

Запись 1 из 88

Заголовок: Ab initio study of magnetism and interaction of graphene with the polar MnO(111) surface**Авторы:** Ilyasov, VV (Ilyasov, Victor V.); Popova, IG (Popova, Inna G.); Ershov, IV (Ershov, Igor V.)**Источник:** APPLIED SURFACE SCIENCE **Том:** 419 **Стр.:** 924-932 **DOI:** 10.1016/j.apsusc.2017.05.075 **Опубликовано:** OCT 15 2017

Аннотация: Simulation of graphene adsorption onto the oxygen-terminated polar manganese monoxide surface (111) was performed as a function of the hydrogen coverage based on the density functional theory. Local atomic reconstructions of the SLG/H:MnO(111) interface, and their thermodynamic, electronic and magnetic properties were methodically analyzed for different adsorption models. The bond lengths and the adsorption energy values were found for different reconstructions of the surface atomic structure in the SLG/H:MnO(111) systems, and the effects of graphene adsorption on the electronic spectrum of the SLG/H:MnO(111) interface were studied for its different reconstructions. The effective charges and the local magnetic moments on the carbon atoms and on the nearest-neighbor atoms were determined for the considered adsorption models. Charge transfer from the carbon atom to the nearest-neighbor atoms was found due to reconstruction of the local atomic and electronic structures, correlating with the interface hydrogenation rate. Hydrogenation of the interface surface provides for the p-n junction, turning graphene into an n-type semiconductor. The latter opens the way for creation of n-type graphene field-effect transistors. This paper predicts magnetism for zero-defect graphene adsorbed on the hydrogenated surface of MnO(111) magnetic insulator, and discusses the nature of such magnetism. (C) 2017 Elsevier B.V. All rights reserved.

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Запись 2 из 88

Заголовок: Piezoelectric Performance and Hydrostatic Parameters of Novel 2-2-Type Composites**Авторы:** Topolov, VY (Topolov, Vitaly Yu.); Bowen, CR (Bowen, Christopher R.); Krivoruchko, AV (Krivoruchko, Andrey V.)**Источник:** IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL **Том:** 64 **Выпуск:** 10 **Стр.:** 1599-1607 **DOI:** 10.1109/TUFFC.2017.2720420 **Опубликовано:** OCT 2017

Аннотация: This paper provides a detailed study of the structure-piezoelectric property relationships and the hydrostatic response of 2-2-Type composites based on relaxor-ferroelectric 0.72 Pb (Mg_{1/3}Nb_{2/3})O₃-3-0.28PbTiO₃ single crystal (SC) material. Type I layers in the composite system are represented by a single-domain [111]-poled SC. Changes in the orientation of the crystallographic axes in the Type I layer are undertaken to determine the maximum values of the hydrostatic piezoelectric coefficients $d(h)^*$, $g(h)^*$, and $e(h)^*$, and squared figure of merit $d(h)^*g(h)^*$ of the composite. The Type II layers are a 0-3 composite whereby inclusions of modified PbTiO₃ ceramic are distributed in a polymer matrix. A new effect is described for the first time due to the impact of anisotropic elastic properties of the Type II layers on the hydrostatic piezoelectric response that is coupled with the polarization orientation effect in the Type I layers. Large hydrostatic parameters $g(h)^*$ approximate to 300-400 mV · m/N, $e(h)^*$ approximate to 40-45 C/m², and $d(h)^*g(h)^*$ similar to 10(-11) Pa-1 are achieved in the composite based on the 0.72 Pb(Mg_{1/3}Nb_{2/3})O₃-3-0.28PbTiO₃ SC. Examples of the large piezoelectric anisotropy (vertical bar $d(33)^*/d(3f)^*$ vertical bar ≥ 5 or vertical bar $g(33)^*/g(3f)^*$ vertical bar ≥ 5) are discussed. The hydrostatic parameters of this novel compositesystem are compared to those of conventional 2-2 piezocomposites.

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Запись 3 из 88

Заголовок: Fast smooth rank function approximation based on matrix tri-factorization**Авторы:** Wang, HY (Wang, Hengyou); Cen, YG (Cen, Yigang); Zhao, RZ (Zhao, Ruizhen); Voronin, V (Voronin, Viacheslav); Zhang, FZ (Zhang, Fengzhen); Wang, YH (Wang, Yanhong)**Источник:** NEUROCOMPUTING **Том:** 257 **Стр.:** 144-153 **DOI:** 10.1016/j.neucom.2016.11.068 **Опубликовано:** SEP 27 2017

Аннотация: Recently, Smooth Rank Function (SRF) is proposed for matrix completion problem. The main idea of this algorithm is based on a continuous and differentiable approximation of the rank function. However, it need to deal with singular value decomposition of matrix in each iteration, which consumes much time for large matrix. In this paper, by utilizing the tri-factorization of matrix, a fast matrix completion method based on SRF is proposed. Then, based on our fast matrix completion method, a rank adaptive smooth rank function approximation is presented with appropriate rank estimation. We mathematically prove the convergence of the proposed method. Experimental results show that our proposed. method improves the running time significantly. Furthermore, our proposed method outperforms other existing matrix completion approaches in most cases. (C) 2017 Elsevier B.V. All rights reserved.

