wang, Xiu-Lin
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 6, p 44-48, November 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Key Laboratory of Education Minister for Ocean Chemistry and Chemical Engineering, Ocean University of China, Qingdao 266100, China (2) Research Institute of Oil Production Technology, Shengli Oilfield Ltd. Co., Dongying 257000, China (3) Publishment Center, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The potential of enhancing recovery factor by microbial oil displacement in 2 blocks of Gaoqianbei and Laoyemiao in Jidong Oilfield is studied by physical simulation experiments on the basis of the analyses of the conditions of the reservoir, the physical property of crude oil and the chemical property and the bacterial composition of produced water. The composition of bacterial communities in the formation water is determined by most probable number method, pour plate method and roll-tube technique. The results show that sulfate reducing bacteria are dominant species in all the formation water, aerobic saprophytic bacteria present in a part of formation water. It is indicated that bacteria could grow and reproduce in these 2 blocks. Core flooding experiments show that based on water flooding, the recovery factors of Gaoqianbei and Laoyemiao blocks are enhanced by 15. 6% and 10. 7% separately through 7 treatments in 85 days. So it is possible to enhance the recovery factors of these 2 blocks by microbial oil displacement. (9 refs)
Database: Compendex
Data Provider: Engineering Village

32. Simulation analysis of four towers flow in methanol distillation process

Huang, Feng-Lin ; Yang, Bo-Lun ; Xiang, Xiao-Feng
Source: *Xiandai Huagong/Modern Chemical Industry*, v 26, n SUPPL. 2, p 324-327, October 2006; **Language:** Chinese; **ISSN:** 02534320; **Publisher:** China National Chemical Information Center
Author affiliation: (1) School of Energy and Power Engineering, Xi'an Jiaotong University, Xi'an 710065, China (2) School of Chemistry and Chemical Engineering, Xi'an Petroleum University, Xi'an 710065, China
Abstract: In order to develop an optimal distillation process for methanol purification to resolve the problems of solubility and low temperature stability of methanol-gasoline and methanol-diesel fuel influenced by lower purity of methanol product, the four towers flow in methanol distillation process is simulated and calculated utilizing PRO/II software, while taking alcohol and water as key components, selecting adjusted ALCO and NRTL model for pre-distillation tower and recovery tower, pressure-increased tower and atmospheric tower. The feed location, reflux ratio and the number of theoretical plates for each tower, feed temperature and operating pressure are simulated and optimized. The results indicate that, the purified methanol product by four towers flow has higher purity, lower water and ethanol content, higher methanol recovering yield than by two or three towers flow, thus the solubility of methanol-gasoline or methanol-diesel fuel is enhanced, the stability in low temperature is improved, while the unit has lower energy consumption as well as more stable and flexible operation. (6 refs)
Database: Compendex
Data Provider: Engineering Village

33. Uncertain loads analysis and its applications

Liu, Jian (1); Wu, Xiaomeng (2); Cheng, Hongli (3)
Source: *IET Conference Publications*, n 527 CP, p 149-153, 2006, *2006 China International Conference on Electricity Distribution, CICED 2006*; **ISBN-10:** 0863416381, **ISBN-13:** 9780863416385; **Conference:** 2006 China International Conference on Electricity Distribution, CICED 2006, September 17, 2006 - September 20, 2006; **Publisher:** Institution of Engineering and Technology
Author affiliation: (1) Xi'an University of Technology, No.5, Jinhua South Road, Xi'an, Shaanxi Province, 710048, China (2) Xi'an Shiyou University, No.18, 2nd Dianzi Road, Xi'an, Shaanxi Province, 710065, China (3) Xi'an University of Science and Technology, No.58, Yanta Road, Xi'an, Shaanxi Province, 710054, China
Abstract: To consider the uncertainty and the dependence of loads, a new approach is proposed. The normal probability is adopted for loads under single condition. The related coefficient is introduced to represent the dependence among loads. Based on the simplified model of distribution networks, the mean values, variances and confidence intervals of load through the source Vertexes are deduced. A load with the probability distribution of many peaks is formulated as the summation of several loads with normal distribution. The applications of uncertain loads analysis in safe operation evaluation, distribution network reconfiguration and planning for distribution grids are described. An example is given showing the feasibility and significance of the proposed approach. (10 refs)
Main heading: Normal distribution
Controlled terms: Electric utilities - Uncertainty analysis - Electric power distribution
Uncontrolled terms: Confidence interval - Dependence - Distribution grid - Distribution network reconfiguration - ITS applications - Network re-configuration - Related coefficients - Uncertainty
Classification Code: 706.1.2 Electric Power Distribution - 922.1 Probability Theory
Database: Compendex
Data Provider: Engineering Village

34. Effect of specimen dimension on welding residual stresses

Zhou, Jian-Xin (1); Xu, Hong (1); Wang, Jun-Sheng (2); Li, Dong-Cai (3); Zhang, Li (1); Liu, A-Long (1)
Source: *Hanjie Xuebao/Transactions of the China Welding Institution*, v 27, n 3, p 96-100, March 2006; **Language:** Chinese; **ISSN:** 0253360X; **Publisher:** Harbin Research Institute of Welding
Author affiliation: (1) East China University of Science and Technology, Shanghai 200237, China (2) Liaohe Petroleum Exploration Bureau, Panjin 124010, China (3) Xi'an Petroleum University, Xi'an 710065, China
Abstract: The magnitude and the distribution of welding residual stress of butt thin plates were calculated by means of the large-scale finite element method software ANSYS, and the effect of plate length and plate width on welding residual stress was obtained, especially the effect of the middle-sized plate and narrow plate on welding residual stress. The results show that when the weld length is less than 100 mm the longitudinal residual stress of different width plate is the same, and ail kinds of plates belong to wide plate. With the increment of the weld length the distribution of the residual stress gradually transfer to middle-sized plate and narrow plate. The calculated results was compared with the experimental results, and the results were identical. The acquired results may be used to predict the welding residual stresses. (6 refs)

Main heading: Residual stresses
Controlled terms: Butt welding - Calculations - Computer simulation - Computer software - Experiments - Finite element method - Tin plate
Uncontrolled terms: Effect of specimen dimension - Plate length - Plate width - Software ANSYS
Classification Code: 421 Strength of Building Materials; Mechanical Properties - 538.2.1 Welding Processes - 546.2 Tin and Alloys - 723.5 Computer Applications - 921.6 Numerical Methods
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

35. Method of edge detection based on fuzzy entropy and FKCN

Wang, Bao-Ping (1, 2); Liu, Sheng-Hu (1); Zhang, Jia-Tian (1); Zhang, Yan-Ning (3); Fan, Jiu-Lun (4)
Source: *Jisuanji Xuebao/Chinese Journal of Computers*, v 29, n 4, p 664-669, April 2006; **Language:** Chinese; **ISSN:** 02544164; **Publisher:** Science Press
Author affiliation: (1) School of Electronics Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Laboratory of Special Technology, Northwestern Polytechnic University, Xi'an 710072, China (3) Department of Computer Science and Engineering, Northwestern Polytechnic University, Xi'an 710072, China (4) Department of Information and Control, Xi'an Institute of Post and Telecommunications, Xi'an 710061, China
Abstract: The three natural characters of image edge are that the gray intensity distribution in neighborhood of image is ordered, directive, and structurized. Through quoting fuzzy entropy, the authors construct three information measures fuzzy entropy-based to describe the natural characters of image edge. Three component vectors for describing three natural characters of image edge are gotten via trained image samples. Firstly, a fuzzy Kohonen clustering network (FKCN) is trained with some feature vector consist of the three component vectors, and then the edge points in a new image are directly extracted by using the trained FKCN. The method does not need any threshold; more sensitive for weak edge detection; has better anti-noise performance since the influence of noise is adequately considered when the feature vector is selected. (10 refs)
Main heading: Edge detection
Controlled terms: Entropy - Image processing - Neural networks - Signal to noise ratio - Vectors - White noise
Uncontrolled terms: Anti noise performance - Feature vector - Figure of merit - Fuzzy entropy - Fuzzy Kohonen clustering network (FKCN) - Gray intensity - Image edge
Classification Code: 641.1 Thermodynamics - 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 723.4 Artificial Intelligence - 723.5 Computer Applications - 921.1 Algebra
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

36. Thickness-shear vibration of circular crystal plate in cylindrical shell as pressure sensor

Hu, Yuan-Tai (1, 2); Cui, Zhi-Jian (2, 3); Jiang, Shu-Nong (1); Yang, Jia-Shi (4)
Source: *Applied Mathematics and Mechanics (English Edition)*, v 27, n 6, p 749-755, June 2006; **ISSN:** 02534827; **DOI:** 10.1007/s10483-006-0605-z; **Publisher:** Shanghai University
Author affiliation: (1) Institute of Mechanics and Sensing Technology, Central South University, Changsha 410083, China (2) Department of Mechanics, Huazhong University of Science and Technology, Wuhan 430074, China (3) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (4) Department of Engineering Mechanics, University of Nebraska, Lincoln, NE 68588-0526, United States
Abstract: Based on the theory for small fields superposed on relatively larger fields in an electroelastic body, a theoretical analysis is performed on a circular plate thickness-shear crystal resonator sealed in a circular cylindrical shell for pressure measurement. A simple expression is obtained for pressure induced frequency shifts in the resonator, which is examined for design optimization. Numerical results show that the frequency shifts depend linearly on the pressure, and that a pressure sensor with a softer outer shell or a smaller thickness ratio of the crystal plate to the outer shell has higher sensitivity. (13 refs)
Main heading: Crystal resonators
Controlled terms: Elasticity - Electric field effects - Frequencies - Plates (structural components) - Pressure measurement - Sensors - Shear deformation - Shells (structures) - Vibrations (mechanical)
Uncontrolled terms: Biasing fields - Electroelastic body - Frequency shift - Incremental fields - Pressure sensor
Classification Code: 931.1 Mechanics - 732.2 Control Instrumentation - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 944.4 Pressure Measurements - 711.1

Electromagnetic Waves in Different Media - 421 Strength of Building Materials; Mechanical Properties - 408.2 Structural Members and Shapes - 701.1 Electricity: Basic Concepts and Phenomena
Funding Details: Number: 10172036, Acronym: NSFC, Sponsor: National Natural Science Foundation of China; Number: -, Acronym: -, Sponsor: Scientific Research Foundation for Returned Scholars of Ministry of Education;
Funding text: * Received Jun.13, 2005; Revised Feb.18, 2006 Project supported by the National Natural Science Foundation of China (No.10172036) and the Scientific Research Foundation for the Returned Overseas Chinese Scholars, State Education Ministry (SRF for ROCS, SEM). Corresponding author CUI Zhi-jian, Associate Professor, E-mail: zhjcui@xsyu.edu.cn
Treatment: Applications (APP) - Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

37. FBG pressure sensor based on bourdon and cantilever beam of uniform strength

Shao, Jun (1, 2); Liu, Jun-Hua (1); Qiao, Xue-Guang (2); Jia, Zhen-An (2); Wang, Hong-Liang (2); Zhou, Hong (2)
Source: *Guangdianzi Jiguang/Journal of Optoelectronics Laser*, v 17, n 7, p 807-809, July 2006; **Language:** Chinese; **ISSN:** 10050086; **Publisher:** Board of Optronics Lasers
Author affiliation: (1) School of Electrical Engineering, Xi'an Jiaotong University, Xi'an 710049, China (2) Key Lab. of Optical Fiber Sensing of Shaanxi Province, School of Science, Xi'an Petroleum University, Xi'an 710065, China
Abstract: Because of the adaptability of mechanical control, a cantilever which is coupled with a bourdon tube is proposed. Fiber Bragg grating (FBG) is affixed on the surface of the cantilever, and the affixing direction is consistent with axes of the cantilever, so an optical fiber pressure sensor is gotten. The relations of central wavelength shift and the pressure are analyzed. It is indicates that the central wavelength of the sensor and the pressure has good linearity. The pressure applied on the cantilever can be measured by measuring the central wavelength. The experimental value of the pressure sensitivity coefficient is 0.4365 nm/MPa. It is 142 times of that of the bare FBG. It is also indicated that the pressure sensitivity of the sensor varies with the size of the cantilever and bourdon tube. (12 refs)
Main heading: Optical sensors
Controlled terms: Cantilever beams - Fiber Bragg gratings - Optical fibers - Surfaces
Uncontrolled terms: Bourdon tube - Pressure sensitivity coefficient - Pressure sensor - Sensitivity
Classification Code: 732.2 Control Instrumentation - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 931.1 Mechanics
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

38. Transonic gas-water separation and liquid drainage technology by swirling flow in gas wellbore

Wang, Junqi (1, 2); Xu, Yonggao (2); Xue, Zhongtian (3); Xu, Jinglei (4); Bai, Bofeng (5)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 5, p 119-123, September 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) Petroleum Engineering Institute, Southwest Petroleum University, Chengdu 610500, China (2) Oil and Gas Technology Research Institute, Changqing Oilfield Company, PetroChina, Xi'an 710021, China (3) Xi'an Shiyou University, Xi'an 710065, China (4) Nanjing University of Aeronautic and Astronautics, Nanjing 210016, China (5) State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an 710049, China
Abstract: The transonic gas-water separation technology used in gas wellbore was mainly based on the flow mechanism of supersonic nozzle and transonic wing. The gas flow was accelerated to supersonic firstly by Laval nozzle and resulted in quick drop of gas temperature and condensation of saturated water from the gas flow. Then the droplet of water could be separated from the mixture flow with a signal transonic wing, because of the swirling flow. Since the droplets stayed in Laval nozzle for only milliseconds, it is too difficult to generate hydrate. Therefore, it is unnecessary to add any chemicals, such as hydrate inhibitor. The regeneration of harmful chemicals could be avoided completely. The principles of the technique and its application to gas wellbore was described in detail. Then a numerical simulation on gas flowing over the transonic wing was conducted. The fluid flowing status on flow field was determined. (12 refs)
Main heading: Natural gas wells
Controlled terms: Boreholes - Computer simulation - Drainage - Gases - Phase separation - Swirling flow - Transonic flow - Water
Uncontrolled terms: Gas wellbore - Gas-water separation technology - Liquid drainage

Classification Code: 931.2 Physical Properties of Gases, Liquids and Solids - 802.3 Chemical Operations - 631.1 Fluid Flow, General - 512.2.1 Natural Gas Fields - 511.1 Oil Field Production Operations - 501.1 Exploration and Prospecting Methods - 444 Water Resources
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

39. Study and applications of the high-efficiently plugging agent for thermal production wells

Yang, Zhen-Jie ; Yan, Pei-Yu ; Dong, Jia-Bin ; Chen, Yi-Fa ; Wang, Jia-Huai ; Huang, Qiu-Wei
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 4, p 54-57, July 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Department of Civil Engineering, Tsinghua University, Beijing 100084, China (3) No.2 Production Plant, Henan Oilfield Branch Company, Nanyang 473400, China (4) Research Institute of Production Technology, Xijiang Petroleum Administration Bureau, Kelamayi 834000, China (5) Well Testing Company, Xijiang Petroleum Administration Bureau, Kelamayi 834027, China
Abstract: The plugging constructions of thermal production wells have lower success rate and shorter valid period. In order to solve these problems, a new plugging agent XAN-RC is successfully developed for thermal production wells. The experimental results show that, the plugging agent can effectively stay in unconsolidated formation, it has higher strength in the early period of plugging operation, and its cementation strength does not decrease but increase at high temperature. The mechanism of the high-temperature resistance of the plugging agent is researched, and it is held that, XAN-RC takes secondary hydration and produces fibrous crystalline product at high temperature, this product has strong netted texture, and therefore, its interfacial cementation strength is improved. The high-efficiently plugging agent is applied to above 20 wells, and the plugging constructions reach to higher success rate, longer valid period and better production-increasing result. (4 refs)
Database: Compendex
Data Provider: Engineering Village

40. Semi-parametric statistical approach for overdetermined blind source separation

Ye, Ji-Min (1); Zhang, Xian-Da (2); Jin, Hai-Hong (3)
Source: *Dianbo Kexue Xuebao/Chinese Journal of Radio Science*, v 21, n 3, p 331-336, June 2006; **Language:** Chinese; **ISSN:** 10050388; **Publisher:** Chinese Research Institute of Radiowave Propagation
Author affiliation: (1) Key Lab. for Radar Signal Processing, School of Science, Xidian Univ., Xi'an 710071, China (2) Department of Automation, Tsinghua Univ., Beijing 100084, China (3) School of Science, Xi'an Petroleum Institute, Xi'an 710065, China
Abstract: This paper addresses the problem of overdetermined blind source separation (ODBSS). Firstly, it is shown there exits, in the sense of essential equality, a unique m × m nonsingular de-mixing matrix, where the outputs of the separation system consist of the scaled and permuted source signals plus zero signals. Secondly, based on the semiparametric theory, an estimating function is constructed and the corresponding learning algorithms are proposed. It is proved that the proposed algorithms for ODBSS is equivariant and has the property of keeping the demixing matrix from becoming singular. Due to the uniqueness of equilibrium or separating point of the algorithms, the new algorithms converge stably. The validity and stability of the new algorithms are illustrated via the computer simulations on ODBSS with an unknown and at the same time dynamic changing number of sources. (14 refs)
Main heading: Blind source separation
Controlled terms: Computer simulation - Estimation - Independent component analysis - Learning algorithms - Statistical methods
Uncontrolled terms: Estimating function - Semiparametric statistical approach
Classification Code: 716.1 Information Theory and Signal Processing - 723.4 Artificial Intelligence - 723.5 Computer Applications - 921 Mathematics - 922.2 Mathematical Statistics
Treatment: Applications (APP) - Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

41. Comparison of methods of failure probability of oil and gas transmission pipeline with defects

Dong, Yuhua ; Yu, Datao ; Gao, Huilin
Source: *Jixie Qiandu/Journal of Mechanical Strength*, v 28, n 1, p 118-122, February 2006; **Language:** Chinese; **ISSN:** 10019669; **Publisher:** Journal of Mechanical Strength
Author affiliation: (1) School of Materials Science and Engineering, University of Petroleum, Beijing 102249, China (2) Tubular Goods of Research Center, China National Petroleum Corporation, Xi'an 710065, China (3) School of Mechanical Engineering, Xi'an Petroleum University, Xi'an 710065, China
Abstract: It is important to assess reliability of pipeline with defects used for transporting oil and gas by means of probability fracture mechanics. First order and second moment method (FOSM) and Monte Carlo simulation method were used to evaluate failure probability of the pipeline with crack defects. Parameters such as crack size, material yield strength, fracture toughness and internal pressure were considered as random variables, as well as ratio of crack depth to length. The results show that the failure probability of the pipeline is 1.69 × 10-3 by FOSM, and it is 1.724 × 10-3 by Monte Carlo method. These two methods have similar failure probability, and the calculation error is 1.97%. Sensitivity analyses of variables indicate that it is crack depth that has the most important effect on the failure probability of the pipeline, the yield strength of material has a little effect, and the ratio of crack depth to length has some effect which means that it shouldn't be treated as constant during calculating the failure probability of the pipeline. (12 refs)
Database: Compendex
Data Provider: Engineering Village

