ПЕРЕЧЕНЬ ИЗДАННЫХ ПУБЛИКАЦИЙ СТАТЕЙ В ЗАРУБЕЖНЫХ ИЗДАНИЯХ ПО РЕЗУЛЬТАТАМ НАУЧНО-ИССЛЕДОВАТЕЛЬСКОЙ ДЕЯТЕЛЬНОСТИ (ЗА 2016 Г.)

Запись 1

Заголовок: Electrodialysis of Ammonium Nitrate Solution in Intensive Current Regimes

Авторы: Niftaliev, SI (Niftaliev, S. I.); Kozaderova, OA (Kozaderova, O. A.); Kim, KB (Kim, K. B.)

Источник: INTERNATIONAL JOURNAL OF ELECTROCHEMICAL SCIENCE **Том:** 11 **Выпуск:** 11 **Стр.:** 9057-9066 **DOI:** 10.20964/2016.11.37 **Опубликовано:** NOV 2016

Аннотация: Electrodialysis of ammonium nitrate solution with the use of different membrane pairs MK-40/MA-41, MK-41/MA-41 by UCC Szchekinoazot (Russia), Ralex CM(H)-PP / Ralex AM(H)-PP by Mega a.s. (Czech Republic) was carried out. It was demonstrated that the highest degree of desalination can be achieved with the use of the membranes Ralex CM(H)-PP / Ralex AM(H)-PP in electrodialysis cell. A membrane pair (MK-41/MA-41) was established, whose application will allow conducting a reagent-free acidification of solutions in the concentration compartment in order to prevent the precipitate formation on the surface of the anion exchange membranes in the desalination compartment.

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Запись 2

Заголовок: 3-D paleotemperature modeling of the geothermal regime of sedimentary basins: Example of the Lunskaya depression, Sakhalin Island

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Источник: RUSSIAN JOURNAL OF PACIFIC GEOLOGY **Том:** 10 **Выпуск:** 6 **Стр.:** 408-416 **DOI:** 10.1134/S1819714016060051 **Опубликовано:** NOV 2016

Аннотация: The task of 3-D modeling of the thermal field of a sedimentary basin during sedimentation is considered. The aim of the modeling is to determine the temperature at any point of the basin at a given moment of geological time. The mathematical model is based on a system of equations of thermal conductivity for a heterogeneous layered medium with dynamic boundaries. The conditions of the continuous temperature and thermal flow are given at the boundaries of the adjacent layers. The temperature values, which are determined by the values of the secular course of the earth temperature, are given at the upper boundary coinciding with the sedimentation surface. The thermal flow value is considered to be given at the lower boundary. The medium is approximated using a vertical triangle prism, which is accepted in algorithms of interpretation of the gravitation field and characterized by random upper and lower basements and given values of the thermal physical parameters. The equations of thermal conductivity are solved on the basis of potential theory. The precision of this algorithm is demonstrated by calculation of a test example. The thermal evolution of the sedimentary complexes and dynamics of the major zone of oil formation are reconstructed and possible errors of paleotemperature interpretations caused by ignored 3-D modeling medium are determined on the example of the sedimentary basin of the Lunskaya depression of Sakhalin.

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Запись 3

Заголовок: Application of chemical sensors to the rapid assessment of the digestive tract of birds

Авторы: Kuchmenko, TA (Kuchmenko, T. A.); Shuba, AA (Shuba, A. A.); Cheremushkina, IV (Cheremushkina, I. V.)

Источник: JOURNAL OF ANALYTICAL CHEMISTRY **Том:** 71 **Выпуск:** 11 **Стр.:** 1096-1103 **DOI:** 10.1134/S1061934816110071 **Опубликовано:** NOV 2016

Аннотация: The application of a piezosensor array to the assessment of the conditions of the digestive tract of birds by the presence and concentrations of dysbiosis markers in the equilibrium gas phase over the

biosamples is discussed. A dysbiosis index is proposed for the rapid screening diagnosis of the dysbiosis status of intestines, calculated by the output data of the sensor array. The results obtained with chemical sensors are consistent with the data of microbiological studies. The method is very useful in monitoring the dynamics of variation of the dysbiosis index.

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Запись 4

Заголовок: SHAPING HIGH-LONGEVITY COMPONENTS OF CORROSION-RESISTANT PIPES BY ROTARY ROLLING

Авторы: Vasechkin, MA (Vasechkin, M. A.); Davydov, OY (Davydov, O. Yu.); Egorov, VG (Egorov, V. G.); Maslov, IN (Maslov, I. N.)