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Запись 4 из 88

Заголовок: First-principles study of the structural and electronic properties of graphene/MoS2 interfaces**Авторы:** Hieu, NN (Nguyen Ngoc Hieu); Phuc, HV (Huynh Vinh Phuc); Ilyasov, VV (Ilyasov, Victor V.); Chien, ND (Chien, Nguyen D.); Poklonski, NA (Poklonski, Nikolai A.); Hieu, NV (Nguyen Van Hieu); Nguyen, CV (Nguyen, Chuong V.)**Источник:** JOURNAL OF APPLIED PHYSICS **Том:** 122 **Выпуск:** 10 **Номер статьи:** 104301 **DOI:** 10.1063/1.5001558 **Опубликовано:** SEP 14 2017

Аннотация: In this paper, we study the structural and electronic properties of graphene adsorbed on MoS₂ monolayer (G/MoS₂) with different stacking configurations using dispersion-corrected density functional theory. Our calculations show that the interaction between graphene and MoS₂ monolayer is a weak van der Waals interaction in all four stacking configurations with the binding energy per carbon atom of -30 meV. In the presence of MoS₂ monolayer, the linear bands on the Dirac cone of graphene at the interfaces are slightly split. A band gap about 3meV opens in G/MoS₂ interfaces due to the breaking of sublattice symmetry by the intrinsic interface dipole, and it could be effectively modulated by the stacking configurations. Furthermore, we found that an n-type Schottky contact is formed at the G/MoS₂ interface in all four stacking configurations with a small Schottky barrier about 0.49 eV. The appearance of the non-zero band gap in graphene has opened up new possibilities for its application in electronic devices such as graphene field-effect transistors. Published by AIP Publishing.

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ISSN: 0021-8979**eISSN:** 1089-7550

Запись 5 из 88

Заголовок: Magneto-optical transport properties of monolayer MoS2 on polar substrates**Авторы:** Nguyen, CV (Nguyen, Chuong V.); Hieu, NN (Hieu, Nguyen N.); Poklonski, NA (Poklonski, Nikolai A.); Ilyasov, VV (Ilyasov, Victor V.); Dinh, L (Le Dinh); Phong, TC (Phong, Tran C.); Tung, LV (Tung, Luong V.); Phuc, HV (Phuc, Huynh V.)**Источник:** PHYSICAL REVIEW B **Том:** 96 **Выпуск:** 12 **Номер статьи:** 125411 **DOI:** 10.1103/PhysRevB.96.125411 **Опубликовано:** SEP 8 2017

Аннотация: We theoretically study the magneto-optical transport properties of monolayer molybdenum disulfide (MoS₂) on polar substrates in the presence of a perpendicular magnetic field. The magneto-optical absorption coefficient (MOAC) is investigated as a function of the incident photon energy when carriers are scattered by three different types of phonons: the intrinsic MoS₂ acoustic, optical phonons, and the surface optical (SO) phonons induced by polar substrates. Among the substrates considered, the largest magnitude of MOAC and full-width at half maximum (FWHM) are observed for a SiO₂ substrate over the entire temperature and magnetic field range

considered due to its strongest electron-SO phonon scattering, while an h-BN substrate displays the lowest one. The piezoelectric (PE) coupling to the transverse (TA) phonon is shown to dominate the MOAC and FWHM due to intrinsic acoustic phonon scattering. Meanwhile, these properties for intrinsic optical phonons are dominated by zero-order deformation potential (DP) couplings and the Frohlich interaction. The dependence of the MOAC and FWHM on temperature, magnetic field, and the effective MoS₂-substrate distance is also examined. The present results for monolayer MoS₂ are compared with those in conventional two-dimensional systems as well as in graphene. Our results show that SO phonons play a crucial role at high temperature depending on the substrates and have a non-negligible effect on the magneto-optical transport properties of monolayer MoS₂, which could be further experimentally and theoretically investigated in the future.

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Запись 6 из 88

Заголовок: A TEMPO-like nitroxide combined with an alkyl-substituted pyridine: An efficient catalytic system for the selective oxidation of alcohols with iodine

Авторы: Kashparova, VP (Kashparova, Vera P.); Klushin, VA (Klushin, Victor A.); Zhukova, IY (Zhukova, Irina Yu.); Kashparov, IS (Kashparov, Igor S.); Chernysheva, DV (Chernysheva, Dania V.); Il'chibaeva, IB (Il'chibaeva, Irina B.); Smirnova, NV (Smirnova, Nina V.); Kagan, ES (Kagan, Efim Sh.); Chernyshev, VM (Chernyshev, Victor M.)

Источник: TETRAHEDRON LETTERS **Том:** 58 **Выпуск:** 36 **Стр.:** 3517-3521 **DOI:** 10.1016/j.tetlet.2017.07.088 **Опубликовано:** SEP 6 2017

Аннотация: An efficient method for the oxidation of alcohols to aldehydes or ketones in a two-phase CH₂Cl₂/NaHCO₃ (aq.) system, using iodine and catalytic amounts of 4-acetylamino-2,2,6,6-tetramethylpiperidine-1-oxyl and 2,4,6-trimethylpyridine, was developed. The performance of the method was demonstrated by the selective oxidation of 37 variously substituted alcohols in >= 90% yield, including the gram-scale synthesis of the important chemical 2,5-diformylfuran from biomass-derived 5-hydroxymethylfurfural. (C) 2017 Elsevier Ltd. All rights reserved.