42. An novel algorithm for blind source separation with unknown sources number

Ye, Ji-Min (1); Lou, Shun-Tian (1); Jin, Hai-Hong (2); Zhang, Xian-Da (3)
Source: *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, v 3971 LNCS, p 1147-1152, 2006, *Advances in Neural Networks - ISNN 2006: Third International Symposium on Neural Networks, ISNN 2006, Proceedings*; **ISSN:** 03029743, **E-ISSN:** 16113349; **ISBN-10:** 354034439X, **ISBN-13:** 9783540344391; **DOI:** 10.1007/11759966_169; **Conference:** 3rd International Symposium on Neural Networks, ISNN 2006 - Advances in Neural Networks, May 28, 2006 - June 1, 2006; **Publisher:** Springer Verlag
Author affiliation: (1) Key Lab for Radar Signal Processing, Xidian University, Xi'an 710071, China (2) School of Science, Xi'an Petroleum University, Xi'an 710071, China (3) Department of Automation, State Key Lab of Intelligent Technology and Systems, Tsinghua University, Beijing 100084, China
Abstract: The natural gradient blind source separation (BSS) algorithm with unknown source number proposed by Cichocki in 1999 is justified in this paper. An new method to detect the redundant separated signals based on structure of separating matrix is proposed, by embedding it into the natural gradient algorithm, an novel BSS algorithm with an unknown source number is developed. The novel algorithm can successfully separate source signals and converge stably, while the Cichocki's algorithm would diverge inevitably. The new method embedded in novel algorithm can detect and cancel the redundant separated signals within 320 iteration, which is far quicker than the method based on the decorrelation, if some parameters are chosen properly. © Springer-Verlag Berlin Heidelberg 2006. (10 refs)
Main heading: Algorithms
Controlled terms: Correlation methods - Iterative methods - Matrix algebra - Parameter estimation - Signal processing
Uncontrolled terms: Blind source separation (BSS) - Novel algorithm - Redundant separated signals - Source signals
Classification Code: 716.1 Information Theory and Signal Processing - 731.1 Control Systems - 921 Mathematics - 921.1 Algebra - 921.6 Numerical Methods - 922.2 Mathematical Statistics
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

43. Application of hydrocarbon-generating chemical kinetics in the Puguang gas field, NE Sichuan Basin

Zhao, Zhe ; Zhong, Ning-Ning ; Li, Yan-Xia ; Zhang, Ping
Source: *Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development*, v 33, n 6, p 682-686, December 2006; **Language:** Chinese; **ISSN:** 10000747; **Publisher:** Science Press
Author affiliation: (1) Research Institute of Petroleum Exploration and Development, PetroChina, Beijing 100083, China (2) Key Laboratory for Hydrocarbon Accumulation Mechanism, China University of Petroleum, Beijing 102249,

China (3) Department of Resource and Engineering, Xi'an Petroleum University, Xi'an 710065, China (4) Research Institute of Drilling and Production, Tuha Oilfield, Xinjiang 839009, China
Abstract: The Puguang gas field is a gas field with the largest scale, buried depths and oil-gas reserves in the Sichuan Basin. Based on the relations of the contribution of different source rocks, the key hydrocarbon-generating period and the tectonic evolution, the model of hydrocarbon-generating chemical kinetics was established and kinetics parameters were calibrated. The hydrocarbon-generating and oil-cracking processes were described quantitatively using the data of the source rock parameters, the basin burial and geothermal histories. The chief source rock is the Lower Silurian mudstone in the Puguang area, the chief kerogen-formed oil period is from the late Early Permian to the late Early Triassic (286-240 Ma), the chief kerogen-formed gas period is in the Middle Triassic (240-230Ma), the main origin of natural gas is the late-stage oil-cracking gas, and the chief period of oil-cracking is Early Cretaceous (144-97.5 Ma). The formed pattern of the gas field is of the multi-stage hydrocarbon accumulation, the transformation from oil to gas, and the late-stage finalization. (33 refs)
Database: Compendex
Data Provider: Engineering Village

44. Numerical simulation of remaining oil distribution in faulted layered reservoir

Li, Yuan-Jue ; Wang, Jia-Hua
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 41-43, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Sciences, Xi'an Shiyou University, Xi'an 710065, China (2) College of Computer, Xi'an Shiyou University, Xi'an 710065, China
Abstract: One of the means for accurately predicting remaining oil distribution is the numerical simulation of reservoir based on the fine description of the reservoir. The structure of faulted layered reservoir is more complex, and fault ridge has shielding action to the seepage flow of reservoir fluids. A processing method for correctly establishing the structural model of the reservoir and describing the permeability of the fault ridge is put forward in this paper, which is one of the two keys to the numerical simulation of the faulted layered reservoir; the other key is the fitting of reservoir production history. The idea is put forward that the production history of fault block is firstly fitted, and then the performance of individual well is fitted. This method is applied to the numerical simulation of remaining oil distribution of the faulted layered reservoir in western Wen-25 zone, which has been developed for more than 20 years. (5 refs)
Database: Compendex
Data Provider: Engineering Village

45. A study on titanium alloys deep-hole drilling technique

Zhu, Lin (1); Wang, Jiangping (1)
Source: *Materials Science Forum*, v 532-533, p 945-948, 2006, *Advances in Materials Manufacturing Science and Technology II - Selected Papers from the 12th International Manufacturing Conference in China*; **ISSN:** 02555476, **E-ISSN:** 16629752; **ISBN-10:** 0878494219, **ISBN-13:** 9780878494217; **DOI:** 10.4028/0-87849-421-9.945; **Conference:** 12th International Manufacturing Conference in China, IMCC2006, September 21, 2006 - September 23, 2006; **Sponsor:** National University of Singapore; Northwestern Polytechnical University; The Hong Kong Polytechnic University; University of Strathclyde; University of Warwick; **Publisher:** Trans Tech Publications Ltd
Author affiliation: (1) School of Mechanical Engineering, Xian Shiyou University, Xian, Shanxi 710065, China
Abstract: Focusing on the difficult-to-cut characteristic of titanium alloy, this paper selects several cemented carbide tool materials in the tests of machining the titanium alloy workpieces. Different sets of geometrical parameters of the drilling bits are grouped, chosen and optimized, and then deep-hole drilling tests are carried out. The suitable cutter materials and the optimum geometrical parameters of the cutter for drilling deep holes in titanium alloy have been determined through the analysis of tested results. (4 refs)
Main heading: Titanium alloys
Controlled terms: Drilling - Carbides - Carbide tools - Geometry
Uncontrolled terms: Cemented carbide tools - Cemented carbides - Cutter materials - Deep hole drilling - Deep hole drilling technique - Drilling bit - Drilling tool - Geometrical parameters
Classification Code: 542.3 Titanium and Alloys - 603.2 Machine Tool Accessories - 804.2 Inorganic Compounds - 812.1 Ceramics - 921 Mathematics
Database: Compendex
Data Provider: Engineering Village

46. Data fusion technique for discernment and diagnosis of formation damage

Wang, Jiangping (1); Zhang, Ningsheng (2)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 6, p 107-111, November 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The mechanism of formation damage and the relevant protection technology are discussed. An information fusion model for identification, diagnosis, estimation and forecast of formation damage using the data fusion technique and the uncertainty decision theory was established. The reservior information from multi-source constructed the sample space for recognizing type of reservior, and all possible types of formation damage composed the objective discrimination domain. The information fusion in multilayer space was carried out by the evidence thoery. Then, based on the multilayer blackboard model, a systematic framework for decision-making of diagnosis of formation damage and formation protection was set up. This technique can use formation information effectively, discern the causes of formation damage accurately and help the formation protection measures to be implemented in time. (9 refs)
Main heading: Petroleum reservoirs
Controlled terms: Decision making - Diagnosis - Geographic information systems - Identification (control systems) - Mathematical models - Protection
Uncontrolled terms: Blackboard model - Diagnostic technique - Formation damage - Information fusion model - Oil-gas reservoir protection
Classification Code: 512.1.1 Oil Fields - 723.3 Database Systems - 731.1 Control Systems - 903.3 Information Retrieval and Use - 912.2 Management - 914.1 Accidents and Accident Prevention
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

47. Vibration-based fault diagnosis of pump using fuzzy technique

Wang, Jiangping (1); Hu, Hongtao (2)
Source: *Measurement: Journal of the International Measurement Confederation*, v 39, n 2, p 176-185, February 2006; **ISSN:** 02632241; **DOI:** 10.1016/j.measurement.2005.07.015; **Publisher:** Elsevier
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China (2) School of Computer Science, Xi'an Shiyou University, Xi'an, Shaanxi 710065, China
Abstract: This paper focuses on a problem of vibration-based condition monitoring and fault diagnosis of pumps used in oil field to recover petroleum. The vibration-based machine condition monitoring and fault diagnosis incorporate a number of machinery fault detection and diagnostic techniques. Many machinery fault diagnostic techniques utilize automatic signal classification in order to increase accuracy and reduce errors caused by subjective human judgment. In this paper, fuzzy logic principle is used as a fault diagnostic technique to describe the uncertain and ambiguous relationship between different fault symptoms and the events, analyze the fuzzy information existing in the different phases of fault diagnosis and condition monitoring of the pumps, and classify frequency spectra representing various pump faults. The diagnostic features are extracted from frequency spectra of the vibration signals of the pump. The frequency spectra representing a number of different fault conditions are then processed using fuzzy membership function, which is established by means of dynamic signal processing based on the condition variables. Correct classification and condition recognition of different pump fault spectra are realized when fuzzy comprehensive discrimination according to the defuzzy diagnosis rules is applied. The work conducted, proposing the new method of the pump fault identification based on fuzzy logic technique, shows the great potentiality and the strong ability to classify and identify machinery faults. © 2005 Elsevier Ltd. All rights reserved. (8 refs)
Main heading: Fuzzy sets
Controlled terms: Crude petroleum - Membership functions - Problem solving - Pumps - Signal processing - Vibrations (mechanical)
Uncontrolled terms: Fault detection - Fault diagnosis - Fuzzy logic principle - Vibration
Classification Code: 512.1 Petroleum Deposits - 618.2 Pumps - 716.1 Information Theory and Signal Processing - 921 Mathematics - 931.1 Mechanics
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

48. Improvement of synthesis method of 2-(2, 4-dihydroxyphenyl)-2H-Benzotriazol

Zhang, Ke-Liang ; Zhang, Ning-Sheng
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 5, p 76-78, September 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: 2-(2, 4-dihydroxyphenyl)-2H-Benzotriazol is successfully prepared by azo-reaction, coupling and reduction. The sorts of reductant are researched. The results show that azo compounds can be reduced with self-made reductant--thiourea dioxide using an aqueous solution of ethanol in the presence of sodium hydroxide. The reduction method is of simpler technology, shorter reaction time and higher yield. The influence of the dose of thiourea dioxide on the yield of the objective product is investigated, and the better technological conditions are obtained: azo compound of 6.5 g, sodium hydroxide of 12.5 g, aqueous ethanol solution of 120 mL (V/V = 1:1), thiourea dioxide of l0 g, reaction temperature of 60-65 °C, reaction time of 2 h. The yield of 2-(2, 4-dihy-drophenyl)-2H-Benzotriazol is up to 64.2%. The structure of 2-(2, 4-dihydrophenyl)-2H-Benzotriazol is characterized by IR, melting point and elementary analysis. (8 refs)
Database: Compendex
Data Provider: Engineering Village

49. Data mining system for drilling mechanical failure diagnosis based on neural network

Zhang, Yun (1); Zhang, Ningsheng (1); Liu, Qian (1); Ning, Gang (1)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 1, p 111-113, January 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, China
Abstract: The complicated failure of drilling machinery was investigated with the data mining technique. The structure frame of the drilling mechanical failure data mining system is presented. The drilling mechanical failure diagnosis based on neural network was analyzed. A new method for making use of neural network to carry out diagnosis of drilling mechanical failure was proposed. The validity and practicability of the new diagnosis method were proved by the application case history of the data mining system for drilling mechanical failure diagnosis. (7 refs)
Main heading: Drilling machines (machine tools)
Controlled terms: Computer aided diagnosis - Data mining - Data warehouses - Failure analysis - Neural networks
Uncontrolled terms: Data mining technique - Drilling machinery - Failure diagnosis
Classification Code: 603.1 Machine Tools, General - 723.2 Data Processing and Image Processing - 723.4 Artificial Intelligence - 921 Mathematics
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

50. Finite element analysis of contact stress for double-arc gear based on ANSYS

Qu, Wentao ; Shen, Yunwen ; Xu, Jianning
Source: *Nongye Jixie Xuebao/Transactions of the Chinese Society of Agricultural Machinery*, v 37, n 10, p 139-141, October 2006; **Language:** Chinese; **ISSN:** 10001298; **Publisher:** Chinese Society of Agricultural Machinery
Author affiliation: (1) Xi'an Shiyou University, China (2) Northwestern Polytechnical University, China
Abstract: Three dimensional finite element model of static contact for single tooth-pair of double-arc gear was established according to APDL language embedded in ANSYS, and the distributing graph of static contact stress was obtained after separating reseau and loading. Meanwhile, the dynamic contact model of many teeth based on ANSYS/LS - DYNA was built up and the dynamic contact was analyzed. The results provided theoretical basis for the design and application of double-arc gear. (4 refs)
Database: Compendex
Data Provider: Engineering Village

51. Study on the processing performance of mixture-abrasive honing stones

Peng, H. (1); Zhu, L. (1); Wang, J.P. (1); Bao, Z.F. (1)
Source: *Current Development in Abrasive Technology - Proceedings of the 9th International Symposium on Advances in Abrasive Technology, ISAAT 2006*, p 191-197, 2006, *Current Development in Abrasive Technology - Proceedings of the 9th International Symposium on Advances in Abrasive Technology, ISAAT 2006*; **ISBN-10:** 095806928X, **ISBN-13:** 9780958069281; **Conference:** 9th International Symposium on Advances in Abrasive Technology: Current

Development in Abrasive Technology, ISAAT 2006, September 26, 2006 - September 29, 2006; **Sponsor:** Dalian University of Technology; Liaoning Provincial Mechanical Engineering Society; Natural Science Foundation of China; The Japan Society for Abrasive Technology; **Publisher:** Frontiers of Design and Manufacturing
Author affiliation: (1) Xi'an Shiyou University, Xi'an, Shaanxi, 710065, China
Abstract: The honing processing is an effective processing method of enhancing the surface finish of the holes, especially the deep-holes. The grinding properties of honing stones directly affect the honing efficiency and the processing precision. With the development of advanced honing technology and the applications of the difficult-to-cut materials, conventional single-abrasive, such as corundum or silicon-carbide, honing stones can not meet the demands for highly effective honing processing. The mixture-abrasive honing stones, however, have the special properties, which can take use of the advantages of the abrasives in the mixture-abrasive honing stones. This article introduces the properties of several kinds of abrasives, corundum series and silicon-carbide series, and presents the design of several mixture-abrasive honing stones with different abrasives in different proportions. Several workpieces with typical metal materials have been honed in the contrast experiments. The better mixture-abrasive honing stones to grinding the relevant metal material have been found according to the experiment results. So we can get a conclusion that the mixture-abrasive honing stones have better honing performance than single abrasive honing stones when grinding some metals. The honing method is one kind of finishing process that is usually used for obtaining high-dimensional accuracy and better surface finish of a hole. It is widely utilized in the precision process of the workpieces with the holes in the automobile, space navigation, A-energy, electricity, petrochemical and petroleum industries etc.. The demand for the honing equipment, technique and hones increase highly as the demand for machining precision, honing efficiency and the application of difficult-to-cut materials have increase. Because the honing stones are one of primary factors that influence the surface finish of a hole and the honing efficiency, the abrasive properties of a honing stone will influence processing performance directly. The conventional single-abrasives, such as corundum series or silicon-carbide series, having some limitation in their uses, can not handle the difficult-to-cut materials effectively because of their single grinding property. The mixture-abrasive honing stones, however, have the special properties, which can take use of the advantages of the abrasives in the mixture-abrasive honing stones. Therefore, we have designed several mixture-abrasive honing stones with different proportion of different abrasives, carried on the contrast experiments for different mixture-abrasive honing atones to grind different metal materials, and analyzed the experiment results. From the experiments and analysis we find the optimum proportion of different abrasives for different metal materials. Copyright © 2006 Frontiers of Design and Manufacturing. (4 refs)
Main heading: Mixtures
Controlled terms: Abrasives - Honing - Corundum - Grinding (machining) - Metals - Silicon carbide
Uncontrolled terms: Abrasive properties - Contrast experiment - Different proportions - Difficult-to-cut materials - High dimensional accuracy - Machining precision - Processing performance - Processing precision
Classification Code: 482.2 Minerals - 604.2 Machining Operations - 606.1 Abrasive Materials - 804.2 Inorganic Compounds
Database: Compendex
Data Provider: Engineering Village

52. Study on the security mechanism of cooperative design system

Qin, Jin-Xiang ; Yang, Meng ; Fang, Ming
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 99-102, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Computer, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Abstract: safety control is an important sector of cooperative design system, directly affecting the operation of the design system. First, the safety problems that the system faces are analyzed according to the basic characteristics of the cooperative design system, and then in accordance with the complexity of the safety control, the corresponding security mechanisms in three aspects of cooperative database, cooperative design system and network communication are established in order to guarantee the normal operation of the cooperative design system. (5 refs)
Database: Compendex
Data Provider: Engineering Village

53. Study on the architecture of project design management system

Zhang, Qing-Hua ; Liu, Tian-Shi ; Song, Xin-Ai ; Wang, Li-Na ; Zhao, An-Ke
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 2, p 80-83, March 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Computer, Xi'an Shiyou University, Xi'an 710065, China

Abstract: The development and the requirement of project design management system in the applications of enterprises are analyzed, and the architecture of the project design management system is put forward based on workflow techniques and Web service. Some problems existing in project design management system are solved by means of the flexibility of workflow techniques and the loose coupling of Web service. The thinking for solving some technical problems in the system is presented. Finally, an application case of the system is given. (6 refs)
Database: Compendex
Data Provider: Engineering Village

54. Experimental research of hydraulic properties and mass transfer of tooth-like narrow strip valves

Zhou, San-Ping ; Fan, Yu-Guang ; Chen, Bing ; Chu, Ya-Zhi
Source: *Huaxue Gongcheng/Chemical Engineering (China)*, v 34, n 2, p 4-7, February 2006; **Language:** Chinese; **ISSN:** 10059954; **Publisher:** Editorial Office of Chemical Engineering (China)
Author affiliation: (1) Mechanical Engineering School, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The effect of tooth-like edge on mass transfer and structural characteristics of tooth-like narrow strip valves were presented. The compared experiments of tooth-like narrow strip valve STV75 with Fl type valve were performed in an experimental rectangular column of 1000 mm × 350 mm by employing a typical model experimental system of water-air. From the experiment, many hydraulic properties, such as tray pressure drop, entrainment rate, weeping rate and tray efficiency, were measured and mass transfer efficiency was determined through the method of oxygen-absorptions. Both the result of the experiments and the result of the application in industry demonstrate that under the same condition, compared with those of the tray equipped with Fl type valves, the tray efficiency of the tray equipped with tooth-like narrow strip valve is improved by 10%-20%, and its pressure drop is lowered by over 100 Pa. The entrainment rate and weeping rate of STV75 tray are almost equivalent to those of Fl type tray. Consequently, the tooth-like narrow strip valve is proven to be a better valve in terms of comprehensive technology. (2 refs)
Database: Compendex
Data Provider: Engineering Village

55. Integration and sharing platform based on XML technique of multi-source heterogeneous drilling data

Xu, Yingzhuo (1)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 4, p 110-114, July 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) Institute of Computer, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The application status and requirement for management of drilling engineering data were discussed. The defects of traditional drilling software were analyzed. A method for integrating and sharing all kinds of drilling data under computer network was put forward. An integration and sharing platform for multi-source heterogeneous drilling data constructed with XML technique and WITSML standard was put forward. This platform can take full advantage of existing resources and realize data integration and sharing for the relative departments of drilling sites, bases and headquarters for improving the decision-making efficiency and accuracy. The structure, technologic principle and realizing method of the platform were described. (6 refs)
Main heading: Well drilling
Controlled terms: Computer networks - Data communication systems - Decision making - Integration
Uncontrolled terms: Data integration - Drilling engineering data - Multi-sources heterogeneous technique - Sharing platform
Classification Code: 512.1.2 Petroleum Deposits : Development Operations - 723 Computer Software, Data Handling and Applications - 912.2 Management - 921.2 Calculus
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