Источник: CHEMICAL AND PETROLEUM ENGINEERING **Том:** 52 **Выпуск:** 5-6 **Стр.:** 392-397 **DOI:** 10.1007/s10556-016-0205-6 **Опубликовано:** SEP 2016

Аннотация: A mathematical model of the process of rotary rolling out of thin-walled pipe billets is developed. It is used to derive a relationship for the torque as the key power and force parameter of the process, which expresses explicitly the influence of the geometric parameters of the rolled-out pipe, the mechanical properties of the material and the mechanisms of its strengthening, and the structural parameters of the operating tool on the stability of the rotary rolling process. It is shown that use of straight-seamed pipe billets with roller welded joint, in combination with potential application of automatic argon-arc welding of circular joints, can significantly extend the life of pipes made from corrosion-resistant materials.

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Запись 5

Заголовок: MODELING OF DUST COLLECTION BY A HIGH-TEMPERATURE FILTER WITH A PHORETICALLY ACTIVE CATALYST

Авторы: Gasanov, ZS (Gasanov, Z. S.); Ryazanov, AN (Ryazanov, A. N.); Zinkovskii, AV (Zinkovskii, A. V.); Panov, SY (Panov, S. Yu.); Belykh, OM (Belykh, O. M.)

Источник: CHEMICAL AND PETROLEUM ENGINEERING **Том:** 52 **Выпуск:** 5-6 **Стр.:** 412-418 **DOI:** 10.1007/s10556-016-0208-3 **Опубликовано:** SEP 2016

Аннотация: The combination of several physical and chemical processes for cleaning flue gas in a single high-temperature filter is a promising technology. The effect of catalytic phoresis on solid-particle collection efficiency is evaluated. A three-level mathematical model describing sedimentation of the catalytic coating on autofilter layers and the filter base layer is presented. Calculation of the filtering of highly dispersed particles with a working catalyst using the proposed model allows the best modes of filtering devices and their design and operating parameters to be chosen.

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Запись 6

Заголовок: PYROLYTIC PROCESSING OF CELLULOSE-CONTAINING WASTES FROM FOOD INDUSTRY PLANTS

Авторы: Sklyadnev, EV (Sklyadnev, E. V.); Ryazanov, AN (Ryazanov, A. N.); Panov, SY (Panov, S. Yu.); Balabanova, MY (Balabanova, M. Yu.); Zinkovskii, AV (Zinkovskii, A. V.)

Источник: CHEMICAL AND PETROLEUM ENGINEERING **Том:** 52 **Выпуск:** 5-6 **Стр.:** 419-424 **DOI:** 10.1007/s10556-016-0209-2 **Опубликовано:** SEP 2016

Аннотация: A possible thermal process for disposal of wastes from the brewing and sugar industries was studied. Information on the yields of secondary pyrolysis products (pyrogas, pyroliquid, solid residue) as a function of changes in the processing parameters was obtained. Pyrogas consisting of H-2, CO, CO2, CH4, and saturated and unsaturated C-2-C-5 fractions had a heat of combustion of 1.79 and 1.65 MJ/m(3) for spent grain and sugar-beet pulp, respectively. A universal unit allowing any type of waste with various quantities of added hydrocarbon waste to be processed was developed.