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ISSN: 0040-4039

Запись 7 из 88

Заголовок: Micro-Arc Diffusion Impregnation of Steel with Carbon and Carbide-Forming Elements

Авторы: Stepanov, MS (Stepanov, M. S.); Dombrovskii, YM (Dombrovskii, Yu. M.); Pustovoi, VN (Pustovoi, V. N.)

Источник: METAL SCIENCE AND HEAT TREATMENT **Том:** 59 **Выпуск:** 5-6 **Стр.:** 308-312 **DOI:** 10.1007/s11041-017-0148-3 **Опубликовано:** SEP 2017

Аннотация: The possibility of using micro-arc chemical heat treatment in bituminous coal powder for simultaneous impregnation of a steel surface with carbon and carbide-forming elements, i.e., chromium and molybdenum, is studied. Chemical and phase compositions of the diffusion layers are determined. Formation of carbide coatings based on these elements is confirmed.

Идентификационный номер: WOS:000412459200009

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Запись 8 из 88

Заголовок: Finite Element Modeling and Experimental Studies of Stack-Type Piezoelectric Energy Harvester

Авторы: Duong, LV (Duong, L. V.); Pham, MT (Pham, M. T.); Chebanenko, VA (Chebanenko, V. A.); Solovyev, AN (Solovyev, A. N.); Nguyen, CV (Nguyen, Chuong V.)

Источник: INTERNATIONAL JOURNAL OF APPLIED MECHANICS **Том:** 9 **Выпуск:** 6 **Номер статьи:** 1750084 **DOI:** 10.1142/S1758825117500843 **Опубликовано:** SEP 2017

Аннотация: In this paper, closed-form coupled electromechanical one-dimensional (1D) model and finite element (FE) model for stack-type piezoelectric energy harvester (PEH) and delivery to a resistive load available in the literature were proposed. We obtained the values of some parameters of 1D model and set the boundaries of its applicability based on the comparison of the resonance frequency and output voltage between the FE model and 1D model. The numerical modeling results of the full-scale experiment with low-frequency pulse excitation of the stack-type PEH for the energy storage device are described. PEH is a multilayer axisymmetric piezoceramic package. The dependence between the output voltage and the current load rate under the harmonic and non-stationary mechanical action of the PEH is studied. The experimental results-to-numerical calculation correlation has shown their good coincidence, which allows using the analyzed numerical models to optimize the PEH design at the given external action frequency and the active resistance value of the external electric circuit. Besides, it found that the frequency dependence of the output voltage of the stack-type PEH is of a complex nature depending both on the compressive pulse loading level and the piezoelectric modulus value of the PEH sensitive element, and on the electrical load resistance.

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Запись 9 из 88

Заголовок: Juvenile Crime: Current State and Dynamics

Авторы: Valuisikov, NV (Valuisikov, Nikoli V.); Bondarenk, LV (Bondarenk, Lubov V.); Arutiunian, AD (Arutiunian, Ani D.)

Источник: JOURNAL OF POLITICS AND LAW **Том:** 10 **Выпуск:** 4 **Стр.:** 225-232 **DOI:** 10.5539/jpl.v10n4p225 **Опубликовано:** SEP 2017

Аннотация: The article presents a comprehensive analysis of the problems of general and individual juvenile delinquency prevention. The definition of "general social crime preventive action" is given, its objectives and types are defined. The necessity of investing efforts and resources not in the repressive programs, but in the fundamental long-term programs aimed at the gradual elimination of social and economic disparities being the cause of the increase in crime rate among teenagers. The components and targets of individual crime prevention have been identified. The individual subjects of the juvenile crime prevention have been classified. The requirements for the subjects of the individual criminal behavior prediction have been formulated in order to create the theoretical and organizational prerequisites for the reliability of the individual behavior forecasts. As a result, the special measures of juvenile delinquency prevention have been proposed.

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Запись 10 из 88

Заголовок: Synthesis, Phase Formation, and Properties of Nanomaterials Based on the Titanium Dioxide-Iron(III) Oxide Binary System

Авторы: Bayan, EM (Bayan, E. M.); Lupeiko, TG (Lupeiko, T. G.); Pustovaya, LE (Pustovaya, L. E.); Knyashchuk, AA (Knyashchuk, A. A.); Fedorenko, AG (Fedorenko, A. G.)

Источник: RUSSIAN JOURNAL OF PHYSICAL CHEMISTRY B **Том:** 11 **Выпуск:** 4 **Стр.:** 600-605 **DOI:** 10.1134/S1990793117040042 **Опубликовано:** JUL 2017

Аннотация: The properties of nanomaterials based on the titanium dioxide-iron(III) oxide binary system prepared by low-temperature coprecipitation from aqueous solutions are studied. The effect of thermal treatment conditions and other factors on the process of phase formation and the properties of the synthesized products is examined. It is demonstrated that these materials have a relatively low photocatalytic activity but a high sorption capacity.

Идентификационный номер: WOS:000410822600009

Название конференции: 3rd All-Russia Conference on Current Scientific and Scientific-Technical Problems of Ensuring the Chemical Safety of Russia

Дата проведения конференции: 2016

Место проведения конференции: Moscow, RUSSIA

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Запись 11 из 88

Заголовок: Wear resistance of coating materials under the frictional heating conditions

Авторы: Zelentsov, VB (Zelentsov, V. B.); Mitrin, BI (Mitrin, B. I.); Lubyagin, IA (Lubyagin, I. A.)