56. Study of the performance of the high-pressure resistant FBG pressure sensor with the exteranlly pressurized type elastic cylinder

Zhou, Hong (1); Qiao, Xue-Guang (1); Shao, Jun (1); Wang, Hong-Liang (1); Li, Lan (1)

Source: *Xi'an Dianzi Keji Daxue Xuebao/Journal of Xidian University*, v 33, n 4, p 646-649, August 2006; **Language:** Chinese; **ISSN:** 10012400; **Publisher:** Science Press
Author affiliation: (1) Fiber Sensing Lab., Xi'an Shiyou Univ., Xi'an 710065, China
Abstract: A high-pressure resistant fiber Bragg grating (FBG) pressure sensor using a metallic elastic cylinder as the substrate is designed, the properties of the said sensor are tested in the temperature range of 16-60°C and the pressure range of 0-52 MPa. and its performance parameters and the temperature revise factor are calculated. Results show that the performance of the said sensor is stable, with its repeatability being good, the tuning range of linearity being 4.066 nm, the pressure sensitivity being 0.0782 nm/MPa, and the wavelength resolving capability for pressure demodulation being 1.56 pm. After the temperature is revised, the opposite error margin of the pressure measure is reduced from 5.2% to 0.25%, Double sealing design has been adopted, thus avoiding fluid or gas leakage. By selecting the materials of different elastic moduli, the inner diameter and thickness, the measuring range and sensitivity of the said sensor can be adjusted. (7 refs)
Main heading: Sensors
Controlled terms: Cylinders (shapes) - Demodulation - Elastic moduli - Elasticity - Fiber Bragg gratings - Fiber optics - High pressure effects - Optical fibers - Sensitivity analysis - Temperature
Uncontrolled terms: Metallic elastic cylinder - Pressure sensing characteristics - Sensor Sensitivity - Temperature range
Classification Code: 741.3 Optical Devices and Systems - 741.1.2 Fiber Optics - 732.2 Control Instrumentation - 931.2 Physical Properties of Gases, Liquids and Solids - 716.1 Information Theory and Signal Processing - 421 Strength of Building Materials; Mechanical Properties - 408.2 Structural Members and Shapes - 641.1 Thermodynamics
Treatment: Applications (APP) - Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

57. Amelioration of tooth-like narrow strip valve

Zhou, San-Ping ; Fan, Yu-Guang
Source: *Xiandai Huagong/Modern Chemical Industry*, v 26, n 12, p 53-56, December 2006; **Language:** Chinese; **ISSN:** 02534320; **Publisher:** China National Chemical Information Center
Author affiliation: (1) Mechanical Engineering Institute, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The designing philosophy of 3D strip valve is analyzed in detail. In an experimental rectangular column of 1000 mm × 350 mm, comparison experiments of 3D strip valve with STV strip valve and Fl valve were performed by employing a typical model experimental system of water-air. The hydraulic properties, such as tray pressure drop, entrainment rate, and weeping rate were measured, and the mass transfer efficiency was determined through the method of oxygen-absorptions. The results demonstrated that under the same conditions, the comprehensive performance of 3D strip valve was better than that of STV strip valve and Fl type of valve. The tray efficiency of 3D strip valves was the highest, while the tray pressure drop was the lowest in the scope of industrial use, and the entrainment rate and weeping rate were lower than that of STV strip valve and almost the same with Fl type. It's proven that 3D strip valve was a better valve in terms of comprehensive technology. (13 refs)
Database: Compendex
Data Provider: Engineering Village

58. Analyses of public key cipher and its data expanding rate

Cheng, Jun-Bo
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 5, p 82-83, September 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Computer, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The public key cipher algorithm based on bag question is studied using super-increasing tolerance theory. A direction to improving the MH public key cipher algorithm based on bag problem and the essential conditions to new transformation are put forward. The concept of data expanding rate is presented to evaluate the public key cipher algorithms based on bag question. (4 refs)
Database: Compendex
Data Provider: Engineering Village

59. Study on the corrosion resistance of the repassivation film of austenitic stainless steel

Wang, Jin-Gang
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 5, p 79-81, September 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The spontaneous passivation film of austenitic stainless steel is very thin, and it is easily destroyed by corrosion in anionic environment. The passivation film makes stainless steel only have dull metallic luster and metallic color. A thin sheet of chemical film can be formed on the surface of metals by repassivation technology, it can not only improve the corrosion resistance of stainless steel but also make the surface of stainless steel present different colors by light interference. Some test pieces are passivated by acidic chemical coloring, and the corrosion tests of the passivated test pieces and original test pieces are carried in FeCl3 solution. The experimental results of overall corrosion and spot corrosion all show that the corrosion resistance of the passivated test pieces are better than that of the original test pieces. The metal passivation technology is green, economic and practical, and therefore it has good prospects of application. (5 refs)
Database: Compendex
Data Provider: Engineering Village

60. Time-domain detection of the weak signal of through casing resistivity logging

Zhang, Jia-Tian ; Ji, Jing ; Yan, Zheng-Guo
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 6, p 80-82, November 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Through casing resistivity logging is an important logging technology, and the difficulty in this technology is the detection of weak signal. A time domain detection method of weak signal is put forward, and the principle of the method is expatiated on in detail. At the same time, the results of the simulation experiments of the weak signal detection are presented. The experiments show that in using the time domain method to process the weak signal detection of through casing resistivity logging, a very high detection precision can be obtained when the lowest SNR reaches to -20 dB. (5 refs)
Database: Compendex
Data Provider: Engineering Village

61. Automatic measurement technology of the single-well oil-gas yield based on the pump dynamometer card of a suck-rod pumping well

Yan, Chang-Liang ; Peng, Yong
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 6, p 92-95, November 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: On the basis of the dynamometer card of the pump in suck-rod pumping system and the auto-diagnosis technology of oil well's working conditions, the opening points and the closing points of the traveling valve and the standing valve of the pump are determined by the curvature of the closed curve of the dynamometer card. Based on these, and the theoretical method of the automatic measurement technology and its mathematical model are put forward. The mean error between the oil-gas yields calculated by the mathematical model and the practically measuring yields is 8.93 %, the maximum error is 20.26 %, the minimum error is 0.07 %, and the wells whose relative error is less than 15% account for 85. 71 %. This shows that the automatic measurement technology is reliable, and therefore it has good application prospects. The technology has been applied to the automatically monitoring system of beam-pumping wells. (9 refs)
Database: Compendex
Data Provider: Engineering Village

62. Study on remaining oil distribution of Zhi-32 reservoir in south-1 zone of Maling Oilfield

Gao, Yong-Li ; Jiang, Miao ; Chen, Ming-Qiang
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 52-54, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China

Abstract: Because the water-cut of the reservoir quickly rises and its production greatly decreases, the production history, the remaining oil distribution and the major factors of controlling remaining oil distribution of this area are studied using numerical simulation method. The study result shows that, although the recovery factor and the water cut of the oilfield are all higher, there is still some remaining oil in its boundary and corner zones, multi-directional water squeezing zones and local low permeability zones, and these zones are the important targets to next exploration. The edge water and the heterogeneity of the reservoir are the main factors of influencing the remaining oil distribution. (3 refs)
Database: Compendex
Data Provider: Engineering Village

63. A new type of environment protection dry transformer for high voltage

Guo, Ying-Na
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 2, p 66-68+72, March 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The structure of a new type of green dry-type transformer for high voltage is introduced. High-voltage cable is used as the winding of this type of transformer, and therefore insulating oil is not needed. The analyses of its basic characteristics such as temperature rise, electric field distribution, transient voltage behavior, short-circuit impedance and load loss show that, compared with the traditional transformers, this type of transformer has the advantages of high voltage class, greater capacity, frame retardation, less environment impact, lower line losses, high insulating strength, simple structure and so on. (9 refs)
Database: Compendex
Data Provider: Engineering Village

64. Obtaining empirical formula between pole structure parameters and magnetic fluid seal differential pressure by regression orthogonal design

Fan, Yuguang (1)
Source: *Run Hua Yu Mi Feng/Lubrication Engineering*, n 1, p 83-85, January 2006; **Language:** Chinese; **ISSN:** 02540150; **Publisher:** Science Press
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: With orthogonal analyzing and regression analyzing in the field of differential pressure analysis of magnetic fluid seal, regression empirical formula of magnetic fluid seal between pole structure parameters and seal differential pressure was obtained through orthogonal regression design. It is indicated that the results of regression empirical formulas are close to the results of finite element mode and seal experiment, the empirical formula can satisfy the need of engineering application. (8 refs)
Main heading: Magnetic fluids
Controlled terms: Finite element method - Pressure - Regression analysis - Sealing (closing) - Structures (built objects)
Uncontrolled terms: Empirical formulas - Magnetic fluid seal - Orthogonal analyzing - Pole structure parameters
Classification Code: 408 Structural Design - 708.4 Magnetic Materials - 921.6 Numerical Methods - 922.2 Mathematical Statistics
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

65. Development of the digital speed-controlling unit for electric running-rigs

Li, Lin ; Shi, Fu-Bin ; Zhang, Qi-Zhi
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 4, p 91-93, July 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In accordance with the pulse characteristic of the load of the running-rigs which are driven by DC motor with small power, a dedicated digital speed-controlling unit for the electric running-rigs is developed using P87LPC768 MPU. The unit makes full use of MPU resources and FUZZY-PID algorithm, and it generates PWM pulse by automatically adjusting PID parameters in order to realize the speed control of the running-rigs. The results of industrial

tests show that the unit has not only simple structure and high performance-to-price ratio but also high control precision to the speed of the running-rigs. And it can also be applied to the speed control of other sport-rigs. (3 refs)
Database: Compendex
Data Provider: Engineering Village

66. Research on integration and access for multi-dimension data information in grid

Li, Runzhou ; Fang, Ming ; Sun, Youcang
Source: *Jisuanji Gongcheng/Computer Engineering*, v 32, n 17, p 280-282, Sep 5 2006; **Language:** Chinese; **ISSN:** 10003428; **Publisher:** Shanghai Computer Society
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In a specific application domain, the grid data management needs to integrate and access existing information resource by publishing domain-specific metadata. In this paper, the information resource in the field of oil and gas exploration and development is regarded as main study object. Based on its multi-dimensional, multi-tiered and structured characteristic, a grid component is designed to integrate and access existing databases. It also depicts the metadata schema that describes the database contents and mapping schema and discusses the component's role in application grid architecture. (7 refs)
Database: Compendex
Data Provider: Engineering Village

67. Application of laser-based position sensitive detector in optical triangulation

Lin, Li (1); Mu, Xiangyang (1); Zhang, Qizhi (1); Tang, Nan (1)
Source: *WMSCI 2006 - The 10th World Multi-Conference on Systemics, Cybernetics and Informatics, Jointly with the 12th International Conference on Information Systems Analysis and Synthesis, ISAS 2006 - Proc.*, v 7, p 371-376, 2006, *WMSCI 2006 - The 10th World Multi-Conference on Systemics, Cybernetics and Informatics, Jointly with the 12th International Conference on Information Systems Analysis and Synthesis, ISAS 2006 - Proc.*; **ISBN-10:** 9806560728, **ISBN-13:** 9789806560727; **Conference:** 10th World Multi-Conference on Systemics, Cybernetics and Informatics, WMSCI 2006, Jointly with the 12th International Conference on Information Systems Analysis and Synthesis, ISAS 2006, July 16, 2006 - July 19, 2006; **Sponsor:** International Institute of Informatics and Systemics (IIIS); **Publisher:** International Social Science Council,ISSC
Author affiliation: (1) School of Electronic Engineering, Xi'an Shiyou University, Xi'an, Shaanxi, China
Abstract: The structure, the character and the operating principle of a new laser-based position sensitive detector (PSD) are introduced. The application of one-dimensional laser-based PSD in optical triangulation being taken as an example, the basic constitution of the triangulation system is presented. Some key techniques in the application of the laser-based PSD are discussed. A case of on-line measurement shows that, even if the object to be measured is moving, the measurement system can still gain satisfied result. (6 refs)
Main heading: Triangulation
Controlled terms: Optical sensors
Uncontrolled terms: Application of laser - Laser detection - Laser-based - Measurement system - On-line measurement - Operating principles - Optical triangulations - Position-Sensitive Detectors
Classification Code: 405.3 Surveying - 741.3 Optical Devices and Systems
Database: Compendex
Data Provider: Engineering Village

68. Experimental study of signal monitoring for fiber Bragg grating in the dynamic and static state

Wang, Xiao-Feng (1); Qiao, Xue-Guang (1); Jia, Zhen-An (1); Zhao, Da-Zhuang (1); Guo, Xiao-Dong (1)
Source: *Guangdianzi Jiguang/Journal of Optoelectronics Laser*, v 17, n 9, p 1048-1051, September 2006; **Language:** Chinese; **ISSN:** 10050086; **Publisher:** Board of Optronics Lasers
Author affiliation: (1) Optical Fiber Sensing Laboratory, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Based on the principle of tunable fiber Fabry-Perot (TF F-P) filter which scans the reflected peak of fiber Bragg grating (FBG), a novel detection method is advanced. The synthesis of reflected and transmitted spectrum is monitored in dynamic and static state respectively, which is realized by the different signals driving TF F-P filter. The chart between light power and voltage is simulated and analysed in the static state, and the dynamic signal is detected

with the oscillograph. The experimental result is consistent with the theoretic analysis. Wavelength resolution of 1 pm and measuring precision of 0.01 nm are obtained in the calibrated system. (6 refs)
Main heading: Fiber Bragg gratings
Controlled terms: Electric potential - Monitoring - Optical filters - Oscillographs - Photodetectors
Uncontrolled terms: Signal monitoring - Tunable fiber Fabry-Perot (TF F-P) filter - Wavelength shift
Classification Code: 701.1 Electricity: Basic Concepts and Phenomena - 714.1 Electron Tubes - 741.3 Optical Devices and Systems - 942.1 Electric and Electronic Instruments
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

69. Determination of effective thickness for oil reservoirs with extra-low permeability

Song, Ziqi (1); Cheng, Guojian (1); Wang, Jing (1); Lu, Xiangwei (1); Pan, Ting (1)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 6, p 103-106, November 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: On the basis of core analyses, geological and well testing data, the background value and effective oil and gas component influencing the variety of characteristics of oil reservoirs with extra-low permeability in Shaanbei Slope were analyzed and identified by many kinds of logging curves. The elimination criterion of physical and electrical properties cutoffs and various interlayer for determining the effective thickness of oil layers with extra-low permeability was proposed on the basis of numerical and statistic analyses of calcareous interlayer and muddy interlayer in the studied layers. The fine evaluation and treatment on more than 80 wells in a certain extra-low permeability reservoir were made by eliminating the calcareous interlayers, muddy interlayers, tight layers, dry sands and under-standard poor layers. The thickness of oil layers in every well was determined. This method can guarantee the precision of log interpretation and prediction of favorable zones in the layers. (10 refs)
Main heading: Low permeability reservoirs
Controlled terms: Forecasting - Petroleum geology - Petroleum reservoirs - Thickness measurement - Well logging - Well testing
Uncontrolled terms: Determination - Effective thickness - Extra-low permeability reservoir - Geological factor - Log response - Reservoir parameter
Classification Code: 481.1 Geology - 512.1 Petroleum Deposits - 512.2.2 Natural Gas Deposits: Development Operations - 922.2 Mathematical Statistics - 943.2 Mechanical Variables Measurements
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

70. Novel packaged fiber Bragg grating temperature sensor with high temperature-resistance

Yu, Dakuan ; Qiao, Xueguang ; Jia, Zhen'an ; Sun, An ; Wang, Min
Source: *Guangzi Xuebao/Acta Photonica Sinica*, v 35, n 2, p 232-234, February 2006; **Language:** Chinese; **ISSN:** 10044213; **Publisher:** Chinese Optical Society
Author affiliation: (1) Optical Fiber Sensing Key Laboratory, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The principle of fiber Bragg grating sensing is analyzed. Fiber Bragg grating (FBG) is placed in a thin metal tube and a special kind of high temperature-resistance pastern felts with two ends of the metal tube to make FBG not to fall off. Tensile force is put on the FBG by the screw thread in the process of encapsulation, which ensures the FBG tightening in changeable temperatures out of environment. It is found that the structure of FBG temperature sensor has good repeatability and linearity. The experimental results show that the temperature response sensitivity is 0.0252 nm/°C, and the response curve is linear, and the whole measuring range is over 200°C at least. The FBG temperature sensor can be used in high temperature environment. (8 refs)
Database: Compendex
Data Provider: Engineering Village

71. Experimental study on the mechanism of emulsion flooding with micromodels

Wang, Feng-Qin ; Qu, Zhi-Hao ; Kong, Ling-Rong

Source: *Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development*, v 33, n 2, p 221-224, April 2006;
Language: Chinese; **ISSN:** 10000747; **Publisher:** Science Press
Author affiliation: (1) Northwest University, Shaanxi 710069, China (2) Xi'an Shiyou University, Shaanxi 710065, China
Abstract: By the experiment of emulsion flow in micromodels of real sandstone, the mechanisms of emulsion displacement and its characteristics in porous media were analyzed. The results show that the different kinds of residual oil, which are formed by water flooding, are reduced after the emulsion flooding. There are two manners for the mechanism of emulsion flooding: (l) By the diffluence effects produced by plugging big channels, the residual oil caused by bypassing flow is reduced; (2) By the actions of extrusion, pull and draught during emulsion flowing into the throats, efficient displacement of residual oil on the edge and corner of the pores is obtained. The experiments show that the oil displacement efficiency will increase by about 6% after emulsion flooding. (13 refs)
Database: Compendex
Data Provider: Engineering Village

72. Image color reduction based on self-organizing maps and growing self-organizing neural networks

Guojian, Cheng (1); Jinquan, Yang (1); Kuisheng, Wang (1); Xiaoxiao, Wang (1)
Source: *Proceedings - Sixth International Conference on Hybrid Intelligent Systems and Fourth Conference on Neuro-Computing and Evolving Intelligence, HIS-NCEI 2006*, 2006; **ISBN-10:** 0769526624, **ISBN-13:** 9780769526621; **DOI:** 10.1109/HIS.2006.264907; **Article number:** 4041404; **Conference:** 6th International Conference on Hybrid Intelligent Systems and 4th Conference on Neuro-Computing and Evolving Intelligence, HIS-NCEI 2006, December 13, 2006 - December 15, 2006; **Publisher:** Inst. of Elec. and Elec. Eng. Computer Society
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Shaanxi Province, 710065, China
Abstract: Color is one of the most important properties for object detection. Color Reduction of Image (CRI) is an important factor for segmentation, compression, presentation and transmission of images. The main purpose of CRI is to cut off the image storage spaces and computation time. Kohonen's Self-Organizing Maps (KSOM) can generate mappings from high-dimensional signal spaces to lower dimensional topological structures. The main characteristics of KSOM are formation of topology preserving feature maps and approximation of input probability distribution. Growing Self-Organizing Neural Network (GSONN) has got more and more attentions in the past decade, to overcome some limitations of KSOM. An effective approach to solve CRI problem is to consider it as a clustering problem and solve it by using some adaptive clustering methods, such as KSOM and GSONN. This paper first gives an introduction to KSOM and neural gas network. Then, we discuss a typical GSONN, growing neural gas. After that, a performance comparison of KSOM and GSONN for CRI is given. It is ended with some conclusions. © 2006 IEEE. (10 refs)
Main heading: Self organizing maps
Controlled terms: Adaptive systems - Color - Image compression - Image segmentation - Object recognition - Signal processing
Uncontrolled terms: Color Reduction of Image (CRI) - Image color reduction - Neural gas networks - Soft competitive learning
Classification Code: 716 Telecommunication; Radar, Radio and Television - 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 723.4 Artificial Intelligence - 741.1 Light/Optics
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