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Запись 7
Заголовок: BIOCONVERSION OF ORGANIC WASTE INTO GASEOUS FUELS
Авторы: Zhuchkov, AV (Zhuchkov, A. V.); Panov, SY (Panov, S. Yu.); Ryazanov, AN (Ryazanov, A. N.); Smolko, YN (Smolko, Yu. N.); Chernetskaya, AA (Chernetskaya, A. A.)
Источник: CHEMICAL AND PETROLEUM ENGINEERING **Том:** 52 **Выпуск:** 5-6 **Стр.:** 425-428 **DOI:** 10.1007/s10556-016-0210-9 **Опубликовано:** SEP 2016
Аннотация: The article is devoted to the study of the process of obtaining biogas by anaerobic fermentation of biomass of various origins. The main advantage of the suggested theory is the possibility of utilizing organic waste with a complex morphology and of changeable composition. The developed method of bioconversion of organic waste presented a high ecological and economical efficiency. The article presents some data concerning the anaerobic fermentation substrate characteristics, and the description and working principle of the experimental unit.
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Запись 8
Заголовок: SIMULATION MODEL OF PROPAGATION OF VIBRATIONS IN A SYSTEM OF CONNECTED BODIES FOR THE SOLUTION OF PROBLEMS OF VIBRATION DIAGNOSTICS
Авторы: Khvostov, AA (Khvostov, A. A.); Degtyarev, NA (Degtyarev, N. A.); Panov, SY (Panov, S. Yu.); Ryazanov, AN (Ryazanov, A. N.)
Источник: CHEMICAL AND PETROLEUM ENGINEERING **Том:** 52 **Выпуск:** 5-6 **Стр.:** 429-437 **DOI:** 10.1007/s10556-016-0211-8 **Опубликовано:** SEP 2016
Аннотация: An approach to the construction of a mathematical model of the process of propagation of acoustic vibrations in equipment that is in the form of a system of connected bodies is considered. The proposed structure of the mathematical model is implemented as a graph whose edges are links between the elements of a system of connected bodies formalized by nonhomogeneous wave equations that take into account dissipative losses. Through the use of the mathematical model together with the introduction of sources of an external disturbance in any node of the graph, it becomes possible to describe a variation in the vibration signal at a contact point, estimate its properties, and select on a well-defined basis the point of attachment of the vibration signal sensor. The mathematical model is tested to assure it corresponds qualitatively to the actual processes in the propagation of vibration signals by means of test disturbances, and it is shown that it may be used to evaluate the selection of the points of attachment of the vibration signal sensors in problems of vibration diagnostics of equipment.
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Запись 9
Заголовок: Hydration and sorption of amino acids by an iminophosphonic ion exchanger
Авторы: Gapeev, AA (Gapeev, A. A.); Bondareva, LP (Bondareva, L. P.); Astapov, AV (Astapov, A. V.); Kornienko, TS (Kornienko, T. S.)
Источник: PROTECTION OF METALS AND PHYSICAL CHEMISTRY OF SURFACES **Том:** 52 **Выпуск:** 4 **Стр.:** 689-694 **DOI:** 10.1134/S2070205116040110 **Опубликовано:** JUL 2016
Аннотация: The interaction of glycine ions and a-alanine with an iminophosphonic Purolite S950 ion exchanger in the protonated form has been studied, and the equilibrium characteristics of ion-exchangeable and nonexchangeable sorption of amino acids have been determined. A quantitative evaluation of the degree of hydration, including the ratios of water with different energies in the phase of the exchanger in the protonated and amino acid forms, has been conducted; the changes in the Gibbs free energy and enthalpies of hydration and dehydration of PuroliteS950 have been determined. It has been found that polyampholyte in the protonated form manifests the greatest sorption capacity during sorption of bipolar amino acid ions. The amount of water

of near hydration is the same for hydrogen and alanine forms of the ion exchanger; the greatest changes in the Gibbs energy are observed upon hydration of the alanine form, and those in the enthalpy are found for the hydrogen form of the polyampholyte.

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Запись 10

Заголовок: Sorption of aromatic acids from aqueous solutions by polymer based on N-vinylpyrrolidone

Авторы: Kushnir, AA (Kushnir, A. A.); Sukhanov, PT (Sukhanov, P. T.); Savvina, AG (Savvina, A. G.); Bondareva, LP (Bondareva, L. P.); Churilina, EV (Churilina, E. V.); Poluzhenkova, EV (Poluzhenkova, E. V.); Shatalov, GV (Shatalov, G. V.)

Источник: RUSSIAN JOURNAL OF APPLIED CHEMISTRY **Том:** 89 **Выпуск:** 6 **Стр.:** 891-896 **DOI:** 10.1134/S1070427216060070 **Опубликовано:** JUN 2016

Аннотация: Kinetic and equilibrium characteristics of the sorption of benzoic, salicylic and ortho-chlorobenzoic acids by a new cross-linked sorbent based on N-vinylpyrrolidone were studied at various pH values of the medium. It was found that the molecular sorption of aromatic carboxylic acids from aqueous solutions occurs in the mixed-diffusion mode and the sorption capacity of the polymer grows with increasing acid-base equilibrium constants of the acids. The advisability of introducing a salting-out agent into sorption systems was confirmed. Effective sorption systems and a method for concentration of aromatic carboxylic acids from aqueous solutions by the new cross-linked sorbent based on N-vinylpyrrolidone were suggested.