Источник: JOURNAL OF FRICTION AND WEAR **Том:** 38 **Выпуск:** 4 **Стр.:** 265-271 **DOI:** 10.3103/S1068366617040158 **Опубликовано:** JUL 2017

Аннотация: The problem of the wear of an elastic coating due to a rigid body sliding over the coating surface and heating due to contact friction has been considered. The solution of the quasi-static problem has been constructed in the form of a series over eigenvalues. The area of unstable solutions of the problem, where the thermoelastic instability of a sliding contact takes place, has been determined in the dimensionless parameter space. The wear resistance of a coating has been studied for different kinds of materials depending on the following parameters: the relative sliding velocity of contact surfaces, the mode of the contact interaction of the friction surfaces, the coating thickness, etc. taking into account the temperature and stresses developing at the contact interface.

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Запись 12 из 88

Заголовок: Granulometric Composition Particulars of Lithoidal Clay Raw Material as Determined by Laser Diffraction

Авторы: Kotlyar, VD (Kotlyar, V. D.); Kozlov, AV (Kozlov, A. V.); Kotlyar, AV (Kotlyar, A. V.)

Источник: GLASS AND CERAMICS **Том:** 74 **Выпуск:** 3-4 **Стр.:** 131-136 **DOI:** 10.1007/s10717-017-9946-8 **Опубликовано:** JUL 2017

Аннотация: The results of a determination of the granulometric composition of lithoidal clayey raw material with different degrees of lithifaction - argillaceous clays, argillites, clayey shales - by means of laser diffractometry are presented. The particulars of the granulometric composition of these rocks as well as the effect of their dispersion duration and intensity are determined. It is shown that laser diffractometry can be used to evaluate the quality of raw materials of this type for the production of different types of ceramic articles.

Идентификационный номер: WOS:000406010100015

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Запись 13 из 88

Заголовок: Linear and nonlinear magneto-optical absorption coefficients and refractive index changes in graphene

Авторы: Nguyen, CV (Nguyen, Chuong V.); Hieu, NN (Hieu, Nguyen N.); Duque, CA (Duque, Carlos A.); Poklonski, NA (Poklonski, Nikolai A.); Ilyasov, VV (Ilyasov, Victor V.); Hieu, NV (Hieu, Nguyen V.); Dinh, L (Le Dinh); Quang, QK (Quang, Quach K.); Tung, LV (Tung, Luong V.); Phuc, HV (Phuc, Huynh V.)

Источник: OPTICAL MATERIALS **Том:** 69 **Стр.:** 328-332 **DOI:** 10.1016/j.optmat.2017.04.053 **Опубликовано:** JUL 2017

Аннотация: In this work, we study the magneto-optical absorption coefficients (MOACs) and refractive index changes (RICs) in monolayer graphene under a perpendicular magnetic field using the compact density matrix approach. The results are presented as functions of photon energy and external magnetic field. Our results show that there are three groups of the possible transitions: the intra-band, the mixed, and the inter-band transitions; in which the MOACs and the RICs appear as a series of peaks in both intra-band and inter-band transitions between the Landau levels. With an increase magnetic field, the resonant peaks give a blue-shift and reduce in their amplitudes. These results suggest a potential application of monolayer graphene in nanoscale electronic and magneto-optical devices. (C) 2017 Elsevier B.V. All rights reserved.

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Запись 14 из 88

Заголовок: Well-posedness analysis and numerical implementation of a linearized two-dimensional bottom sediment transport problem

Авторы: Sidoryakina, VV (Sidoryakina, V. V.); Sukhinov, AI (Sukhinov, A. I.)

Источник: COMPUTATIONAL MATHEMATICS AND MATHEMATICAL PHYSICS **Том:** 57 **Выпуск:** 6 **Стр.:** 978-994 **DOI:** 10.1134/S0965542517060124 **Опубликовано:** JUN 2017

Аннотация: A two-dimensional linearized model of coastal sediment transport due to the action of waves is studied. Up till now, one-dimensional sediment transport models have been used. The model under study makes allowance for complicated bottom relief, the porosity of the bottom sediment, the size and density of sediment particles, gravity, wave-generated shear stress, and other factors. For the corresponding initial-boundary value problem the uniqueness of a solution is proved, and an a priori estimate for the solution norm is obtained depending on integral estimates of the right-hand side, boundary conditions, and the norm of the initial condition. A conservative difference scheme with weights is constructed that approximates the continuous initial-boundary value problem. Sufficient conditions for the stability of the scheme, which impose constraints on its time step, are given. Numerical experiments for test problems of bottom sediment transport and bottom relief transformation are performed. The numerical results agree with actual physical experiments.

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Заголовок: Game-theoretic regulations for control mechanisms of sustainable development for shallow water ecosystems

Авторы: Sukhinov, AI (Sukhinov, A. I.); Chistyakov, AE (Chistyakov, A. E.); Ugol'nitskii, GA (Ugol'nitskii, G. A.); Usov, AB (Usov, A. B.); Nikitina, AV (Nikitina, A. V.); Puchkin, MV (Puchkin, M. V.); Semenov, IS (Semenov, I. S.)