73. Development of the digital DC-speed controller of the pulse load

Li, Lin (1); Shi, Fu-Bin (1); Zhang, Qi-Zhi (1)
Source: *Xi'an Dianzi Keji Daxue Xuebao/Journal of Xidian University*, v 33, n 4, p 660-664, August 2006; **Language:** Chinese; **ISSN:** 10012400; **Publisher:** Science Press
Author affiliation: (1) Research Inst. of Electronic Engineering, Xi'an Shiyou Univ., Xi'an 710065, China
Abstract: With the pulse load, the digital DC-speed controller which is used in electric running-rigs by a l-2kW DC motor. Full use is made of the P87LPC768 MPU and the FUZZY-PID algorithm. The digital DC-speed controller can automatically adjust the PID parameter and generate the PWM pulse that can accurately control the electrically driven running-rigs' velocity. It has a simple structure and a high performance-to-price ratio, and at the same time it can be applied to other small power DC speed governing systems of the same load types. (3 refs)
Main heading: Control equipment

Controlled terms: Algorithms - DC motors - Fuzzy sets - Pulse width modulation - Speed control - Structures (built objects) - Three term control systems - Velocity
Uncontrolled terms: Algorithm FUZZY PID - DC speed controller - Electrically driven running rig - Pulse load
Classification Code: 408.2 Structural Members and Shapes - 705.3.2 DC Motors - 731.1 Control Systems - 731.3 Specific Variables Control - 732.1 Control Equipment - 921.6 Numerical Methods
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

74. Rapid training for self-organizing neural networks with incremental learning

Guojian, Cheng (1); Tianshi, Liu (1); Xiaoxiao, Wang (1); Quanzhou, Huang (1)
Source: *Proceedings - ISDA 2006: Sixth International Conference on Intelligent Systems Design and Applications*, v 1, p 28-31, 2006, *Proceedings - ISDA 2006: Sixth International Conference on Intelligent Systems Design and Applications*; **ISBN-10:** 0769525288, **ISBN-13:** 9780769525280; **DOI:** 10.1109/ISDA.2006.222; **Article number:** 4021403; **Conference:** ISDA 2006: Sixth International Conference on Intelligent Systems Design and Applications, October 16, 2006 - October 18, 2006; **Publisher:** Inst. of Elec. and Elec. Eng. Computer Society
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University, Shaanxi Province, 710065, China
Abstract: Kohonen's Self-Organizing Maps (KSOM) can generate mappings from high-dimensional pattern spaces to lower dimensional topological structures. The main features of this kind of mappings are the formation of topology preserving maps. To overcome some limitations of KSOM, Self-Organizing Neural Networks with Incremental Learning (SONNIL) can be used. SONNIL can change their topological structures during learning. Two kinds of SONNIL model were present by B. Fritzke, i.e., Growing Cell Structures (GCS) and Growing Neural Gas (GNG). To speed up the training for SONNIL, based on GCS and GNG, we present two SONNIL variants, Multiple GCS and Double GNG This paper first gives an introduction to KSOM and neural gas networks. Then, we discuss GCS and GNG models. Our Multiple GCS and Double GNG are present in the section 4. It is ended with some testing comparison and conclusions. © 2006 IEEE. (6 refs)
Main heading: Self organizing maps
Controlled terms: Learning algorithms - Mathematical models - Personnel training - Topology
Uncontrolled terms: Kohonen's Self-Organizing Maps (KSOM) - Neural gas networks - Topological structures
Classification Code: 723.4 Artificial Intelligence - 912.4 Personnel - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

75. Geology characteristics and exploration strategy of Mesozoic large and medium oilfields in Southern Ordos Basin

Wang, Jian-Min
Source: *Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development*, v 33, n 2, p 145-149, April 2006;
Language: Chinese; **ISSN:** 10000747; **Publisher:** Science Press
Author affiliation: (1) Department of Resource and Engineering, Xi'an Shiyou University, Shaanxi 710065, China
Abstract: In order to find out the Mesozoic oil-gas distribution regulation, design a practical and effectual strategy of exploration disposition, and realize an oil-gas breakthrough and oilfield discovery as soon as possible in the southern Ordos Basin, the petroleum geologic conditions of the basin were systematically analyzed and exploration and development practices were wholly examined. It shows that the Mesozoic oil and gas in the basin are generated, distributed, gathered and accumulated in large scales, and the gathering degrees of oil-gas in different layers and spaces are different, presenting a complicated and variable complexion. The main oil pool types are of subtle structural-lithologic oil pools and lithologic oil pools. A large size advantageous sedimentary facies belt and a low partial vertical relief structure, and large-scale and low vertical relief structure setting formed by a series of partial low vertical relief structure are the main factors of controlling the large scale oil pool formation, and are also the basic condition of forming large-medium-sized oilfields. Conclusion: Mesozoic Southern Ordos Basin has the geology condition of growing large-medium-sized oilfields, but the exploration means is restricted by the condition of geography and surface feature. A scale exploration strategy should be performed, taking into account both upper and lower oil layers and taking drilling as the main means. (13 refs)
Database: Compendex
Data Provider: Engineering Village

76. On growing self - Organizing neural networks without fixed dimensionality

Cheng, Guojian (1); Song, Ziqi (1); Yang, Jinquan (1); Gao, Rongfang (1)
Source: *CIMCA 2006: International Conference on Computational Intelligence for Modelling, Control and Automation, Jointly with IAWTIC 2006: International Conference on Intelligent Agents Web Technologies ...*, 2006, *CIMCA 2006: International Conference on Computational Intelligence for Modelling, Control and Automation, Jointly with IAWTIC 2006: International Conference on Intelligent Agents Web Technologies ...*; **ISBN-10:** 0769527310, **ISBN-13:** 9780769527314; **DOI:** 10.1109/CIMCA.2006.158; **Article number:** 4052791; **Conference:** CIMCA 2006: International Conference on Computational Intelligence for Modelling, Control and Automation, Jointly with IAWTIC 2006: International Conference on Intelligent Agents Web Technologies and International Commerce, November 28, 2006 - December 1, 2006; **Publisher:** IEEE Computer Society
Author affiliation: (1) School of Computer Science, Xi'An Shiyou University, Shaanxi Province, 710065, China
Abstract: Kohonen's Self-Organizing Maps (KSOM) can generate mappings from high-dimensional signal spaces to lower dimensional topological structures. The main features of this kind of mappings are formation of topology preserving, feature mappings and probability distribution approximation of input patterns. However, KSOM have some limitations, e.g., a fixed number of neural units and a topology of fixed dimensionality, which makes KSOM impractical for applications where the optimal number of units is not known in advance and resulting in problems if this predefined dimensionality does not match the dimensionality of the feature manifold. Growing Self-Organizing Neural Networks (GSONN) can change their topological structures during learning. GSONN without fixed dimensionality has no topology of a fixed dimensionality imposed on the network. This paper first gives an introduction to neural gas network, a non-grid KSOM. Then, we discuss some GSONN without fixed dimensionality such as growing neural gas and the author's model: twin growing neural gas. It is ended with some testing results comparison and conclusions. © 2006 IEEE. (16 refs)
Main heading: Neural networks
Controlled terms: Approximation theory - Conformal mapping - Topology
Uncontrolled terms: Competitive learning - Growing neural gas - Neural gas networks - Self-organizing maps
Classification Code: 723.4 Artificial Intelligence - 921 Mathematics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.6 Numerical Methods
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

77. Soft competitive learning and growing self-organizing neural networks for pattern classification

Guojian, Cheng (1); Tianshi, Liu (1); Kuisheng, Wang (1); Jiaxin, Han (1)
Source: *Proceedings of the 8th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, SYNASC 2006*, p 378-381, 2006, *Proceedings of the 8th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, SYNASC 2006*; **ISBN-10:** 076952740X, **ISBN-13:** 9780769527406; **DOI:** 10.1109/SYNASC.2006.68; **Article number:** 4090345; **Conference:** 8th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, SYNASC 2006, September 26, 2006 - September 29, 2006; **Publisher:** IEEE Computer Society
Author affiliation: (1) School of Computer Science, Xi'an Shiyou University Shaanxi Province, 710065, China
Abstract: Competitive learning can be defined as an adaptive process in which the neurons in an artificial neural network gradually become sensitive to different input categories which are sets of patterns in a specific domain of the input space. By using competitive learning, Kohonen's Self-Organizing Maps (KSOM) can generate mappings from high-dimensional signal spaces to lower dimensional topological structures. The main features of KSOM are formation of topology preserving feature maps and approximation of input probability distribution. However, KSOM have some shortages, e.g., a fixed number of neural units and a fixed topology dimensionality which can result in problems if this dimensionality does not match the dimensionality of the feature manifold. Compared to KSOM, Growing Self-Organizing Neural Networks (GSONN) can change their topological structures during learning. The topology formation of both GSONN and KSOM is driven by soft competitive learning. This paper first gives an introduction to KSOM and neural gas network. Then, we discuss some GSONN without fixed dimensionality such as growing neural gas and the author's model: twin growing neural gas and it's application for pattern classification. It is ended with some conclusions. © 2006 IEEE. (12 refs)
Main heading: Probability distributions
Controlled terms: Conformal mapping - Self organizing maps - Gases - Topology

Uncontrolled terms: Competitive learning - Growing neural gas - Kohonen self-organizing maps - Kohonen's self-organizing maps - Neural gas networks - Self-organizing neural network - Soft competitive learning - Topological structure
Classification Code: 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 922.1 Probability Theory
Database: Compendex
Data Provider: Engineering Village

78. Research on complexing performance of the product of ethylenediamine sulphomethylation

Shi, Jun ; Liu, Xue ; Cui, Jin ; Zhang, Hai
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 2, p 41-43, March 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Ethylenediamine tetramethyl-sulfonate is synthesized from sodium sulfite, formaldehyde and ethylenediamine. The influences of medium acidity, the dose of buffer solution, the dose of developer and color development temperature on the color-development property of the product are studied, and the optimal color-development conditions in using EDTS and Cu2+ forming complex are determined using spectrophotometry. It is shown that, the color development result of the complex is better when Hac-NaAc buffer solution of 1.50 mL and EDTS of 6. 0 mL are mixed and are heated 15 min in the water bath of 80°C. The complexing ratio of EDTS to Cu2+ is measured by mole ratio method and it is 2:1. The maximum absorbing wave-length of the formed complex is at 590 nm. (6 refs)
Database: Compendex
Data Provider: Engineering Village

79. Synthesis and characterization of HMS mesoporous molecular sieves containing heteroatoms

Zhang, Li ; Zhang, Yao-Jun ; Li, Ju-Yuan
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 80-82+86, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Abstract: HMSmolecular sieves containing Cr, Ti and Al heteroatoms with mesopore structure are synthesized using silica acid tetraethyl ester (TEOS) as Si source, chromium(III) nitrate (CrCNO3)3 · 9H2O) as Cr source, sodium aluminate(NaAlO2)as Al source and tetrabutyl orthotitante (TBOT) as Ti source as well as dodecylamine (DDA) as template agent. The products are characterized by means of powder X-ray diffraction (XRD), ultraviolet-visible diffuse reflectance spectrum, N2 adsorption-desorption and transmission electron microscopy (TEM). The results show that Cr, Ti and Al atoms are inlaid in HMS framework, the pore structure of these heteroatoms molecular sieves presents earthworms-shape and the pore diameter is about 4 nm. (11 refs)
Database: Compendex
Data Provider: Engineering Village

80. Study on the model for water resources level pricing based on information integration

Liu, Renjing (1); Si, Xunlian (2, 3)
Source: *Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics*, v 6, p 4699-4702, 2006, *2006 IEEE International Conference on Systems, Man and Cybernetics*; **ISSN:** 1062922X; **ISBN-10:** 1424401003, **ISBN-13:** 9781424401000; **DOI:** 10.1109/ICSMC.2006.385046; **Article number:** 4274655; **Conference:** 2006 IEEE International Conference on Systems, Man and Cybernetics, October 8, 2006 - October 11, 2006; **Sponsor:** IEEE Systems, Man, and Cybernetics Society; Ministry of Education, Taiwan, R.O.C.; National Science Council, Taiwan, R.O.C.; **Publisher:** Institute of Electrical and Electronics Engineers Inc.
Author affiliation: (1) School of Management, Xian Jiaotong University, Xian, Shaanxi, CO 710049, China (2) Xian Shiyou University, China (3) Department of Economic and Managemen, Xian, Shaanxi, CO 710049, China
Abstract: Based on information integration, this paper researches into the price of the water resources, analyzes the characteristic of the water resources, propounds theoretical model for water resources level pricing, and probes the way to get model parameter and the policy implication of the optimal solution. © 2006 IEEE. (3 refs)
Main heading: Water resources
Controlled terms: Costs - Mathematical models - Parameter estimation

Uncontrolled terms: Information integration - Policy implication - Water resources level pricing
Classification Code: 444 Water Resources - 731.1 Control Systems - 911 Cost and Value Engineering; Industrial Economics - 921 Mathematics
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

81. Design of circuit about new capacitor stored energy spot welding machine

Zhou, Hao-Bin (1, 2); Sun, Hui-Zhu (1); Ma, Xiao-Mei (1)
Source: *Hanjie Xuebao/Transactions of the China Welding Institution*, v 27, n 11, p 21-24, November 2006;
Language: Chinese; **ISSN:** 0253360X; **Publisher:** Harbin Research Institute of Welding
Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, China (2) Xi'an Jiaotong University, Xi'an 710049, China
Abstract: This paper introduces the design method of a new capacitor stored energy spot welding machine. The new power uses super capacitor to form low voltage capacitor groups instead of high voltage one. The capacitor is charged with direct current chopper circuit, which takes IGBT as the main power machine piece, SKHE2AH4 as the drive circuit, SG3525 as the control chip for PWM, and current feedback in order to get the constant current. In the discharge circuit, the large current is discharged directly through large power SCR without the welding transformer. For the software, 80C552 is the main control chip of the controlling system, so the welding machine could work automatically. The new machine designed has already been used in production and the fine effect was gained to improve the welding quality. (6 refs)
Main heading: Welding machines
Controlled terms: Capacitors - Choppers (circuits) - Electric potential - Insulated gate bipolar transistors (IGBT) - Pulse width modulation - Spot welding
Uncontrolled terms: Capacitor stored energy spot welding machine - Super capacitor
Classification Code: 538.2.1 Welding Processes - 538.2.2 Welding Equipment - 701.1 Electricity: Basic Concepts and Phenomena
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

82. Studying the scaling mechanism of low-permeability reservoirs using visual real-sand micromodel

Ren, Xiaojuan (1); Wu, Pingchang (2); Qu, Zhihao (3); Shi, Chengen (2)
Source: *SPE Eighth International Symposium on Oilfield Scale 2006*, v 2006, p 95-101, 2006, *SPE Eighth International Symposium on Oilfield Scale 2006, Proceedings*; **Conference:** SPE 8th International Symposium on Oilfield Scale 2006, May 31, 2006 - June 1, 2006; **Sponsor:** Society of Petroleum Engineers, SPE; **Publisher:** Society of Petroleum Engineers
Author affiliation: (1) SPE, Xi'an Shiyou U. (2) ChangQing Oil Field Branch, PCL (3) Northwest U., China
Abstract: Chang 3 reservoir in Hua 152 block is located in the Ordos basin, China. The average permeability and porosity is 3.17mD and 14.9%. There exists serious scaling at the oil layer near to bottom hole because of high salinity formation water and incompatible injection water. The scaling process and mechanisms in the layers has been researched by means of a visual real-sand micro-model. The results have shown that: 1) The permeability of the oil layer will reduce by 40% when formation water contacts with injection water twice times at the same place; 2) It is very easy for scaling molecules to crystallize from water phase and scale particles are very small because the pores and throats of the formation rock contain a lot of fine clay and impurity; 3) The scale accumulates in pores and looks like "chicken roost"; 4) The scale inhibitors can reduce scaling, but the higher concentration of scale inhibitors is needed. Scaling in low permeability reservoirs may significantly reduce rock permeability thus affecting the production of oil well. The visual real- sand micro-model is a good method to use in research of scaling mechanisms because of its visualization, using actual rock and ease of construction. Copyright 2006, Society of Petroleum Engineers. (5 refs)
Main heading: Petroleum reservoirs
Controlled terms: Injection (oil wells) - Mathematical models - Mechanical permeability - Petroleum engineering - Porosity - Sand
Uncontrolled terms: Micromodel - Rock permeability - Water contacts
Classification Code: 483.1 Soils and Soil Mechanics - 511.1 Oil Field Production Operations - 512.1.1 Oil Fields - 921 Mathematics - 931.2 Physical Properties of Gases, Liquids and Solids
Treatment: Theoretical (THR)

Database: Compendex
Data Provider: Engineering Village

83. Study on light stabilizer for hydrotreated lubricating oils

Zhang, Ke-Liang (1); Xu, Jia-Ye (1)
Source: *Gao Xiao Hua Xue Gong Cheng Xue Bao/Journal of Chemical Engineering of Chinese Universities*, v 20, n 2, p 310-314, April 2006; **Language:** Chinese; **ISSN:** 10039015; **Publisher:** Zhejiang University
Author affiliation: (1) School of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The effects of adding three kinds of additives - ultra-violet absorbers, hindered amine light stabilizers (HALS) and antioxidants prepared by this work on the performances of anti-degradation and anti-deterioration against UV irradiation for 125N hydrotreated lube base oil were studied. According to the orthogonal design method, the investigation was conducted by using a self-made UV photo-degradation instrument. It is found that all these additives mentioned above are effective in preventing the mentioned oil from UV radiation-induced deterioration. Under the same radiation dose, adding tetramethyl HALS the anti-degradation ability of 125N hydrotreated lube base oil against UV catalyzed oxidation is better than that of adding pentamethyl HALS. The performances of resisting radiation-induced deterioration of 125N hydrotreated lube base oil added UV absorber of hydroxyphenyl benzotriazoles is better than that of added the UV absorber of hydroxybenzophenones. The results show that there is synergistic combination between UV absorber and antioxidant, and so does between tetramethyl HALS and phenolic antioxidant. However, an anti-synergistic combination between pentamethyl HALS and phenolic antioxidant is observed under our experimental conditions. The evaluation shows that adding 1.5 g&middotL-1 high efficiency ashless light stablizer prepared by this work can make the 125N hydrotreated lube base oil has a good light stability, and its transparency and colority are better than that of adding 2 g&middotL-1 commercially available best stabilizers of organic sulfur-containing nickel complexes. (12 refs)
Main heading: Stabilizers (agents)
Controlled terms: Amines - Antioxidants - Hydrogenation - Lubricating oils - Photodegradation - Ultraviolet radiation
Uncontrolled terms: Hindered amine light stabilizer - Hydrotreated lube base oils - Light stability - Synergistic effect - Ultra-violet absorber
Classification Code: 607.1 Lubricants - 741.1 Light/Optics - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

84. Experimental study on the performances of the heat transfer of the small dip-angle evaporation segment of a separate-type heat pipe