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Запись 11

Заголовок: Mathematical Modelling of Light Dependent Microorganisms Cultivation in Countercurrent Film Reactor

Авторы: Shevtsov, AA (Shevtsov, A. A.); Lytkina, LI (Lytkina, L. I.); Antipov, ST (Antipov, S. T.); Ostrikov, AN (Ostrikov, A. N.); Shentsova, ES (Shentsova, E. S.); Drannikov, AV (Drannikov, A. V.); Koptev, DV (Koptev, D. V.)

Источник: THEORETICAL FOUNDATIONS OF CHEMICAL ENGINEERING **Том:** 50 **Выпуск:** 3 **Стр.:** 335-342 **DOI:** 10.1134/S004057951603012X **Опубликовано:** MAY 2016

Аннотация: The kinetic parameters of the pseudo-continuous cultivation of green microalgae in the film photobioreactor with countercurrent flows of gas and liquid phases and equipped with spirals on the internal surface of quartz tubes have ben studied. A mathematical model of mass transfer during microalgae cultivation in a film photobioreactor has been developed. The model includes a kinetic equation that considers the effect of the conditions of the cultivation of microalgae populations and cells interactions. A method has been developed for solving equations of the model that uses the Galerkin combination and the finite-element methods.

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Запись 12

Заголовок: Study of temperature fields in a rectangular plate with a temperature-dependent internal source with the aid of fast expansions

Авторы: Chernyshov, AD (Chernyshov, A. D.); Goryainov, VV (Goryainov, V. V.); Marchenko, AN (Marchenko, A. N.)

Источник: THERMOPHYSICS AND AEROMECHANICS **Том:** 23 **Выпуск:** 2 **Стр.:** 243-

252 **DOI:** 10.1134/S0869864316020104 **Опубликовано:** MAR 2016

Аннотация: The approximate analytic solution of the problem of temperature field in a rectangular plate with an internal temperature-dependent source is obtained by the method of fast expansions. The critical value of a parameter characterizing heat release, which fundamentally affects the analytic solution form, is found. The maximum solution error is shown to amount to 0.02 at the consideration of the first three terms of the Fourier series in fast expansion. Temperature fields are presented, and an analysis of the influence of the plate sizes and the heat release magnitude on their formation is given. Recommendations on the plate shape choice are given.

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Запись 13

Заголовок: Deep Centers at the Interface in In-2x Ga2(1-x)Te3/InAs and In2Te3/InAs Heterostructures

Авторы: Domashevskaya, EP (Domashevskaya, E. P.); Mikhailyuk, EA (Mikhailyuk, E. A.); Prokopova, TV (Prokopova, T. V.); Bezryadin, NN (Bezryadin, N. N.)

Источник: SEMICONDUCTORS **Том:** 50 **Выпуск:** 3 **Стр.:** 309-313 **DOI:** 10.1134/S1063782616030076 **Опубликовано:** MAR 2016

Аннотация: The methods of admittance, I-V, and C-V characteristics are used to investigate In-2x Ga2(1-x)Te3/InAs and In2Te3/InAs heterostructures obtained by the technologies of quasi-closed volume and deposition. The spectrum of the distribution of local energy levels at the interface is established. A new acceptor center with an energy of 0.36 eV alongside the known donor level with an energy of 0.5 eV is found by the method of admittance. The acceptor-center concentration N (t) depends on the method of fabrication and technological modes. The kinetics of generation-recombination processes in the temperature range of 70-400 K does not affect the insulating properties of the In2Te3 or In-2x Ga2(1-x)Te3 (x a parts per thousand 0.65) dielectric layer; therefore, the possibility of their use as heterostructures for field-effect transistors is demonstrated.

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Запись 14

Заголовок: REGIONAL GEOGRAPHIC INFORMATION SYSTEMS OF HEALTH AND ENVIRONMENTAL MONITORING

Авторы: Kurolap, S (Kurolap, S.); Klepikov, O (Klepikov, O.); Vinogradov, P (Vinogradov, P.); Gritsenko, V (Gritsenko, V.)