Источник: AUTOMATION AND REMOTE CONTROL **Том:** 78 **Выпуск:** 6 **Стр.:** 1059-1071 **DOI:** 10.1134/S0005117917060078 **Опубликовано:** JUN 2017

Аннотация: We study dynamical game-theoretic models of two-level control systems accounting for the conditions of sustainable development. As the hierarchical control mechanisms we consider compulsion and impulsion methods. We give definitions of equilibria and show algorithms for constructing them with simulation modeling for various information regulations. We show a comparative analysis of the efficiency of the proposed control mechanisms for the model of an ecosystem of a shallow body of water (with the example of the Azov sea).

Идентификационный номер: WOS:000403538800007

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Запись 16 из 88

Заголовок: Equilibrium inner radial crack in a pipe section with an external protective coating

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Источник: ZAMM-ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND MECHANIK **Том:** 97 **Выпуск:** 6 **Стр.:** 744-754 **DOI:** 10.1002/zamm.201600226 **Опубликовано:** JUN 2017

Аннотация: The problem of plane deformation of the elastic ring with an inner radial cut is considered. On the inner edge of the ring hydrostatic pressure affected. The outer boundary is reinforced with a thin flexible coating, the outer boundary of it is free. As a coating model used special boundary conditions are formulated on the basis of the asymptotic analysis of the exact solution of the elasticity problem for the ring. It is difficult to find a range of geometrical and physical parameters of the problem analytically. That's why a series of numerical experiments using FEM package carried out. In particular, it was found that the error of the accepted model increases with the coating hardness and thickness. Discontinuous solution method technology in the Fourier series implemented. The boundary conditions on the crack faces satisfied. As a result of summation of series, the problem reduces to the solution of a singular integral equation for the derivative crack expanding function. The singular part is a Cauchy kernel and corresponds to the limiting classical case. A regular part of the kernel depends on the geometrical and physical parameters of the problem. The convergence of the obtained series investigated. The solution of the integral equation is constructed by collocation method as a linear combination of basis functions. Of course we taking into account the characteristic peaks in the vicinity of the crack. A first kind Chebyshev polynomials are used. Reduced stress intensity factor as an influence factor established. Qualitative and quantitative features of effect of the material and coating thickness on the intensity of the stresses in the vicinity of the crack tip established. (C) 2017 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim

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Запись 17 из 88

Заголовок: Separable vocabulary and feature fusion for image retrieval based on sparse representation

Авторы: Wang, YH (Wang, Yanhong); Cen, YG (Cen, Yigang); Zhao, RZ (Zhao, Ruizhen); Cen, Y (Cen, Yi); Hu, SH (Hu, Shaohai); Voronin, V (Voronin, Viacheslay); Wang, HY (Wang, Hengyou)

Источник: NEUROCOMPUTING **Том:** 236 **Специальный выпуск:** SI **Стр.:** 14-22 **DOI:** 10.1016/j.neucom.2016.08.106 **Опубликовано:** MAY 2 2017

Аннотация: Visual vocabulary is the core of the Bag-of-visual-words (BOW) model in image retrieval. In order to ensure the retrieval accuracy, a large vocabulary is always used in traditional methods. However, a large vocabulary will lead to a low recall. In order to improve recall, vocabularies with medium sizes are proposed, but they will lead to a low accuracy. To address these two problems, we propose a new method for image retrieval based on feature fusion and sparse representation over separable vocabulary. Firstly, a large vocabulary is generated on the training dataset. Secondly, the vocabulary is separated into a number of vocabularies with medium sizes. Thirdly, for a given query image, we adopt sparse representation to select a vocabulary for retrieval. In the proposed method, the large vocabulary can guarantee a relatively high accuracy, while the vocabularies with medium sizes are responsible for high recall. Also, in order to reduce quantization error and improve recall, sparse representation scheme is used for visual words quantization. Moreover, both the local features and the global features are fused to improve the recall. Our proposed method is evaluated on two benchmark datasets, i.e., Coi120 and Holidays. Experiments show that our proposed method achieves good performance.

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Запись 18 из 88

Заголовок: Contact problem for an orthotropic half-space

Авторы: Pozharskii, DA (Pozharskii, D. A.)

Источник: MECHANICS OF SOLIDS **Том:** 52 **Выпуск:** 3 **Стр.:** 315-322 **DOI:** 10.3103/S0025654417030086 **Опубликовано:** MAY 2017

Аннотация: Numerical and analytical solutions of the 3D contact problem of elasticity on the penetration of a rigid punch into an orthotropic half-space are obtained disregarding the friction forces. A numerical method of Hammerstein-type nonlinear boundary integral equations was used in the case of unknown contact region, which permits determining the contact region and the pressure in this region. The exact solution of the contact problem for a punch shaped as an elliptic paraboloid was used to debug the program of the numerical method. The structure of the exact solution of the problem of indentation of an elliptic punch with polynomial base was determined. The computations were performed for various materials in the case of the penetration of an elliptic or conical punch.

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ISSN: 0025-6544

eISSN: 1934-7936

Запись 19 из 88

Заголовок: Elastic fields in rotating transversely isotropic media

Авторы: Vakhtin, YV (Vakhtin, Yu. V.); Pogorelov, VA (Pogorelov, V. A.); Sizov, VP (Sizov, V. P.)