Zhu, Yu-Qin ; Li, Ya-Hong
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 51-53, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The horizontal and small dip-angle arrangement of the evaporation segment of a separate-type heat pipe is of important engineering significance. For this reason, an experimental study on the heat transfer characteristics of it is carried out on a model with a scale of 1:1. The effects of working temperature, heat flux, working fluid inventory and dip-angle on its heat transfer performances are determined. The dimensionless analysis of the convection heat transfer coefficient of the evaporator is made by means of nucleate boiling theory, and the dimensionless correlation of convection heat transfer coefficient is obtained by the regression of experimental data. The relative errors between the results calculated according to the regression correlation and the experimental data are less than 15%. It is shown that the convection heat transfer coefficient increases with the increases of working temperature, heat flux and dip-angle. The optimum working fluid inventory is in the range of 65% [similar to] 90%, and working fluid inventory has little effect on the convection heat transfer coefficient in the range. The results in the paper may provide the basis for the engineering design of large-scale small dip-angle heat exchangers of separate-type heat pipe. (3 refs)
Database: Compendex
Data Provider: Engineering Village

85. Preparation of titanates catalysts and their catalytic behaviors to transesterification (I): ester exchange reaction of ethyl benzoate with isoamylol

Wang, Xiao-Ling ; Zhang, Jin ; Xu, Jia-Ye
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 67-69, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A series of titanate catalysts are synthesized by the reactions of titanic chloride with isoamylol, 2-ethylhexanol, ethandiol and n-butanol respectively. Then their content of titanium is determined. Moreover, these catalysts are applied to the transesterification of ethylbenzoate with isoamylol. It is shown that diglyl titanate has the highest catalytic activity. (5 refs)
Database: Compendex
Data Provider: Engineering Village

86. Effect of trace methanol on the stability of methyldiethanolamine (MDEA) desulfurating solution

Lu, Hai-Yan ; Wu, Xin-Min ; Qu, Cheng-Tun ; Wang, Xin-Qiang ; Zhang, Ning-Sheng
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 2, p 44-47, March 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The effect of trace methanol on the stability of MDEA desulfurating solution is studied by gas chromatography after the MDEA desulfurating solution containing trace methanol is pretreated by refluxing at atmospheric pressure and preserving in a closed space and at certain temperature. It is shown that, after the MDEA solution containing trace methanol is preserved for a certain time (12 h at least) at certain temperature (above 115°C), its property will be changed, methanol makes the stability of methyldiethanolamine solution be reduced. (6 refs)
Database: Compendex
Data Provider: Engineering Village

87. Study on depositional features and oil-reserving capacity of Chang-63 super-low permeability sandstone reservoir of Shuguang Oilfield in eastern Gansu

Wang, Jian-Min
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 4, p 33-36, July 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Oil and Gas Resource, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The depositional features and the oil-reserving capacity of the studied reservoir are analyzed based on logging and experimental data. It is shown that, the reservoir is the sandstone reservoir with low-porosity and super-low-permeability; it is a progressive delta front deposit, its property and oil-bearing capacity becomes better from below to above; debouch bar is its main and better reservoir type. The better reservoirs develop in the delta front zone, where is also main oil-gas abundance zone. The vertical sedimentary sequence of the reservoir and its lateral propagation matching control the development of the profile combination and the evolution of the comprehensive feature of the reservoir. Plane sedimentary facies belts control the depositional types, the polymerization degree and the comprehensive show of the lithology and property of the reservoir, and then they control the range of the oil-gas distribution in the reservoir. (6 refs)
Database: Compendex
Data Provider: Engineering Village

88. Analysis of thermal deformation and temperature field for plain thrust bearing

Xu, Jianning (1); Qu, Wentao (1, 2); Zhao, Ning (2)
Source: *Run Hua Yu Mi Feng/Lubrication Engineering*, n 8, p 120-121+148, August 2006; **Language:** Chinese; **ISSN:** 02540150; **Publisher:** Science Press
Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, China (2) Northwestern Polytechnical University, Xi'an 710072, China
Abstract: Through research on heat convection and friction of plain thrust bearing, three dimensional finite element model of stable temperature field and thermal deformation was built up. Through using ANSYS, thermal deformation and temperature of a plain thrust bearing under the status of heat equilibrium were analyzed. The research result

indicates that thermal deformation influence to clearance of plain thrust bearing used in well should be considered when designed it at normal temperature on the ground, because it produces high heat through friction. (3 refs)
Main heading: Thrust bearings
Controlled terms: Computer simulation - Finite element method - Mathematical models - Temperature distribution
Uncontrolled terms: Clearance - Plain thrust bearing - Temperature field - Thermal deformation
Classification Code: 601.2 Machine Components - 641.1 Thermodynamics - 723.5 Computer Applications - 921 Mathematics
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

89. Two FBG calibration demodulation system based on tunable fiber Fabry-Perot filter

Qiao, Xue-Guang (1); Gao, Hong (1); Jia, Zhen-An (1); Wang, Qi-Fu (1)
Source: *Guangdianzi Jiguang/Journal of Optoelectronics Laser*, v 17, n SUPPL., p 218-220, December 2006;
Language: Chinese; **ISSN:** 10050086; **Publisher:** Board of Optronics Lasers
Author affiliation: (1) Shaanxi Key Laboratory of Photoelectric Sensing Logging, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Considering the nonlinearity and nonrepeatability between the transmitted wavelength and control-voltage of the tunable fiber Fabry-Perot filter, a novel wavelength demodulation system based on two reference FBGs is presented. The system adopts two reference FBGs which are placed in the unchanged temperature environment to get two steady wavelengths. The wavelength and control-voltage of the tunable fiber Fabry-Perot filter is linearized in a narrow wavelength range, which achieves high performance, the demodulation system is used to detect a FBG temperature sensor at the range of 30-130°C, the experimental comparison results show that average temperature error is less than 0.51°C. (6 refs)
Main heading: Fiber Bragg gratings
Controlled terms: Calibration - Demodulation - Fiber optic sensors - Optical filters - Temperature measurement - Voltage control
Uncontrolled terms: Tunable fiber Fabry Perot filter - Wavelength demodulation
Classification Code: 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941 Acoustical and Optical Measuring Instruments - 944.6 Temperature Measurements
Treatment: Applications (APP) - Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

90. Experiments on phase change of gas condensate in microcosmic porous model

Wang, Zhi-Wei ; Li, Xiang-Fang
Source: *Kung Cheng Je Wu Li Hsueh Pao/Journal of Engineering Thermophysics*, v 27, n 2, p 251-254, March 2006;
Language: Chinese; **ISSN:** 0253231X; **Publisher:** Science Press
Author affiliation: (1) China University of Petroleum, Beijing 102249, China (2) Xi'an Shiyou University, Xi'an 710065, China
Abstract: It is at reservoir in porous media proceed to condensate gasses system phase equilibria, which attracts attentions of reservoir engineers. With application of Microvisual technology in sculpture glass network model, gas-liquid phase change characteristics were studied by gas condensate microvisual method. Effect factors of porous media including adsorption and capillary agglomeration were clearly analyzed on gas condensate change. (14 refs)
Database: Compendex
Data Provider: Engineering Village

91. Sedimentary facies of Member 6 oil-bearing unit of the Triassic Yanchang Formation and its controlling rule on oil distribution in the Yaodian Oilfield, Ordos Basin

Zhao, Jing-Zhou ; Meng, Xiao-Ling ; Yang, Xian-Chao ; Wu, Fu-Li
Source: *Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development*, v 33, n 1, p 49-52, February 2006;
Language: Chinese; **ISSN:** 10000747; **Publisher:** Science Press
Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, China (2) Yanchang Petroleum Administration Bureau, Yanan 717208, China

Abstract: The oil-bearing strata in the Yaodian Oilfield, North, Ordos Basin, belonging to the Upper Triassic Yangchang Formation, are mainly composed of gray and grayish fine sandstones. The analyses of sedimentary facies of 70 wells and the grain-size distribution figures of tens of wells show that the sand bodies of the Chang 6 oil-bearing unit are mainly lacustrine delta deposits, including delta plain and delta front. There is one main stream in Chang 61 sand beds, three streams and two streams in Chang 62 and Chang 63. The sedimentary facies and structure in the study area have significant effects on oil and gas distribution and production. (9 refs)
Database: Compendex
Data Provider: Engineering Village

92. Study of spread spectrum in suppressing acoustic resonance

Cheng, Weibin (1, 2); Zhong, Yanru (1); Jin, Shun (1)
Source: *Diangong Jishu Xuebao/Transactions of China Electrotechnical Society*, v 21, n 6, p 83-88, June 2006;
Language: Chinese; **ISSN:** 10006753; **Publisher:** Chinese Machine Press
Author affiliation: (1) Xi'an University of Technology, Xi'an 710048, China (2) Xi'an Shiyou University, Xi'an 710065, China
Abstract: The mechanism of acoustic resonance phenomenon in high intensity discharge lamps is analyzed mathematically, and it is also proved by experiments that the excitation of acoustic resonances should have appropriate frequency and enough energy at the same time. Based on the pulse width modulation, a number of approaches to reduce the exciting energy are proposed, and the output spectra are analyzed, and the basis principle of suppressing acoustic resonance is introduced too. The application in high pressure sodium lamps and metal halide lamps shows that the technique of spread spectrum is very effective on suppression of acoustic resonances. (18 refs)
Main heading: Discharge lamps
Controlled terms: Ballasts (lamp) - Electric excitation - Electron resonance - Plasmas - Pulse width modulation - Spectrum analysis
Uncontrolled terms: Acoustic resonance - Metal halide lamps
Classification Code: 701.1 Electricity: Basic Concepts and Phenomena - 707.2 Electric Lamps - 716 Telecommunication; Radar, Radio and Television - 921 Mathematics - 932.3 Plasma Physics - 942 Electric and Electronic Measuring Instruments
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

93. Nonlinear frequency modulation in electronic ballast for high intensity discharge

Cheng, Weibin (1, 2); Zhong, Yanru (1)
Source: *Diangong Jishu Xuebao/Transactions of China Electrotechnical Society*, v 21, n 8, p 121-126, August 2006;
Language: Chinese; **ISSN:** 10006753; **Publisher:** Chinese Machine Press
Author affiliation: (1) Xi'an University of Technology, Xi'an 710048, China (2) Xi'an Shiyou University, Xi'an 710065, China
Abstract: It is showed that the acoustic resonance phenomena would happen in high intensity discharge lamps working in high frequencies with appropriate exciting frequencies and enough energies at the same time. Based on the spectrum analysis of pulse width modulation, nonlinear frequency modulation is presented to spread the output current specta, to lessen the amplitudes of different frequencies, and to reduce the exciting energies, while the modulation frequency is changed nonlinearly to prevent the plasma acoustic waves from being the standing waves at some frequencies, and then suppresses the acoustic resonances. Experimental approaches and test results are given out in this paper. (6 refs)
Main heading: Frequency modulation
Controlled terms: Acoustic waves - Capacitors - Discharge lamps - Plasmas - Pulse width modulation - Resonance - Spectrum analysis
Uncontrolled terms: Acoustic resonance - High intensity discharge (NID) - Nonlinear frequency modulation - Output current - Parallel capacitor - Plasma acoustic waves - Ripple voltage
Classification Code: 704.1 Electric Components - 707.2 Electric Lamps - 716 Telecommunication; Radar, Radio and Television - 751.1 Acoustic Waves - 922.2 Mathematical Statistics - 932.3 Plasma Physics
Treatment: Applications (APP) - Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

94. Building traversing firewalls middleware software with java and XML

Ren, Chang-Lin ; Fan, Chang-Jun ; Zheng, Min-Juan ; Yan, Xiu-Hua
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 2, p 76-79, March 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Information Center, Xi'an Shiyou University, Xi'an 710065, China (2) College of Computer, Xidian University, Xi'an 710071, China
Abstract: In order to solve the difficult problem that many existed software systems need to traverse several firewalls to obtain data through a special port, a kind of technique to traverse the firewalls by setting up HTTP tunnel using Java and XML is put forward after the working flow and working principles of the firewalls are analyzed. It is described how to adopt Servlet and Soaps to set up HTTP tunnel, how to change the data into the format of XML and how to transmit and exchange the data with the format of XML in Internet. The technical details to implement the technique are analyzed, and some suggestions on the further expansion and applications of the technique are put forward. (6 refs)
Database: Compendex
Data Provider: Engineering Village

95. Study of fiber Bragg grating pressure sensor with high pressure

Liu, Qin-Peng (1); Qiao, Xue-Guang (1); Jia, Zhen-An (1); Wang, Hong-Liang (1); Zhou, Hong (1); Wang, Xiang-Yu (1); Li, Ting (1)
Source: *Guangdianzi Jiguang/Journal of Optoelectronics Laser*, v 17, n 12, p 1440-1442, December 2006; **Language:** Chinese; **ISSN:** 10050086; **Publisher:** Board of Optronics Lasers
Author affiliation: (1) Photo-electricity Sesning and Logging Key Laboratory of Shanxi Province, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A special kind of quartz tube is used to coat fiber Bragg grating (FBG). The pressure responses of tube packaged FBG sensor are analyzed. The high-pressure experiments about compression and decompression were carried out. When the pressure was from 0 to 40 MPa. The relationship between the pressure and the central wavelength of FBG is derived. And the analytic expression is also given. The experimental results show that the pressure sensitivity of FBG is bigger. Its value is about -0.0377 nm/MPa. There is a very good linearity and repetition between the center wavelength of FBG and pressure change and no hysteresis effect. (7 refs)
Main heading: Optical sensors
Controlled terms: Fiber Bragg gratings - Hysteresis
Uncontrolled terms: High pressure tube - Pressure sensor - Quartz tube
Classification Code: 732.2 Control Instrumentation - 741.3 Optical Devices and Systems - 931.2 Physical Properties of Gases, Liquids and Solids
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

96. Experimental study of novel fiber Bragg grating pressure sensors

Yu, Da-Kuan (1); Qiao, Xue-Guang (1); Jia, Zhen-An (1); Fu, Hai-Wei (1); Zhao, Da-Zhuang (1); Wang, Min (1)
Source: *Guangdianzi Jiguang/Journal of Optoelectronics Laser*, v 17, n 5, p 513-516, May 2006; **Language:** Chinese; **ISSN:** 10050086; **Publisher:** Board of Optronics Lasers
Author affiliation: (1) Photo-electricity Sensing and Logging Key Laboratory of Shanxi Province, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A novel high sensitivity fiber Bragg grating (FBG) pressure sensor was brought forward based on columned vessel and piston. FBG was stuck to the fundus material by high intension pastern. Fundus material was fixed between the piston and the bottom of columned vessel. The pressure variation in the columned vessel results in the motion of the piston and drives the change of the tension in the FBG, then the external pressure can be measured by testing the reflective wavelength of FBG. The theoretical and experimental pressure sensitivity coefficient of the proposed sensor are 0.92 nm/MPa and 0.8223 nm/MPa, which are 306 and 274 times of that of the bare FBG respectively. The FBG sensor has good linearity, and the correlation is 0.9998. The pressure sensitivity can be changed by changing the size of fundus material and the area of piston to meet the measurements of different pressure ranges. (6 refs)
Main heading: Sensors
Controlled terms: Fiber Bragg gratings - Fiber optics - Pistons - Pressure
Uncontrolled terms: Fundus material - Pressure sensing - Pressure sensitivity coefficient - Reflective wavelength
Classification Code: 732.2 Control Instrumentation - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems

Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

97. Characteristics of pore throat structure of Chang-6 oil-bearing bed in Ganguyi Oilfield, Ordos Basin

Guo, De-Yun ; Zhao, Jing-Zhou ; Wang, Yan-Ling ; Pang, Wen
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 25-28, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Yanchang Petroleum Administration Bureau, Yanchuan 717208, China (2) Department of Resource Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Chang-6 oil-bearing bed is one of the main producing formations in Ganguyi Oilfield, Ordos Basin. The characteristics of lithology, diagenism, pore throat structure and physical property of the reservoir and the factors of influencing the pore throat structure are analyzed in order to understand the reason why the reservoir is of low-permeability and super-low-permeability. It is held that the pore throat structure is the type of medium-small pore and microthroat, which is controlled by diagenism; the pore throat structure determines the productivity of Chang-6 oil-bearing bed and makes it become low-permeability and super-low-permeability reservoir. (8 refs)
Database: Compendex
Data Provider: Engineering Village

98. New concept of reaction mechanism of metalation process in lubricating oil detergent manufacture

Zhang, Jing-He (1); Ding, Li-Qin (1); He, Li (1); Liang, Sheng-Rong (1); Fu, Xing-Guo (2)
Source: *Shiyou Xuebao, Shiyou Jiagong/Acta Petrolei Sinica (Petroleum Processing Section)*, v 22, n 1, p 54-59, February 2006; **Language:** Chinese; **ISSN:** 10018719; **Publisher:** Science Press
Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, China (2) Refining and Chemicals R and D Center, PetroChina, Beijing 100083, China
Abstract: The development of lubricating oil detergent during the past 70 years was reviewed briefly. The traditional knowledge concerning the main chemical reactions involved in the metalation process in lubricating oil detergent manufacture was summed up. The advances in research of reaction mechanism of metalation process were explained in detail, emphasizing the new concept of micelle formation mechanism in metalation process, by using the modern microreactor theory of nano-technology in microemulsions. Finally, based on this new concept, some inferences relating to the rules governing metalation process of detergent manufacture were suggested. (37 refs)
Main heading: Detergents
Controlled terms: Colloids - Lubricating oils - Metallizing - Micelles - Microemulsions - Nanostructured materials - Reaction kinetics
Uncontrolled terms: Colloidal state - Lubricating oil detergent - Metalation process - Micelle formation mechanism - Microreactor theory - Nano-technology - Reaction mechanism
Classification Code: 607.1 Lubricants - 801.3 Colloid Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 813.1 Coating Techniques - 933.1 Crystalline Solids
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

99. Inexpensive but high performance controller for brushless DC motor

Wei, Min (1, 2); Ning, Fangli (2); Wei, Juan (3)
Source: *Xibei Gongye Daxue Xuebao/Journal of Northwestern Polytechnical University*, v 24, n 2, p 161-164, April 2006; **Language:** Chinese; **ISSN:** 10002758; **Publisher:** Northwestern Polytechnical University
Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, China (2) Northwestern Polytechnical University, Xi'an 710072, China (3) Xidian University, Xi'an 710071, China
Abstract: Soon after discovering the existence of IRAMS10UP60A, an excellent Integrated Power Module produced recently by International Rectifier (IR), we, after thinking and rethinking over it, came to believe it can make possible the design of an inexpensive but high performance controller for brushless DC motor. In the full paper we describe our design in much detail; here we just give a briefing. IR Co's IRAMS10UP60A together with proper design make

possible the attainment of the following objectives; (1) stable rotation speed of DC motor; when the DC motor runs at or less than 70% of its rated rotation speed, the rotation speed can be almost fixed at a constant value within a wide range of torque; (2) protection against overheating; (3) protection against excessive current; (4) robustness against interference; (5) satisfactory reliability; (6) relatively simple circuit if we take into consideration that the above-mentioned five desirable objectives can be attained. The actual application of our design idea to commercial products, though considered to be promising quite confidently by us, remains to be done. (5 refs)
Main heading: DC motors
Controlled terms: Control equipment - Torque
Uncontrolled terms: Brushless DC motor - Commercial products - Integrated Power Module - International Rectifier (IR) - IRAMS10UP60A - Overheating
Classification Code: 705.3.2 DC Motors - 732.1 Control Equipment - 931.2 Physical Properties of Gases, Liquids and Solids
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