Источник: BALTIC REGION **Выпуск:** 4 **Стр.:** 146-167 **DOI:** 10.5922/2074-9848-2016-4-10 **Опубликовано:** 2016

Аннотация: The article describes a new scientific and methodological approach to designing geographic information systems of health and environmental monitoring for urban areas. Geographic information systems (GIS) are analytical tools of the regional health and environmental monitoring; they are used for an integrated assessment of the environmental status of a large industrial centre or a part of it. The authors analyse the environmental situation in Voronezh, a major industrial city, located in the Central Black Earth Region with a population of more than 1 million people. The proposed research methodology is based on modern approaches to the assessment of health risks caused by adverse environmental conditions. The research work was implemented using a GIS and multicriteria probabilistic and statistical evaluation to identify cause-and-effect links, a combination of action and reaction, in the dichotomy 'environmental factors - public health'. The analysis of the obtained statistical data confirmed an increase in childhood diseases in some areas of the city. Environmentally induced diseases include congenital malformations, tumors, endocrine and urogenital pathologies. The main factors having an adverse impact on health are emissions of carcinogens into the atmosphere and the negative impact of transport on the environment. The authors identify and characterize environmentally vulnerable parts of the city and developed principles of creating an automated system of health monitoring and control of environmental risks. The article offers a number of measures aimed at the reduction of environmental risks, better protection of public health and a more efficient environmental monitoring.

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Запись 15

Заголовок: CONVECTIVE-DIFFUSION MODEL OF TRANSFER OF A SEDIMENTING LOW-CONCENTRATION POLYDISPERSE SUSPENSION OF STOKESIAN PARTICLES IN A PLANE CHANNEL. PART I

Авторы: Ryazhskikh, AV (Ryazhskikh, A. V.); Boger, AA (Boger, A. A.); Slyusarev, MI (Slyusarev, M. I.); Ryazhskikh, VI (Ryazhskikh, V. I.)

Источник: JOURNAL OF ENGINEERING PHYSICS AND THERMOPHYSICS **Том:** 89 **Выпуск:** 1 **Стр.:** 10-18 **DOI:** 10.1007/s10891-016-1348-1 **Опубликовано:** JAN 2016

Аннотация: The authors have developed a convective-diffusion model of sedimentation of solid Stokesian particles from a dispersed phase moving in an ideal-mixing regime in a plane channel as the initial boundary-value problem for the particle size function, whose solution was obtained in analytical form. The mixing coefficient has been found from the hydrodynamic analogy with turbulent viscosity, and the kinetic coefficients of settling on "wetted" surfaces have been determined on condition that the particles near the walls lose the convective velocity component but preserve the Brownian and Stokesian components. The obtained calculation results are consistent with the universally accepted ideas of separation of the solid phase of suspensions from flows on the settling surface.

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Запись 16

Заголовок: CONVECTIVE-DIFFUSION MODEL OF TRANSFER OF A SEDIMENTING LOW-CONCENTRATION POLYDISPERSE SUSPENSION OF STOKESIAN PARTICLES IN A PLANE CHANNEL. PART II

Авторы: Ryazhskikh, AV (Ryazhskikh, A. V.); Boger, AA (Boger, A. A.); Slyusarev, MI (Slyusarev, M. I.); Ryazhskikh, VI (Ryazhskikh, V. I.)

Источник: JOURNAL OF ENGINEERING PHYSICS AND THERMOPHYSICS **Том:** 89 **Выпуск:** 1 **Стр.:** 19-24 **DOI:** 10.1007/s10891-016-1349-0 **Опубликовано:** JAN 2016

Аннотация: With the analytical expression for the local particle size distribution function in the case of flow of a low-concentration polydisperse suspension whose dispersed phase moves in a turbulent regime simulated by the ideal-displacement model, the authors have quantitatively assessed the regularities of formation of the fields of mass concentration in the flow over the cross section and along the length of the channel, and also of thicknesses of sediments on the upper and lower "wetted" surfaces and their particle size distribution as functions of the intensity of mixing and the particle size distribution of the suspension.

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Запись 17

Заголовок: Nanoporous anodic aluminum oxide films for UV/vis detection of noble and non-noble metals

Авторы: Silina, YE (Silina, Yuliya E.); Kychmenko, TA (Kychmenko, Tatiana A.); Koch, M (Koch, Marcus)

Источник: ANALYTICAL METHODS **Том:** 8 **Выпуск:** 1 **Стр.:** 45-51 **DOI:** 10.1039/c5ay02498f **Опубликовано:** 2016

Аннотация: In this study, a simple, rapid and inexpensive approach for the screening of heavy metals with photometric reagents was developed based on porous, anodic aluminium oxide (AAO) films, with detection limits of 0.45 mg L-1 (Co2+), 0.25mg L-1 (Pb2+) and 0.59 mg L-1 (Ni2+). Noble metal ions Ag+ and Pd2+, as well as Cu2+, formed nanoparticles within the AAO channels during micro-solid phase extraction driven by galvanic electroless displacement followed by UV detection.

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