Источник: MECHANICS OF SOLIDS **Том:** 52 **Выпуск:** 3 **Стр.:** 323-328 **DOI:** 10.3103/S0025654417030098 **Опубликовано:** MAY 2017

Аннотация: Representation of elastic fields in terms of scalar functions, which permit reducing the problems of determining these fields to determining scalar potentials, are generalized to the case of transversely isotropic media rotating at a constant angular velocity. Relations for calculating the parameters of surface acoustic waves (SAW) propagating in a rotating transversely isotropic halfspace with various directions of the medium material symmetry axis with respect to the half-space surface are given.

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Запись 20 из 88

Заголовок: Effect of Synthesis Conditions on the Photocatalytic Activity of Titanium Dioxide Nanomaterials

Авторы: Bayan, EM (Bayan, E. M.); Lupeiko, TG (Lupeiko, T. G.); Pustovaya, LE (Pustovaya, L. E.); Fedorenko, AG (Fedorenko, A. G.)

Источник: NANOTECHNOLOGIES IN RUSSIA **Том:** 12 **Выпуск:** 5-6 **Стр.:** 269-275 **DOI:** 10.1134/S199507801703003X **Опубликовано:** MAY 2017

Аннотация: The photocatalytic activity of nanosized titanium dioxide powders synthesized by thermal treatment of the precursor phases precipitated from aqueous solutions on the degradation of methylene blue in a solution under the action of UV radiation has been studied. The dependence of the photocatalytic activity on pH of the medium used to precipitate precursor phases in combination with temperatures and duration of their thermal treatment has been found. The selected synthesis conditions allowed to obtain titanium dioxide materials that appear to be at least two times more active than the commercial catalyst Degussa P25. It is found that the materials based on anatase modification of titanium dioxide obtained from the phases precipitated at pH 7-9 and calcined at 600 degrees C for 1-2 h show the highest photocatalytic activity. It is shown that under UV radiation 25 min is enough for almost complete destruction of methylene blue dye in the solution with an initial concentration of 20 mg/L.

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eISSN: 1995-0799

Запись 21 из 88

Заголовок: An extremal problem in the Hardy space $H(p)$ for $0 < p < \infty$

Авторы: Burchaev, KK (Burchaev, Kh. Kh.); Ryabykh, VG (Ryabykh, V. G.); Ryabykh, GY (Ryabykh, G. Yu.)

Источник: SIBERIAN MATHEMATICAL JOURNAL **Том:** 58 **Выпуск:** 3 **Стр.:** 392-404 **DOI:** 10.1134/S003744661703003X **Опубликовано:** MAY 2017

Аннотация: We prove that if the function determining a linear functional over the Hardy space is analytic on the disk of radius greater than 1 then the extremal function of this functional is analytic on the same disk.

Идентификационный номер: WOS:000404212100003

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eISSN: 1573-9260

Запись 22 из 88

Заголовок: Quantum-chemical study of spiro[indoline-2,2'-[2H]-chromenes] and their complexes with a silver cluster

Авторы: Starikova, AA (Starikova, A. A.); Strekal, ND (Strekal, N. D.); Lukyanov, BS (Lukyanov, B. S.); Motevich, IG (Motevich, I. G.); Grekova, DS (Grekova, D. S.); Rostovtseva, IA (Rostovtseva, I. A.); Minkin, VI (Minkin, V. I.)

Источник: DOKLADY CHEMISTRY **Том:** 474 **Стр.:** 121-125 **DOI:** 10.1134/S0012500817050068 **Часть:** 1 **Опубликовано:** MAY 2017

Аннотация: Computer modeling (DFT B3LYP/6-31G(d,p)/SDD) of the structure and spectral characteristics of photochromic 1,3,3,8'-tetramethyl-6'-formylspiro[indoline-2,2'-[2H]-chromene] and 1,3,3-trimethyl-6'-methoxy-8'-formyl[spiroindoline-2,2'-[2H]-chromene] complexes adsorbed onto the surface of a 10-atom silver cluster has been performed. It has been demonstrated that, depending on the position of the formyl group in the quinoline ring and the isomeric form of the spirocyclic compound, the change in the band intensity in Raman spectra caused by complexation with the silver cluster can reach three orders of magnitude.

Идентификационный номер: WOS:000403405400006

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ISSN: 0012-5008

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Запись 23 из 88

Заголовок: Processes of Hydrogen Release Relaxation at Thermal Decomposition of Electrodes of Nickel-Cadmium Batteries

Авторы: Yazvinskaya, NN (Yazvinskaya, Nataliya N.); Galushkin, NE (Galushkin, Nikolay E.); Galushkin, DN (Galushkin, Dmitriy N.); Galushkina, IA (Galushkina, Inna A.)