100. Calculation of multi-parameter distribution in heterogeneous reservoir based on the inverse problem theory

Cheng, Shiqing (1); Wang, Zhiwei (2); Li, Xiangfang (1); An, Xiaoping (1)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 3, p 87-90, May 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) College of Petroleum Engineering, China University of Petroleum, Beijing 102249, China (2) Xi'an Shiyou University, Xi'an 710065, China
Abstract: The geo-statistical method was used to identify the parameters of oil and gas reservoir. A prior model for initial distribution of reservoir parameters was determined on the basis of information around a well. The dynamic and static information was integrated to formulate the objection functions including initial permeability, porosity and pressure matching. The modified Gauss-Newton algorithm was used to calculate the multi-parameter of reservoir using post-covariance matrix. A fine characterization method for conditioning to static and dynamic data in a heterogeneous low-permeability reservoir is proposed. Some field cases show that the algorithm is convergent. The permeability field is more accurate than porosity field in some applications. (11 refs)
Main heading: Petroleum reservoirs
Controlled terms: Identification (control systems) - Inverse problems - Mathematical models - Mechanical permeability - Porosity - Statistical methods
Uncontrolled terms: Calculation model - Heterogeneous reservoir - Inverse problem theory - Parameter identification - Reservoir description
Classification Code: 512.1.1 Oil Fields - 731.1 Control Systems - 921 Mathematics - 922.2 Mathematical Statistics - 931.2 Physical Properties of Gases, Liquids and Solids
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

101. Soliton solutions in noncommutative torus

Wen, Jun-Qing ; Zhu, Qiao ; Shi, Kang-Jie
Source: *Kao Neng Wu Li Yu Ho Wu Li/High Energy Physics and Nuclear Physics*, v 30, n 2, p 89-93, February 2006; **Language:** Chinese; **ISSN:** 02543052; **Publisher:** Science Press
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an 710065, China (2) Institute of Modern Physics, Northwest University, Xi'an 710069, China
Abstract: Based on finite dimensional reduced matrices of operators on integral noncommutative torus, soliton solution problem can be converted into the finite matrix solution problem satisfying the algebraic equation Q(M)=0. In this paper, we mainly study the condition of reduced matrix for the operator which cannot be diagonalized. When the potential function V(#)=0 has an extremum point in three or more ranks, there exist matrix solution that cannot be diagonalized for the finite dimensional matrix equation V'(M)=0. We study the general form of the solution and construct new soliton solution on noncommutative integral ring. In terms of the construction method, we obtain soliton solutions on noncommutative orbifold. (19 refs)
Database: Compendex
Data Provider: Engineering Village

102. Analysis of the influencing factors of the reservoir permeability obtained by pressure build-up method

Tian, Shu-Hong ; Zhang, Nai-Lu ; Zhang, Hong ; Jiang, Wen-Li ; Wan, Xian-Wei
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 27-29+33, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) No.705 Research Institute, CSIC, Xi'an 710075, China
Abstract: Obtaining formation permeability using pressure build-up method is one of estimating the formation permeability methods according to RFT logging data. In order to study the influences of some factors such as test depth, the invasion of mud filtrate, the compressibility of the fluid in formation tester, etc. on the accurate calculation of the formation permeability, the causes forming the influences are analyzed based on the basic principle of acquiring the formation permeability using the pressure build-up method, and some problems are presented which should be considered during reading logging data and logging interpretation. By analyzing, it is held that the formation tester can only reflect the permeability of the movable fluid within test range; time should lag a little in reading the pressure of logging curve; the pressure increase must be taken into account which is caused by the invasion of mud filtrate into the formation near holebore in calculating the permeability of low permeability formation. (4 refs)
Database: Compendex
Data Provider: Engineering Village

103. Multi-region material balance method and its use in the performance prediction and optimal well pattern design of edge water reservoir

Gao, Cheng-Tai ; Lu, Tao ; Gao, Wei-Xin ; Han, Ji-Yong
Source: *Shiyou Kantan Yu Kaifa/Petroleum Exploration and Development*, v 33, n 1, p 103-106, February 2006; **Language:** Chinese; **ISSN:** 10000747; **Publisher:** Science Press
Author affiliation: (1) Xi'an Shiyou University, Xi'an 710065, China (2) Petroleum Exploration and Development Institute, Changqing Oilfield Company, PetroChina, Xi'an 710021, China
Abstract: In order to overcome the deficiencies of the material balance method and numerical simulation method in studying the gas reservoir performance, the material balance method for multi-region gas reservoir is extended to the case where the reservoir has edge water region and is divided into arbitrary number of blocks. The new method takes into account the regional heterogeneity of the gas reservoir, and the data required in the new method are acquired in field production. The software MMBS based on the multi-region material balance method could help to conveniently optimize the well pattern, make the best use of the productivity of high yield blocks and decrease the number of low yield wells. The calculation example shows that the recharge from the neighbor blocks contributes a lot to the single well production. (10 refs)
Database: Compendex
Data Provider: Engineering Village

104. Dynamic metrics of software and their applications in reverse engineering

Wang, Yu-Ying ; Li, Qing-Shan ; Chen, Ping ; Wang, Xue-Long
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 64-70, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Research Institute of Software Engineering, Xidian University, Xi'an 710071, China (2) College of Computer, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Based on the analyses of the definitions of software metrics and the processes of calculating them, it is pointed out that general software metrics are static and they only reveal the potential attributes of a system but not the real attributes of it. For this reason, fan-in/fan-out metrics are defined, and it is illustrated by a case that they reveal the real attributes of a system, they can also be used for identifying the key components of the system and inferring the main functions of the system. Based on these, an approach is presented for quickly recognizing a function of a system in reverse engineering. In this approach, the program dependency graph marking the dynamic fan-in/fan-out metrics value of the system and the partial transplanting technology are used. Less information is obtained using this approach but it is useful to a user to quickly understand a system. (15 refs)
Database: Compendex
Data Provider: Engineering Village

105. Study on grinding performance of mixed - abrasive grits honing stones

Peng, Hai ; Zhang, Min ; Liu, Qing-Gong
Source: *Jingangshi yu Moliao Moju Gongcheng/Diamond and Abrasives Engineering*, n 4, p 50-54, August 2006; **Language:** Chinese; **ISSN:** 1006852X; **Publisher:** Science Press
Author affiliation: (1) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Yantai Powerful Honing Application Co., LTD, Yantai 260041, China
Abstract: This article introduces the properties of several kinds of abrasives including corundum series and silicon-carbide series, and presents the design of several mixture-abrasive honing stones with different abrasives in different proportions. Several workpieces of typical metal materials were honed in the contrast experiments. Through analyzing the experiment results, it can be drawn that (1) for the steel workpiece with certain hardness, the mixture-abrasive honing stones with SA(90%) and GC(10%) are recommended, which have higher grinding efficiency, and almost no loading during honing; (2) For stainless steel, 1Crl8Ni9Ti, selecting the mixture-abrasive honing stones with WA(90%) and GC(10%) ether can raise the material removal and reduce the tendency of loading. (3) For titanium alloys, the mixture-abrasive honing stone with GC(70%) and SA(10%)is not ease to break down, and has higher grinding efficiency, little tendency of loading better grinding effect. (4) the mixd-abrasive honing stones have better honing performances than single abrasive honing stones when grinding some metals. (4 refs)
Database: Compendex
Data Provider: Engineering Village

106. Lossless data compression method based on the characteristics of logging data

Han, Ze-Xi ; Guo, Feng ; Qin, Li-Ke
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 61-63+70, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) College of Geologic Measurement, Chang'an University, Xi'an 710061, China
Abstract: The transmission efficiencies of combination logging data and imaging logging data are restricted under finite bandwidth. A lossless data compression method based on the characteristics of logging data is put forward, it can transfer the logging data to surface after they are compressed, and therefore the transmission efficiency of logging data is effectively improved. The compression plan, compression processing and algorithm are described. Different types of data are compressed using different compression methods, and the compression ratios of them are compared. It is shown that, the compression ratio of frame-related compression method is the greatest, and the compression ratios of other compression methods are smaller; the compression ratio of the first kind of data is greater, that of combination logging data is secondary, and that of imaging logging data is the least; the compression ratio slightly increases with the increase of the quantity of the data. (3 refs)
Database: Compendex
Data Provider: Engineering Village

107. Wavelength tunable erbium-doped fiber ring laser based on FBG

Liu, Ying-Gang (1, 2); Qiao, Xue-Guang (1); Jia, Zhen-An (1); Bai, Yan (1); Shao, Min (1)
Source: *Guangxue Jingmi Gongcheng/Optics and Precision Engineering*, v 14, n 5, p 811-815, October 2006; **Language:** Chinese; **ISSN:** 1004924X; **Publisher:** Chinese Academy of Sciences
Author affiliation: (1) School of Science, Xi'an Shiyou University, Xi'an 710065, China (2) Institute of Photonics and Photon-technology, Northwest University, Xi'an 710069, China
Abstract: Based on introducing the principle of wavelength tuning of FBG, a kind of ring Er-Doped Fiber Laser (EDFL) whose wavelength was tuned by FBG was designed. The output lasing wavelength between 1547.7 nm and 1556.5 nm can be tuned continuously within the temperature range from 20 to 170°C. The tuning linearity is up to 99.96%, the 3 dB linewidth is less than 0.05 nm and the 20 dB linewidth is less than 0.08 nm. While the side mode suppression ratio (SMSR) is more than 52 dB, the output power of EDFL is up.to 21.2 mW. Experimental results show that the tunable EDFL has the advantages of wide bandwidth, high power, narrow linewidth and compatibility to fiber element. (9 refs)
Main heading: Fiber lasers
Controlled terms: Bandwidth - Fiber Bragg gratings - Fiber optics - Ring lasers
Uncontrolled terms: Erbium doped fiber laser (EDFL) - Side mode suppression ratio (SMSR) - Wavelength tuning
Classification Code: 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 744 Lasers
Treatment: Experimental (EXP)

Database: Compendex
Data Provider: Engineering Village

108. Study on the law of microwave demulsification dehydration using uniform design method

Jiang, Hua-Yi ; Wei, Ai-Jun ; Huang, Li
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 39-41, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) College of Petroleum Engineering, Southwest Petroleum Institute, Chengdu 610500, China
Abstract: Water-bearing of crude oil causes some difficulties not only to the production of oilfields but also to the storage, transportation and refinement of crude oil. Therefore, the study of high-efficacy, low-cost and easy-using crude oil demulsification dehydration techniques is very important. The demulsification dehydration technique of W/O emulsion using microwave radiation has incomparable advantages with other demulsification dehydration techniques. The relationship between dehydrated rate of crude oil and power of microwave, radiation time of microwave and water cut of crude oil emulsion is experimentally studied by means of uniform design method, and the relational expression is obtained by fitting. The results show that, the water cut of crude oil emulsion has the greatest effect on the result of microwave demulsification dehydration, the higher the water cut, the higher the dehydrated rate; the greater the product of microwave power with radiation time (that is, the greater the radiation energy of microwave), the better the result of microwave demulsification dehydration. (7 refs)
Database: Compendex
Data Provider: Engineering Village

109. Experimental study on the performance of titanium alloy deep-hole driller

Zhao, Hongbing ; Zhu, Lin
Source: *Zhongguo Jixie Gongcheng/China Mechanical Engineering*, v 17, n 6, p 591-595, Mar 25 2006; **Language:** Chinese; **ISSN:** 1004132X; **Publisher:** China Mechanical Engineering Magazine Office
Author affiliation: (1) Xi'an Petroleum University, Xi'an 710065, China
Abstract: This paper took titanium alloy deep-hole drilling as a studying object. According to the characteristics difficult to cut of titanium alloy, several cemented carbide tool materials which are widely used in China at present were selected in the tests of machining titanium alloy workpieces. It is determined that deep-hole tool material YT726, whose attrition characteristics surpasses others, is suitable to cut titanium alloy material through deep-hole drilling tests and when drilling titanium alloy deep-holes, whose diameter is ϕ47. 4mm, the optimum geometrical parameters is γ_0 = 7°, α_0 = 12°, #r = 15°, e = 3.8 mm. (6 refs)
Database: Compendex
Data Provider: Engineering Village

110. Quantitative optimization of the intermittent production pattern of low producing oil wells and its applications

Meng, Xiao-Ling ; Zhang, Hong-Bo
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 38-40, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Department of Downhole Operation, Changqing Oilfield Company, Xi'an 710021, China
Abstract: For the purpose of reducing the production cost of crude oil and saving energy resource, the importance of implementing intermittent production to low producing oil wells is recognized. Therefore, it is very important to reasonably determine the working system of this kind of oil wells. By introducing reduced reservoir pressure, the preliminary working system of the oil well can be determined based on the close relationship between the restoring speed of the static liquid surface of the well and its productivity. On the basis of this, the relationship between the height of the liquid column in wellbore and time is established, in which the weight of the liquid column reducing the liquid supply capability of formation is considered. And therefore, the working system of the oil well is optimized. The method is applied to a low producing oil well, and a good result is gained. (9 refs)
Database: Compendex
Data Provider: Engineering Village

111. Electrochemical corrosion of the structural alloy steel used for sucker rod in wet H2S environment

Xu, Jian-Ning ; Qu, Wen-Tao ; Xu, Zhang-Shi
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 1, p 58-60, January 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) General Engineer Office, Yumen Petroleum Machinery Plant, Yumen 735200, China
Abstract: Among the factors of influencing the corrosion in oilfields, hydrogen sulfide is the most common and harmful corrosive medium. In order to provide theoretical basis for the material selecting and corrosion preventing of oilfields, the corrosion behavior of 20CrMo, 20Ni2Mo and 35CrMo structural alloy steels under different temperature and different concentration of H2S is studied by means of weight-loss method, and the corrosion appearance of test samples is analyzed by means of electronic scanner. The results show that, (1) overall, the corrosion rates of three materials increase with the increase of the concentration of H2S; but at 100°C, the corrosion rate of 20Ni2Mo is not sensitive to the variation of the concentration of H2S, the average corrosion resistivity of 20Ni2Mo is the best among three materials; at 25°C, the average corrosion resistivity of 35CrMo is the best among three materials; (2) the corrosion rates of three materials all increase with the increase of temperature; (3) the corrosion resistivity of 20CrMo is the worst among three materials. (6 refs)
Database: Compendex
Data Provider: Engineering Village

112. Simultaneous measurement of temperature and pressure by a single fiber Bragg grating with a broadened reflection spectrum

Guo, Tuan (1); Qiao, Xueguang (2); Jia, Zhenan (2); Zhao, Qida (1); Dong, Xiaoyi (1)
Source: *Applied Optics*, v 45, n 13, p 2935-2939, May 1, 2006; **ISSN:** 1559128X, **E-ISSN:** 15394522; **DOI:** 10.1364/AO.45.002935; **Publisher:** OSA - The Optical Society
Author affiliation: (1) Institute of Modern Optics, Nankai University, 94 Weijin Road, Tianjin 300071, China (2) Science School, Xi'An Shiyou University, Xi'an 710065, China
Abstract: Simultaneous measurement of temperature and pressure with a single fiber Bragg grating (FBG) based on a broadened reflection spectrum is proposed and experimentally demonstrated. A novel double-hole structure of a cantilever beam is designed, and a FBG is affixed on the nonuniform strain area of the cantilever beam. The Bragg reflection bandwidth is sensitive to the spatially gradient strain but is free from the spatially uniform temperature. The wavelength peak shift and the bandwidth broadening of the FBG with a change of temperature and pressure allow for simultaneous discrimination between the temperature and the pressure effects. Standard deviation errors of 1.4 °C and 1.8 kPa were obtained with temperature and pressure ranges of 20°C-100 °C and 0-80 kPa, respectively. This novel and low-cost sensor approach has considerable potential applications for temperature-insensitive strain measurement. © 2006 Optical Society of America. (19 refs)
Main heading: Temperature measurement
Controlled terms: Bandwidth - Cantilever beams - Error detection - Fiber Bragg gratings - Pressure measurement - Reflection - Spectrum analysis - Strain measurement - Temperature distribution
Uncontrolled terms: Bragg grating - Bragg reflection bandwidth - Broadened reflection - Standard deviation errors
Classification Code: 408.2 Structural Members and Shapes - 641.1 Thermodynamics - 716.1 Information Theory and Signal Processing - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 741.1 Light/Optics - 941 Acoustical and Optical Measuring Instruments - 943.2 Mechanical Variables Measurements - 944.4 Pressure Measurements - 944.6 Temperature Measurements
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

113. Projected natural gradient-based BSS algorithm with an unknown source number

Ye, Ji-Min (1); Jin, Hai-Hong (2); Lou, Shun-Tian (1); Zhang, Xian-Da (1)
Source: *Xi'an Dianzi Keji Daxue Xuebao/Journal of Xidian University*, v 33, n 2, p 190-194, April 2006; **Language:** Chinese; **ISSN:** 10012400; **Publisher:** Science Press

Author affiliation: (1) Key Lab. of Radar Signal Processing, Xidian Univ., Xi'an 710071, China (2) School of Science, Xi'an Shiyou Univ., Xi'an 710065, China
Abstract: An analysis of the demixing matrix's dynamic changing in available blind source separation algorithms with an unknown number of sources is made and the conclusion that it is the redundant movement of demixing matrix in some equivalent class which cases the divergence is drawn. By canceling the redundant component of the natural gradient in an orthogonal projection approach, a new algorithm is developed, which overcomes the weak point of being unable to converge stably. Finally, simulation proves the capacity to perform the blind source separation with an unknown number of sources and the convergent stability of the new algorithm. (14 refs)
Main heading: Blind source separation
Controlled terms: Algorithms - Computer simulation - Convergence of numerical methods - Matrix algebra - Signal processing
Uncontrolled terms: Natural gradient - Orthogonal projection
Classification Code: 716.1 Information Theory and Signal Processing - 723.5 Computer Applications - 921 Mathematics
Treatment: Applications (APP) - Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

114. Novel high-power L-band Erbium-doped fiber superfluorescent source

Liu, Ying-Gang ; Qiao, Xue-Guang ; Jia, Zhen-An ; Feng, De-Quan
Source: *Guangxue Jishu/Optical Technique*, v 32, n 5, p 653-655, September 2006; **Language:** Chinese; **ISSN:** 10021582; **Publisher:** Optical Technique
Author affiliation: (1) College of Sciences, Xi'an Shiyou University, Xi'an 710065, China (2) Institute of Photonics and Photon-technology, Northwest University, Xi'an 710069, China
Abstract: The primary principle of L-band superfluorescent fiber source was presented. A novel dual-stage double-pass forward pumping configuration with the fiber loop reflector was designed and achieved. Through experiment by optimization the parameter such as fiber length and pump power at two stages, the output power of L-band was high up to 19.86 mW(12.98 dBm) ,and mean wavelength was 1577.421 nm. The ASE of first stage was used as seed signal, the second was main source of L-band, the efficiency of pumping and flatness was enhanced by using the first stage and fiber loop reflector. Meanwhile, the effect about source with different parameters was analyzed, it can provide help for design of the source. (13 refs)
Database: Compendex
Data Provider: Engineering Village

115. Finite element generalized analysis method of double circular arc gears

Qu, Wentao ; Shen, Yunwen ; Guo, Hui ; Xu, Jianning ; Zhao, Ning
Source: *Jixie Qiandu/Journal of Mechanical Strength*, v 28, n 3, p 415-418, June 2006; **Language:** Chinese; **ISSN:** 10019669; **Publisher:** Journal of Mechanical Strength
Author affiliation: (1) School of Mechatronic Engineering, Northwestern Polytechnical University, Xi'an 710072, China (2) School of Mechanical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: The load assignment formula and method of the double circular arc gear under the wiring error influence between the contact marks were introduced and inferred. The automatic production of the double circular arc gear contact computation finite element model was realized used the corresponding computational procedure established by finite element software ANSYS. The turn of tooth real rotation using the degree of freedom coupling method was realized, the distributions of the contact stress and the bending stress under the specific operating mode were calculated. It is found through comparison that the computation method is feasible. (7 refs)
Database: Compendex
Data Provider: Engineering Village

116. Application of zonal injection in the development of Chang-6 oil reservoir

Pei, Cheng-He ; Chen, Shou-Min ; Chen, Jun-Bin
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 2, p 33-36, March 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) No.3 Production Plant, Changqing Oilfield Company, Yinchuan 750005, China

Abstract: The heterogeneity of physical property, the interzonal contradictory and the intrastratal contradictory of Chang-6 reservoir are very conspicuous, which results in the single-zone breakthrough and tonguing in water-injection. The technique of zonal water-injection is applied in order to improve the water-injection profile. The application results show that, the zonal water-injection has the clear improvement of the water-injection profile of Chang-6 reservoir and makes the oil layer of Chang-6 reservoir obtain full energy supplement. The applications of the technique in Chang-6 reservoir receive good results. (4 refs)
Database: Compendex
Data Provider: Engineering Village

117. Long-duration energy accumulated detection based on time-frequency morphological filtering

Shang, Haiyan (1, 2); Shui, Penglang (1); Zhang, Shouhong (1); Su, Hongtao (1); Zhang, Yabin (1)
Source: *Hsi-An Chiao Tung Ta Hsueh/Journal of Xi'an Jiaotong University*, v 40, n 10, p 1094-1097+1102, October 2006; **Language:** Chinese; **ISSN:** 0253987X; **Publisher:** Xi'an Jiaotong University
Author affiliation: (1) National Laboratory of Radar Signal Processing, Xidian University, Xi'an 710071, China (2) Electronic Engineering Department, Xi'an Shiyou University, Xi'an 710065, China
Abstract: A new detection method based on time-frequency analysis and morphological filtering is proposed in order to detect the maneuvering target with unknown waveform, long accumulated time and low signal-to-noise-ratios (SNR) under a severe noise background. Utilizing the characteristics that the time-frequency distribution congregates the signal energy nearby the instant frequency curve and the white noise energy is dispersed over the time-frequency plane, the time-frequency distribution, threshold processing and morphological filtering are used to estimate the support region of high energy, and then these regional energy is accumulated to construct the detecting statistics to perform the statistic decision. The proposed method does not need the prior waveform information, the accumulated time of detection is not restricted by handling methods and the weak maneuvering target can be detected in longer observing time under noisy background. The simulation results show that when the false alarm rate is 10-5 and SNR is -9 dB the detection probability can achieve 99%. (9 refs)
Main heading: Radar receivers
Controlled terms: Computer simulation - Probability - Signal to noise ratio - Statistics
Uncontrolled terms: Long accumulated time - Maneuvering target detection - Morphological filtering - Time frequency distribution
Classification Code: 716.2 Radar Systems and Equipment - 723.5 Computer Applications - 922.2 Mathematical Statistics
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

118. Review of the applicability of several typical slue-test beeline analysis methods

Lin, Jia'en (1); Liu, Quanhai (2); Deng, Qingfeng (2)
Source: *Well Testing*, v 15, n 3, p 14-16+75, 2006; **Language:** Chinese; **ISSN:** 10044388; **Publisher:** Well Testing
Author affiliation: (1) Xi'an Petroleum University (2) Jidong Oilfield Branch Company
Abstract: Several beeline analysis methods for determining formation flow capacity, skin factor and initial reservoir pressure from slug-test data are reviewed. If the slug test is not long enough, most of the slug-test data is dominated by wellbore-storage effects. In such cases, it is difficult to obtain a unique match of the real data with the appropriate wellbore-storage and akin type curves. By analyzing the 24h-elapsed-time slug test data from Jidong oilfield, the applicability of the beeline analysis methods, especially for "Peres modified Peres deconvolution" method, in reducing the slug test time are explained. (6 refs)
Main heading: Numerical methods
Controlled terms: Curve fitting - Data reduction - Flow control - Real time systems - Well pressure - Well testing
Uncontrolled terms: Beeline analysis method - Early-time analysis - Reservoir pressure - Slug tests
Classification Code: 512.1.2 Petroleum Deposits : Development Operations - 722.4 Digital Computers and Systems - 921.6 Numerical Methods
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

119. Economic limit model of development wells under economic constraints

Zhang, Zhong-Hua ; Xiao, Yu-Ru ; Li, Liu-Ren
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 6, p 99-101, November 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Research Institute of Petroleum Exploration and Development, Sinopec, Beijing 100083, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Under the economic constraint conditions, the economic limits of new development wells reflect the demand of investment decision-making. The viewpoint is put forward that the economic limits of new development wells are determined by investment, oil price and cost, the economic limits themselves are calculated by scientific methods and they are the yardstick to judge whether oilfields or blocks meet the needs of investment under certain economic limits. On the basis of this viewpoint, applying the basic mode of cash flow method, the economic limit models of the increased recoverable reserves by a new development well and the initial yield of a new development well are established under certain economic constraint conditions. Some cases are presented, and the increased recoverable reserves and the initial yield calculated by the models accord with practical data. The establishment of the new evaluation method breaks through traditional appraised methods in which the economic conditions are solved from specific oil reservoir conditions. The establishment of the new method has the guidance meaning to investment decision-making. (6 refs)
Database: Compendex
Data Provider: Engineering Village

120. Preparation of the polyacrylamide inverse microemulsion latex and the study of its oil displacement performance

Liu, Xiang ; Chao, Fen ; Fan, Xiao-Dong
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 4, p 72-74, July 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) College of Sciences, Northwestern Polytechnic University, Xi'an 710072, China
Abstract: According to the pseudoternary phase diagrams of the system of kerosene-Span80/Tween80-acrylamide/water(aqueous solution of acrylamide), the polyacrylamide inversed-phase microemulsion latex was prepared by inversed-phase microemulsion polyreaction. The used monomer of acrylamide inversed-phase microemulsion has high mass fraction, the reaction temperature is 40°C, and the mass ratio of the initiator to the monomer is 0.2%. The prepared polyacrylamide inversed-phase microemulsion latex has stable property, and it is transparent. Its mass fraction is 39.0%, and the average relative molecular mass is 7.6 × 106. Finally, the oil displacement performance of the polyacrylamide inversed-phase microemulsion latex is experimentally investigated. The result shows that the oil displacement efficiency of the polyacrylamide inversed-phase microemulsion latex can be increased by 7.4% compared with that of polyacrylamide aqueous-solution under the same condition. (7 refs)
Database: Compendex
Data Provider: Engineering Village

121. High-availability VoD system with dynamic fault tolerant

Zhang, Minglong ; Feng, Boqin ; Liu, Fang
Source: *Jisuanji Gongcheng/Computer Engineering*, v 32, n 10, p 86-88, May 20 2006; **Language:** Chinese; **ISSN:** 10003428; **Publisher:** Shanghai Computer Society
Author affiliation: (1) School of Electronics and Information Engineering, Xi'an Jiaotong University, Xi'an 710049, China (2) School of Science, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In this paper, a dynamic fault tolerant algorithm is presented for highly available distributed video on demand (VoD) systems. According to the performance requirements of the distributed applications, the load balancing is introduced into fault tolerance. Different server switching methods in different ways according to their functions are presented, which preserve the reliability and real-time of the system. System consistency is guaranteed after server switching, which makes the clients unaware of change. The switching between the faulty server and the new server is smooth and it is transparent to the client. Feasibility of this algorithm is analyzed. Experiments indicate that the algorithm effectively improves the reliability of the VoD systems. (4 refs)
Database: Compendex
Data Provider: Engineering Village

122. Optimizing design and study on dual-parameter sensing system

Wang, Hongliang ; Qiao, Xueguang ; Fu, Haiwei ; Zhou, Hong ; Zhao, Dazhuang ; Wei, Ting ; Luo, Jun ; Liu, Yinggang
Source: *Yi Qi Yi Biao Xue Bao/Chinese Journal of Scientific Instrument*, v 27, n 5, p 536-540, May 2006; **Language:** Chinese; **ISSN:** 02543087; **Publisher:** Science Press
Author affiliation: (1) College of Sciences, Xi'an Shiyou University, Xi'an 710065, China (2) School of Electronic and Information Engineering, Xi'an Jiaotong University, Xi'an 710049, China
Abstract: According to matrix norm theory, the state of coefficient matrix for dual-parameter sensing system was discussed with two gratings for pressure and temperature. Results show that the stability for transferring errors of pressure and temperature measurement is mainly determined by the matching of absolute pressure and temperature sensitivity, or it is related to the condition number of the coefficient matrix. The aim of optimizing design for dual-parameter sensing system is to reduce the condition number of the coefficient matrix by destroying proximate linear correlation of various elements among rows and columns in the coefficient matrix and reducing the proportion between various elements of the matrix. Choosing optimum absolute sensitivity of both pressure and temperature for simultaneous measurement with dual-FBGs sensor based on smart metallic tube component, the condition number of coefficient matrix has been reduced to a value of 4.4, and the transfer errors of pressure and temperature measurement obtained by optimizing design on the dual-parameter sending system are 0.68% and 1.1% respectively. (6 refs)
Database: Compendex
Data Provider: Engineering Village

123. Technological improvement on the racemization of dextromisole hydrochloride

He, Jian-Xun ; Wang, Xue
Source: *Huaxue Gongcheng/Chemical Engineering (China)*, v 34, n 4, p 63-65, April 2006; **Language:** Chinese; **ISSN:** 10059954; **Publisher:** Editorial Office of Chemical Engineering (China)
Author affiliation: (1) College of Chemical Engineering, Northwest University, Xi'an 710069, China (2) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: To study the new method on the racemization process of dextromisole hydrochloride. Under the specific environments, water was used to replace dimethyl sulfoxide (DMSO) as the menstruum. And the lower specific rotatory power of the D-tetramisole shows that this new method is practical. The improvement on the technology of the racemization of dexeromisole hydrochloride is more available with mild reaction condition and lower price and free from the pollution to the environment, which has great practical value. (5 refs)
Database: Compendex
Data Provider: Engineering Village

124. Method for maneuvering target detection in long integration time

Shang, Hai-Yan ; Zhang, Ya-Bin ; Su, Hong-Tao ; Zhang, Shou-Hong ; Shui, Peng-Lang
Source: *Xi Tong Gong Cheng Yu Dian Zi Ji Shu/Systems Engineering and Electronics*, v 28, n 12, p 1779-1782, December 2006; **Language:** Chinese; **ISSN:** 1001506X; **Publisher:** Chinese Institute of Electronics
Author affiliation: (1) National Lab. of Radar Signal Processing, Xidian Univ., Xi'an 710071, China (2) School of Electronic Engineering, Xi'an Shiyou Univ., Xi'an 710065, China
Abstract: To determine whether a maneuvering target exists in a long integration time in Sky-Wave or Surface-wave over-the-horizon radar (OTHR) , a new detection method based on time-frequency distribution (TFD) and morphological filtering is proposed to detect the maneuvering targets in OTHR systems. This technique firstly search the optimal kernel of the TFD in terms of the extent of chirp rate of target echoes, and TFD with optimal kernel highlights the time-frequency (TF) features of existing targets. Thereafter thresholding and morphological filtering refine the binary TFD. Finally a test statistics is constructed by summing up the bright TF points on the binary TFD for the constant false alarm rate (CFAR). Simulation results show that the proposed method has the advantages of improved maneuvering target detection ability for OTHR. (10 refs)
Database: Compendex
Data Provider: Engineering Village

125. Design of the downhole oil-water separation system for submersible electric pump wells and its ground monitoring model

Qu, Zhan-Qing ; Zhang, Qi ; Li, Heng ; Chen, Sheng-Nan ; Pu, Chun-Sheng
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 34-37, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) Faculty of Petroleum Engineering, China University of Petroleum, Dongying 257061, China (2) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: Downhole oil-water separation technique has both economical and environmental benefits, but its application is restricted due to its complicated design, rigorous requirements to candidate wells and high cost. The design of the downhole oil water separation system for submersible electric pump wells is investigated in this paper. The structure and the principle of the system are introduced, and its design calculation method is presented on the basis of the study on its subsystems and the connections among them, which provides the theoretical basis for its application in oilfields. A ground monitoring model is build, it is used for acquiring the downhole status of the system according to surface test data. The model not only provides a means for the control of the system but also reduces the application cost of the downhole oil-water separation technique. (6 refs)
Database: Compendex
Data Provider: Engineering Village

126. Regularity of Triassic petroleum accumulation and distribution in the east part of North Shaanxi Slope

Zhao, Jingzhou (1); Wu, Fuli (1); Yan, Shike (2); Gu, Genshen (2); Guo, Deyun (2, 3); Yang, Xianchao (2, 3)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 5, p 24-27+34, September 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) School of Petroleum Resources, Xi'an Shiyou University, Xi'an 710065, China (2) Yanchang Petroleum Corporation, Yanchuan 717208, China (3) Northwest University, Xi'an 710069, China
Abstract: The Triassic structure in the east part of North Shaanxi Slope of Ordos Basin is a large smooth westward monocline and characterized by simple structure without folds and faults. Accordingly, the Triassic petroleum accumulation and distribution in the North Shaanxi Slope has been regarded as mainly being controlled by sedimentary facies, and therefore the types of the reservoir are lithologic, on which the structural and other factors are believed to have no important effect. Nevertheless, the present study shows that the formation and enrichment of the Triassic reservoir in North Shaanxi Slope of Ordos Basin are actually controlled by multiple factors, such as sedimentary facies, background of nose-shaped uplift, migration pathway, regional cap-rocks and hydrodynamics. Especially, the background of nose-shaped uplift is an important condition for the formation and enrichment of the Mesozoic reservoir. The formation of the mid-large oil fields has close relations with such a structural background. For the accumulation combination of Chang 1, Chang 2 and Chang 3 of Yanchang Formation and Jurassic,the faults especially fractures as migration pathways have significant effects on the formation and distribution of the Mesozoic reservoir. Hydrodynamics is an important trap factor for the Triassic reservoir. Consequently, the types of the Triassic reservoir are complicated and variable. In addition, the structural-lithologic and structural-hydrodynamic composite reservoirs are possibly the main types of the Triassic reservoir in the North Shaanxi Slope of Ordos Basin. (12 refs)
Main heading: Petroleum reservoirs
Controlled terms: Crude petroleum - Gases - Hydrodynamics - Lithology - Oil bearing formations - Oil fields - Structural geology - Tectonics
Uncontrolled terms: North Shaanxi Slope - Oil-gas distribution - Ordos Basin - Reservoir type - Triassic reservoir
Classification Code: 444 Water Resources - 481.1 Geology - 512.1.1 Oil Fields - 631.2 Hydrodynamics
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

127. Calculation and analysis of the true productivity of a well of low permeable reservoirs of deformation medium

Chen, Ming-Qiang ; Pu, Chun-Sheng ; Zhao, Ji-Yong ; Gao, Yong-Li
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 2, p 18-22, March 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Research Institute of Exploration and Development, Changqing Oilfield Company, Xi'an 710021, China
Abstract: The true pressure distribution and the productivity analysis method of a stable-producing low-permeability well after stimulating measures are studied based on the stable percolation flow theory for the low permeability reservoir of the deformation medium with start-up pressure gradient. The results show that, the true pressure

distribution in the percolation flow field of the low-permeability well possesses two regional features; in the low-permeability reservoir of deformation medium, the productivity of the stimulated well decreases with the increases of start-up pressure gradient and medium deformation factor, increases with the increases of the active radius and the active factor of the well, and increases with the increase of production pressure difference; the productivity index of the well presents a non-monotone increasing curve with the increase of production pressure difference, therefore there are not only a rational production pressure difference but also a minimum production pressure difference. The effective approaches to develop super-low permeability reservoirs are discussed using the same thinking. It is held that increasing the active radius of the stimulated well is an effective approach to enhance the productivity of super-low permeability wells. The theoretical calculation results show that, the productivity of the well is greatly enhanced only when the active radius of the well is greater than 60 m. Therefore, deep well stimulating measures or horizontal well technique should be applied in the development of super-low permeability reservoirs. (9 refs)
Database: Compendex
Data Provider: Engineering Village

128. Experimental research on a new encapsulated heat-generating hydraulic fracturing fluid system

Wu, Jinqiao (1); Zhang, Ningsheng (2); Wu, Xinmin (2); Liu, Xiaojuan (2)
Source: *Chinese Journal of Geochemistry*, v 25, n 2, p 162-166, 2006; **ISSN:** 10009426; **DOI:** 10.1007/BF02872176;
Publisher: Science Press
Author affiliation: (1) School of Energy and Power Engineering, Xi'an Jiaotong University, Xi'an 710049, China (2) School of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: During fracturing treatment for low-temperature, shallow and high freezing point oil reservoirs, the first-line problems are to overcome uncompleted breakdown, uncompleted cleanup of fracturing fluids and cold damages to the formations by injecting cold fluid. To avoid those problems, it is suggested to adopt a new encapsulated heat-generating hydraulic fracturing fluid system as described in this paper. Firstly, two kinds of chemical heat-generating systems were studied and the NH4Cl-NaNO2 system was selected. According to the reaction characteristics of the system, oxalic acid was chosen as a catalyst of reaction and encapsulated using ethyl cellulose and paraffin as coating materials by the phase separation method. Compatibility of NH4Cl-NaNO2-encapsulated oxalic acid with hydroxypropyl-guar fracturing fluid was also discussed in the paper. The results showed that the hydraulic fracturing fluid containing encapsulated heat-generating agents hare a good stability and compatibility. When the fracturing fluid contains 2.0 mol&middotL-1 NH4 Cl-NaNO2, 0.93% encapsulated oxalic acid and 0.08% ammonium persulfate, the peak temperature can reach 78.0°C and the viscosity of residual liquid is 3.12 mPa&middots after 4 hours. (12 refs)
Main heading: Hydraulic fracturing
Controlled terms: Catalysts - Encapsulation - Fracturing fluids - Freezing - Low temperature effects - Paraffins - Petroleum reservoirs - Phase separation - Viscosity
Uncontrolled terms: Ammonium persulfate - Chemical heat-generating systems - Ethyl cellulose - Gel breaking - Hydroxypropyl-guar fracturing fluid - Oxalic acid
Classification Code: 511.1 Oil Field Production Operations - 512.1.1 Oil Fields - 512.1.2 Petroleum Deposits : Development Operations - 631.1 Fluid Flow, General - 641.1 Thermodynamics - 644.4 Cryogenics
Funding Details: Number: 2001CX-19, Acronym: -, Sponsor: -;
Funding text: * This work was supported by CNPC Innovation Foundation (No. 2001CX-19). * * Corresponding author, E-mail: jinqiaowu@ 163. corn
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

129. Characteristics of Chang 21 low permeability sandstone reservoir in shunning oil field

Wang, Jian-Min (1); Yu, Liu-Ying (2)
Source: *Journal of China University of Mining and Technology*, v 16, n 2, p 223-227, June 2006; **ISSN:** 10061266;
Publisher: China University of Mining and Technology
Author affiliation: (1) Department of Resource and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Department of Oil Field, Incorporated Company of PetroChina, Beijing 100000, China
Abstract: Characteristics of Chang 21 low permeability sandstone reservoir of Shunning oil field are analyzed and evaluated based on the data of well logging and experiment. The result shows that 1) the Chang 21 low permeability reservoir belongs to the classification of middle-to-fine sized feldspar sandstone, with its components being low in maturity, deposited in distributary rivers in the front of the delta; 2) the reservoir is obviously dominated by a low or a

very low permeability with a linear variation tendency different from that of the ultra-low permeability reservoir; 3) the spatial variation in lithology and physical properties of the reservoir are controlled by the sedimentary facies zones, and 4)the physical property of the reservoir is significantly influenced by clastic constituents and their structure, and the constituent of cement materials and their content. The result also shows that the diagenesis action of the reservoir is quite strong in which dissolution greatly modified the reservoir In addition, the inter-granular dissolved pores are the mainly developed ones and the micro-structure is dominated by the combination of middle-to-large sized pores with fine-to-coarse throats. Finally, the radius of the throats is in good exponential correlation with permeability and the seepage capacity comes from those large sized throats. (11 refs)
Main heading: Oil fields
Controlled terms: Dissolution - Feldspar - Lithology - Low permeability reservoirs - Petroleum deposits - Physical properties - Sandstone - Well logging
Uncontrolled terms: Cement materials - Chang 21 reservoir - Clastic constituents - Delta - Diagenesis action - Distributary rivers - Feldspar sandstone - Fine to coarse throats - Low permeability sandstone reservoir - Sedimentary facies zones - Seepage capacity - Shunning oil field - Spatial variation
Classification Code: 481.1 Geology - 482.2 Minerals - 512.1.1 Oil Fields - 802.3 Chemical Operations - 931.2 Physical Properties of Gases, Liquids and Solids
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