Источник: INTERNATIONAL JOURNAL OF ELECTROCHEMICAL SCIENCE **Том:** 12 **Выпуск:** 4 **Стр.:** 2791-2797 **DOI:** 10.20964/2017.04.28 **Опубликовано:** APR 2017

Аннотация: In this study, it is shown that processes of hydrogen release relaxation at thermal decomposition of sintered electrodes of nickel-cadmium batteries are conditioned by the combination of the following factors. Firstly, this is the distribution of atomic hydrogen all around the entire volume of a ceramic-metal matrix of an electrode. Secondly, this is the very low diffusion coefficient of the atomic hydrogen in ceramic-metal matrices, which is connected with the fact that inside of the ceramic-metal matrix of the electrode, the atomic hydrogen is found in its bound state (beta-phase). Thirdly, this is a large concentration of the atomic hydrogen in the ceramic-metal matrix of the porous electrode: the atomic hydrogen is accumulated in such electrodes in a course of batteries long-term operation.

Идентификационный номер: WOS:000402199900015

Идентификаторы авторов:

Автор	Номер ResearcherID	Номер ORCID
Galushkin, Nikolay	J-7937-2012	0000-0002-1613-8659

ISSN: 1452-3981

Запись 24 из 88

Заголовок: METHODOLOGICAL ASPECTS OF FOREIGN LANGUAGE TEACHING IN THE PREPARATION OF THE TOUR GUIDES

Авторы: Zaitseva, NA (Zaitseva, Natalia A.); Larionova, AA (Larionova, Anna A.); Yakimova, NS (Yakimova, Nataliya S.); Leukhova, MG (Leukhova, Maria G.); Radina, OI (Radina, Oksana I.)

Источник: MODERN JOURNAL OF LANGUAGE TEACHING METHODS **Том:** 7 **Выпуск:** 4 **Стр.:** 399-409 **Опубликовано:** APR 2017

Аннотация: This article reflects the results of the study of scientific approaches and practices of foreign language teaching in the preparation of the tour guides, which were based on the utilization of expert evaluation method, pedagogical experiment and others. The authors of the article describe peculiarities of formation of students' groups and schooling of foreign language for specific purposes. Methodological aspects of foreign language teaching in the preparation of the tour guides, which are grounded in the research, are rapidly being implemented on the programs of professional retraining of the tour guides in the Immanuel Kant Baltic Federal University. On the basis of this study there was formulated a set of recommendations on the use of specially designed training content, and social web applications, taking into account the formation of students' groups on the "tour guides" programme, depending on two parameters: the level of foreign language proficiency and professional experience as a tour guide. Implementation of the proposed recommendations will improve the quality of foreign language teaching in the preparation of the professional tour guides, and consequently there will be the improvement of tourists' service in the future professional activity of students.

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Anna, Larionova	E-3689-2014	0000-0002-7797-9566

ISSN: 2251-6204

Запись 25 из 88

Заголовок: First principles study of structural, electronic and magnetic properties of graphene adsorbed on the O-terminated MnO(111) surface

Авторы: Ilyasov, VV (Ilyasov, Victor V.); Popova, IG (Popova, Inna G.); Ershov, IV (Ershov, Igor V.); Chien, ND (Chien, Nguyen D.); Hieu, NN (Hieu, Nguyen N.); Nguyen, CV (Nguyen, Chuong V.)

Источник: DIAMOND AND RELATED MATERIALS **Том:** 74 **Стр.:** 31-40 **DOI:** 10.1016/j.diamond.2017.02.001 **Опубликовано:** APR 2017

Аннотация: In this work, structural, electronic and magnetic properties of graphene adsorbed on MnO(111) with O-terminated surface depending on the number of vacancies in graphene/MnOx(111) interface are investigated using density functional theory. Local atomic reconstructions of the graphene/MnOx(111) interface, and their thermodynamic, electronic and magnetic properties were also studied. Bond lengths and adsorption energy were obtained for various reconstructions of graphene/MnOx(111) interface. Influence of graphene adsorption on the electronic structure of graphene/MnOx(111) interface for various reconstructions is also discussed. The charge transfer and local magnetic moments of carbon atoms and nearest-neighbor atoms were determined for these adsorption models. The charge transfer from carbon to nearest-neighbor atoms is due to the reconstruction of the local atomic and electronic structures, correlating with the number of oxygen vacancies in the interfaces. Magnetism of undefected graphene adsorbed on insulator MnO(111) substrate with oxygen vacancies is also focused on discussing. (C) 2017 Elsevier B.V. All rights reserved.

Идентификационный номер: WOS:000401888900005

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Запись 26 из 88

Заголовок: Electronic structure and optical properties of noncentrosymmetric LiGaSe2: Experimental measurements and DFT band structure calculations

Авторы: Lavrentyev, AA (Lavrentyev, A. A.); Gabrelian, BV (Gabrelian, B. V.); Vu, VT (Vu, V. T.); Ananchenko, LN (Ananchenko, L. N.); Isaenko, LI (Isaenko, L. I.); Yelisseyev, AP (Yelisseyev, A. P.); Khyzhun, OY (Khyzhun, O. Y.)