130. Using cationic polymer for treating the produced water of oilfields

Qu, Cheng-Tun ; Wang, Xin-Qiang ; Xie, Juan ; Chen, Jie-Rong
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 2, p 23-25, March 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) School of Chemical Engineering, Xi'an Jiaotong University, Xi'an 710049, China (2) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: In order to make the produced water of oilfields meet reuse standard, the study on treating the oily sewage in oilfields using cationic polymer and polymeric aluminum is made. The study result shows that, when the molecular mass of cationic polymer is 120 × 104, its mass concentration is 0.5~1.0 mg/L, and it is compounded with polymeric aluminum, the removal rates of the suspended substance, oil and CODcr in the oily sewage reaches to 99.7%, 97.7% and 92.0% separately. The contents of suspended substance and oil in treated sewage are reduced to 1.2 mg/L and 5.0 mg/L separately, and they reach to the standard of reuse water. The treating result of the formulation system of cationic polymer with polymeric aluminum to oily sewage is influenced by the pH value and temperature of the oily sewage, but the influence is less than that when polymeric aluminum is used alone. (4 refs)
Database: Compendex
Data Provider: Engineering Village

131. Determination of the content of barium in barium chloride using barium sulphate volumetric precipitation method in ethanol-water medium

Wang, Rui-Bin ; Qiao, Xiao-An
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 77-79, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) School of Chemistry and Chemical Engineering, Yulin College, Yulin 719000, China (2) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China
Abstract: It is put forward that the content of barium in barium chloride is determined using barium sulphate volumetric precipitation method in ethanol-water medium. After the sample is dissolved in the ethanol and water medium whose pH is 2.0~3.0, the barium ion is titrated by using Na2SO4 standard solution. The result shows that, the modified method is simple to operate, efficient and accurate, and it has little disturbance. Compared with weight method, the relative error of the method is less than 0.5%, which indicates that the accuracy of the method is close to that of weight method; its relative standard deviation is 0.20%, which indicates the repeatability of the method is very good. Therefore, the method is a quick analysis method, which can be used not only in instructional experiments for students but also in field determination. (13 refs)
Database: Compendex
Data Provider: Engineering Village

132. Experimental investigation on the flow instability in evaporator of separated type heat pipes

Zhu, Yu-Qin (1, 2); Bi, Qin-Cheng (1); Cao, Zi-Dong (1); Chen, Ting-Kuan (1); Wang, Wei-Shu (1); Deng, Zhi-An (1)
Source: *Hedongli Gongcheng/Nuclear Power Engineering*, v 27, n 2, p 45-49, April 2006; **Language:** Chinese; **ISSN:** 02580926; **Publisher:** Yuan Zi Neng Chuban She
Author affiliation: (1) State Key Laboratory of Multiphase Flow, Xi'an Jiaotong University, Xi'an 710049, China (2) Chemistry and Chemical Engineering School, Xi'an Shiyou University, Xi'an 710065, China
Abstract: An experimental investigation on the working fluid flow characteristics and the flow instability in the evaporator of Separated Type Heat Pipe (STHP) was presented. Flow patterns were observed and analyzed by visualization experiment. It was found that the bubbly flow, slug flow, and wavy foam flow occurred orderly in the evaporator with a small inclination angle when the heat flux increased. Two types of flow instabilities occurred, i.e., the flow pattern transformation instability and the density wave instability. The effects of pressure, mass velocity, inlet subcooling, heat flux, and exit throttle on the flow instability were determined in the modeling experiment. The thresholds of the flow pattern transformation instability and that of the density wave instability were obtained. Non-dimensional correlations for predicting the flow instability in STHP were given by means of one-dimension single-fluid model. The results may be used for the engineering design of largescale heat exchangers of STHP with a small inclination angle in evaporator. (3 refs)
Main heading: Heat pipes
Controlled terms: Evaporators - Experiments - Flow of fluids - Flow patterns - Stability - Visualization
Uncontrolled terms: Bubbly flow - Flow instability - Separated type heat pipes - Slug flow - Wavy foam flow - Working fluid flow
Classification Code: 616.1 Heat Exchange Equipment and Components - 631.1 Fluid Flow, General - 802.1 Chemical Plants and Equipment
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

133. High performance epoxy resin nanocomposites containing both organic montmorillonite and castor oil-polyurethane

Li, Jinbo (1, 2)
Source: *Polymer Bulletin*, v 56, n 4-5, p 377-384, March 2006; **ISSN:** 01700839; **DOI:** 10.1007/s00289-005-0492-0; **Publisher:** Springer Verlag
Author affiliation: (1) Department of Science and Technology, Xi'An Shiyou University, Xi'an 710065, China (2) School of Material Science and Engineering, Xi'An Jiaotong University, Xi'an 710049, China
Abstract: Epoxy resin/polyurethane interpenetrating polymer network nanocomposites with various contents of organophilic montmorillonite (oM-EP/PU nanocomposites) were prepared by a sequential polymeric technique and an in situ intercalation method. X-ray diffraction(XRD), and transmission electronic microscopy(TEM) analysis showed that organophilic montmorillonite (oMMT) disperses uniformly in epoxy resin/polyurethane interpenetrating networks(IPNs), and the intercalated or exfoliated microstructures of oMMT are formed. Differential scanning calorimetry(DSC) test proved that oMMT promotes the compatibility of EP phase and PU phase, and glass transition temperature(Tg) of oM-EP/PU nanocomposites improves with increasing oMMT content. Mechanical properties tests and thermal gravity analysis (TGA) indicated that oMMT and the IPNs of EP and PU exhibit synergistic effect on improving mechanical and thermal properties of pure EP. The mechanism of toughing and reinforcing of oM-EP/PU nanocomposites was further discussed by scanning electronic microscope(SEM). (31 refs)
Main heading: Epoxy resins
Controlled terms: Glass transition - Intercalation compounds - Nanostructured materials - Polyurethanes - Transmission electron microscopy - X ray diffraction analysis
Uncontrolled terms: Castor oil-polyurethane - Exfoliated microstructures - In situ intercalation method
Classification Code: 701.1 Electricity: Basic Concepts and Phenomena - 741.3 Optical Devices and Systems - 801 Chemistry - 802.3 Chemical Operations - 815.1.1 Organic Polymers - 933.1 Crystalline Solids
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village

134. Study on the heating power of heavy oil well using distributing parameter circuit model

Li, Lin ; Wang, Ping ; Zhang, Qi-Zhi ; Yu, Hong-Guo ; Shi, Fu-Bin

Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 91-93, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Electronic Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Faculty of Information and Control Engineering, China University of Petroleum, Dongying 257061, China
Abstract: The power distribution of heavy oil well along well-bore in medium-frequency heating is investigated by means of distributing parameter circuit model. And a conclusion is drawn that the heating power distribution is nonlinear and the nearer from wellhead, the greater the power, which makes up just the reduction of temperature in the process of heavy oil being raised. Therefore, the heating efficiency is improved, and heating cost is reduced. (3 refs)
Database: Compendex
Data Provider: Engineering Village

135. Estimation of the connectivity between oil wells and water injection wells in low-permeability reservoir using tracer detection technique

Zhang, Zhao ; Chen, Ming-Qiang ; Gao, Yong-Li
Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 3, p 48-51, May 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Petroleum Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Department of Oilfield Development, Changqing Oilfield Branch Company of CNPC, Xi'an 710021, China
Abstract: The method is put forward for estimating the connectivity between oil wells and water injection wells in low-permeability microfracture reservoir by combining tracer detection technique with reservoir numerical simulation technique. A lot of field practice shows that using the method can accurately estimate the position and advancing speed of waterflood front, main and secondary flow channels, the permeability of fractures, the seepage flow situation of reservoir, the production performance of reservoir, etc. which are interested in the production of oilfields. (3 refs)
Database: Compendex
Data Provider: Engineering Village

136. Collaborative building of Japanese Kanji pronunciation database for learning Japanese by Chinese

Yuan, Fei (1); Yuan, Jing (2); Wang, Rong (1); Mitsuhara, Hiroyuki (1); Kanenishi, Kazuhide (3); Yano, Yoneo (1)
Source: *Learning by Effective Utilization of Technologies: Facilitating Intercultural Understanding, Proceeding of the 14th International Conference on Computers in Education, ICCE 2006*, 2006, *Learning by Effective Utilization of Technologies: Facilitating Intercultural Understanding, Proceeding of the 14th International Conference on Computers in Education, ICCE 2006*; **ISBN-13:** 9781586036874; **Conference:** 14th International Conference on Computers in Education, ICCE 2006, November 30, 2006 - December 4, 2006; **Sponsor:** Chinese Association for Artificial Intelligence; Ministry of Education (MOE); **Publisher:** Asia-Pacific Society for Computers in Education
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Abstract: For Chinese learners who learn Japanese, it is difficult to enhance speaking ability through reading Japanese teaching materials and articles. Because many Kanji have the same or approx meaning in Japanese and Chinese, therefore during reading the Japanese educational materials Chinese learners are not necessary to master the pronunciation of Kanji in Japanese to understand. Currently few systems deal with learning the pronunciation of Japanese Kanji in reading and furthermore enhancing speaking ability. In this paper, we present a self-directed reading environment for Chinese learners to learn the pronunciation of Japanese Kanji in daily reading and describe developing a collaborative-building database to realize it. (4 refs)
Main heading: Database systems
Controlled terms: Learning systems
Uncontrolled terms: CALL systems - Collaborative buildings - Educational materials - Japanese Kanji pronunciations - Self-directed - Self-directed learning - Teaching materials
Classification Code: 723.3 Database Systems
Database: Compendex
Data Provider: Engineering Village

137. Understanding the pressure curve response characters of fair's variable wellbore storage model

Lin, Jia'en (1); Sun, Hedong (2)
Source: *Well Testing*, v 15, n 4, p 1-4+75, 2006; **Language:** Chinese; **ISSN:** 10044388; **Publisher:** Well Testing
Author affiliation: (1) Institute of Petroleum Engineering, Xi'an Petroleum University (2) RIPED, Langfang
Abstract: Fair's variable well-bore storage model has been widely used in the well test analysis for a gas/oil well in the world. Fair's model is difficult to be applied to analyzing the field well test data because of the complexity of variable well-bore storage effects and the lack of a good knowledge of Fair's model for the interpreters. This paper outline the transient pressure response of Fair's model for a gas well with liquid yield effects and present the character of the type curves of Fair's model under the different model conditions. (3 refs)
Main heading: Oil wells
Controlled terms: Mathematical models - Oil fields - Pressure effects
Uncontrolled terms: Gas wells - Transient pressure response - Type-curve matching - Variable well-bore storage - Well test interpretation
Classification Code: 512.1.1 Oil Fields - 921 Mathematics
Treatment: Theoretical (THR)
Database: Compendex
Data Provider: Engineering Village

138. Study on automated denseness measuring and precision reconstruction technology based on DMIS in reverse engineering

Yu, Xiao-Yong
Source: *Zhuzao Jishu/Foundry Technology*, v 27, n 8, p 863-865, August 2006; **Language:** Chinese; **ISSN:** 10008365; **Publisher:** Science Press
Author affiliation: (1) Continue Education College, Xi'an Petroleum University, Xi'an 710065, China
Abstract: This paper studies automated denseness measuring and precision reconstruction technology based on DMIS in reverse engineering, and resolves the determination of quantity and distribution of measuring points. By the practical example, it comes to an ideal CAD modeling result, realizes the effective aggregation of measuring process and surface reconstruction, and takes on an important practice significance and wide-ranging application perspective. (7 refs)
Database: Compendex
Data Provider: Engineering Village

139. Research on framework of ERP software systems for small and medium-sized enterprises

Zhu, Zhanli ; Wang, Kuisheng
Source: *Jisuanji Gongcheng/Computer Engineering*, v 32, n 12, p 37-38+44, Jun 20 2006; **Language:** Chinese; **ISSN:** 10003428; **Publisher:** Shanghai Computer Society
Author affiliation: (1) School of Computer, Xi'an Petroleum University, Xi'an 710065, China
Abstract: Informatization is becoming the key factor for the development of enterprises. The capabilities of ERP software directly decide whether or not the informatization construction of enterprises is successful. However, to meet the requirements of varieties and continual development of middle and small sized enterprises, EPR software has to possess the flexible adaptability and convenient expansibility. In this paper, the framework of ERP software for the middle and small sized enterprises is presented which is composed of the operation application level, public middle ware, quadric developing platform and bottom supporting platform. At the same time, the methods for the integration of the whole system are proposed based on the operation cells and supply-require relationship which heavily improve the vitality of the software. The ERP software of the middle and small sized enterprises based on the above framework has been broadly applied in the electronic manufacturing industry. (2 refs)
Database: Compendex
Data Provider: Engineering Village

140. Development of a high-strength acid-resisting proppant

Cai, Bao-Zhong ; Xu, Hai-Sheng

Source: *Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition*, v 21, n 6, p 76-79, November 2006; **Language:** Chinese; **ISSN:** 1673064X; **Publisher:** Xi'an Petroleum Institute
Author affiliation: (1) College of Chemistry and Chemical Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Fracturing Technique Department, North-west China Petroleum Bureau, Zhengzhou 450006, China
Abstract: According to the performances of all common domestic high-strength ceramsites, the common domestic proppants cannot meet the requirements of the fracturing and acidizing technology in Tahe oilfield to proppant because they have bad acid-resistance, higher density and lower strength. For this reason, a new high-strength proppant H-l is developed for the oilfield. The measuring results of its performance show that, the acid solubility of the proppant is 1.6% ,the breaking rate of it is 2.1% at 86 MPa. The proppant can make formation have higher flow conductivity under high-temperature, high closure stress and acidic environment, and it can well meet the requirements of the fracturing and acidizing technology in Tahe oilfield. (10 refs)
Database: Compendex
Data Provider: Engineering Village

141. Variation rule of displacement and stress of expandable-profile liners during expanding process for leak plugging in oil-gas wells

Shi, Kai (1); Li, Wei (2); Zhou, Yong (1); Liu, Yanming (1)
Source: *Shiyou Xuebao/Acta Petrolei Sinica*, v 27, n 6, p 137-140, November 2006; **Language:** Chinese; **ISSN:** 02532697; **Publisher:** Science Press
Author affiliation: (1) School of Material Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China (2) Department of Material, Xi'an Thermal Power Research Institute, Xi'an 710032, China
Abstract: On the basis of leak plugging in oil and gas drilling engineering, the variation rule of displacement and stress of expandable-profile liners during expanding process was analyzed by using the software ANSYS and field test. The expanding strain of expandable-profile liners was calculated by means of dual non-linear analysis. The nephograms of equivalent stress and the variation rule of displacement and stress of expandable-profile liners during expanding process were obtained. The result of the calculation was verified by field test. The simulation and calculation results for the expanding process of profile liners were isomorphic and consistent with the tested result. The stress and strain of the expandable-profile liners were symmetrically distributed over the geometric shape of the pipeline, but equivalent stress and-equivalent strain on the different region of pipes rested with the curvature radius. The maximal equivalent stress and strain appeared in the wave peak and wave trough. The mathematical formulations about diameters of expandable-profile liners and value of expanding pressure were regressed. (9 refs)
Main heading: Natural gas wells
Controlled terms: Computer software - Expandable tubes - Extension pipelines - Finite element method - Geometry - Leakage (fluid) - Oil wells - Strain - Stresses
Uncontrolled terms: Displacement - Expandable-profile liners - Finite element analysis - Leak plugging technology - Oil-gas well
Classification Code: 421 Strength of Building Materials; Mechanical Properties - 452.1 Sewage - 512.1.1 Oil Fields - 512.2.1 Natural Gas Fields - 619.1 Pipe, Piping and Pipelines - 921.6 Numerical Methods
Treatment: Applications (APP)
Database: Compendex
Data Provider: Engineering Village

142. Applying Monte Carlo to calibrate the system of radiation measurement gas fraction rate in flowing substance

Li, Dong-Ming ; Hu, Hua-Si ; Zheng, Xiang-Yang ; Chu, Jun
Source: *Hedianzixue Yu Tance Jishu/Nuclear Electronics and Detection Technology*, v 26, n 5, p 673-675, September 2006; **Language:** Chinese; **ISSN:** 02580934; **Publisher:** Atomic Energy Press
Author affiliation: (1) Xi'an Jiaotong University, Xi'an 710065, China (2) Xi'an Petroleum University, Xi'an 710065, China
Abstract: It is very convenient to apply nuclear technology for multi-phase measurement But, the radiation based measurement system is a relative system, so the system needs to be calibrated in site. The paper studies calibration of the two-phase measuring system by Monte Carlo simulation. The result shows error less than 5% as compared with measurement in fact. (7 refs)
Database: Compendex
Data Provider: Engineering Village

143. Synthesis and properties of sugar-based gemini surfactants

Shi, J. (1); Li, Q.-D. (1); Xia, X.-C. (2)
Source: *Tenside, Surfactants, Detergents*, v 43, n 4, p 204-209, August/September 2006; **ISSN:** 09323414; **DOI:** 10.3139/113.100309; **Publisher:** Carl Hanser Verlag
Author affiliation: (1) Department of Chemistry, College of Chemistry and Chemical Engineering, Xi'An Shiyou University, 710065 Xi'an, China (2) Research Center, China Oilfield Services Limited, 101149 Beijing, China
Abstract: A series of new gemini surfactants having hydrophilic glucosides were synthesized from glucose via two different synthesis roads, including N,N′_didodecyl-N,N′_bis-(1-glucosyl-2-hydroxyl-propyl)-p-phthaloyl amide [B(DG)PA], N,N#didodecyl-N,N′_bis(1-glucosyl-2-hydroxyl- propyl)-2,5-dicarboxylate p-phthaloyl amide [B(DGC)PA], N,N#didodecanoyl- N,N#bis-(1-glucosyl-2-hydroxylpropyl) ethylenediamine [B(DG)EA], and N,N′_didodecanoyl-N,N′ bis-(1-glucosyl-2-hydroxyl-propyl) hexanediamine [B(DG)HA]. The final products were characterized by IR and NMR spectral measurements and by interfacial tension measurements. The critical micellar concentrations (cmc) of these gemini surfactants were determined to be 2.49 ′ 10-6, 1.93 ′ 10-6, 2.47 ′ 10 -6 and 1.66 ′ 10-6 mol L-1, respectively, which are about one order of magnitude lower than the corresponding monomeric surfactants (GHPDA). The results showed that these synthesized sugar-based gemini surfactants had high abilities to reduce the surface or oilwater interface tension. The high surface activity of these synthesized molecules was attributed to their unique structure where two optimally spaced hydrophobic chains and hydrophilic groups were present. © Carl Hanser Publisher. (18 refs)
Main heading: Surface active agents
Controlled terms: Glucose - Hydrophilicity - Hydrophobicity - Nitrogen compounds - Synthesis (chemical)
Uncontrolled terms: Cmc - Gemini surfactants - Glucoside
Classification Code: 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
Treatment: Experimental (EXP)
Database: Compendex
Data Provider: Engineering Village