Источник: OPTICAL MATERIALS **Том:** 66 **Стр.:** 149-159 **DOI:** 10.1016/j.optmat.2017.01.049 **Опубликовано:** APR 2017

Аннотация: We report on measurements of X-ray photoelectron (XP) spectra for pristine and Ar⁺ ion-irradiated surfaces of LiGaSe2 single crystal grown by Bridgman-Stockbarger method. Electronic structure of the LiGaSe2 compound is studied from a theoretical and experimental viewpoint. In particular, total and partial densities of states

of LiGaSe₂ are investigated by density functional theory (DFT) calculations employing the augmented plane wave + local orbitals (APW + lo) method and they are verified by data of X-ray spectroscopy measurements. The DFT calculations indicate that the main contributors to the valence band of LiGaSe₂ are the Se 4p states, which contribute mainly at the top and in the upper portion of the valence band, with also essential contributions of these states in the lower portion of the band. Other substantial contributions to the valence band of LiGaSe₂ emerge from the Ga 4s and Ga 4p states contributing mainly at the lower and upper portions of the valence band, respectively. With respect to the conduction band, the calculations indicate that its bottom is composed mainly from contributions of the unoccupied Ga s and Se p states. The present calculations are confirmed experimentally when comparing the XP valence-band spectrum of the LiGaSe₂ single crystal on a common energy scale with the X-ray emission bands representing the energy distribution of the Ga 4p and Se 4p states. Measurements of the fundamental absorption edges at room temperature reveal that bandgap value, E_g, of LiGaSe₂ is equal to 3.47 eV and the E_g value increases up to 3.66 eV when decreasing temperature to 80 K. The main optical characteristics of the LiGaSe₂ compound are clarified by the DFT calculations. (C) 2017 Elsevier B.V. All rights reserved.

Идентификационный номер: WOS:000400200000023

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Yelisseyev, Alexander	A-3846-2014	
Vu, Tuan	C-6839-2016	

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Запись 27 из 88

Заголовок: Span of a DL-algebra

Авторы: Sadetov, ST (Sadetov, S. T.)

Источник: DOKLADY MATHEMATICS Том: 95 Выпуск: 2 Стр.: 178-180 DOI: 10.1134/S1064562417020235 **Опубликовано:** MAR 2017

Аннотация: Unless otherwise specified, all objects are defined over a field k of characteristic 0. Let K be a field. The unessentialness of an extension of the algebra $\text{Der } K$ by means of a splittable semisimple Lie algebra is established. Let $D(K)$ be the category of differential Lie algebras (DL-algebras) $(g; K)$. In this paper for an extension L/K the functor $\text{eta}: D(K) \rightarrow D(L)$, defining the tensor product $L \otimes_{\text{Su}}(K)$ of vector spaces and the homomorphism of Lie algebras, is constructed. If the extension L/K is algebraic, then eta is unique. The results will be required for strengthening the progress on Gelfand-Kirillov problem and weakened conjecture [1, 2].

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Запись 28 из 88

Заголовок: Effectiveness of Coatings With Constant, Linearly, and Exponentially Varying Elastic Parameters in Heavily Loaded Line Elastohydrodynamically Lubricated Contacts

Авторы: Kudish, II (Kudish, Ilya I.); Volkov, SS (Volkov, Sergey S.); Vasiliev, AS (Vasiliev, Andrey S.); Aizikovich, SM (Aizikovich, Sergey M.)

Источник: JOURNAL OF TRIBOLOGY-TRANSACTIONS OF THE ASME Том: 139 Выпуск: 2 Номер статьи: 021502 DOI: 10.1115/1.4033360 **Опубликовано:** MAR 2017

Аннотация: In contacts of functionally graded elastic solids, the conditions produced are significantly different from the ones in similar contacts of homogeneous elastic materials. Especially it is true for heavily loaded lubricated contacts. The situation is even more diverse due to different dependences of the material elastic parameters on material depth. In the previous papers, the cases of lubricated contacts with coatings made of homogeneous materials are considered using asymptotic and semi-analytical methods. The goal of the paper is to determine the behavior of the coating effectiveness criteria in heavily loaded elastohydrodynamically lubricated (EHL) contacts for coatings with elastic modulus varying linearly and exponentially across the coating thickness as well as to compare the results with the case of coatings made of homogeneous materials. The above criteria include the criteria on the lubrication film thickness and friction force. The approach used for analyzing the influence of functionally graded elastic materials on parameters of heavily loaded line EHL contacts is based on the asymptotic methods earlier developed by the authors. The analysis is based on splitting the problem into two distinct parts: the problem for dry (nonlubricated) contacts and a problem for lubricated contacts. The bridge between the two problems is the asymptotic behavior of pressure in the vicinity of the end points of the contacts. More specifically, in the central part of the contact the solution of the EHL problem for functionally graded materials is close to the one for the dry contact of these materials while in the narrow zones near the inlet and exit points of the contact the lubrication effects become comparable to the effects due to the elasticity of the solids. This approach to the EHL problem solution reveals its structure.

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Volkov, Sergey	K-7462-2017	
Vasiliev, Andrey	C-1456-2017	

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Запись 29 из 88

Заголовок: Indentation of a hard transversely isotropic functionally graded coating by a conical indenter

Авторы: Vasiliev, AS (Vasiliev, A. S.); Volkov, SS (Volkov, S. S.); Belov, AA (Belov, A. A.); Litvinchuk, SY (Litvinchuk, S. Yu.); Aizikovich, SM (Aizikovich, S. M.)

Источник: INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE Том: 112 Стр.: 63-75 DOI: 10.1016/j.ijengsci.2016.12.002 **Опубликовано:** MAR 2017

Аннотация: An axisymmetric contact problem on indentation of a rigid conical punch into an elastic transversely isotropic half-space with a functionally graded transversely isotropic coating is considered. Elastic moduli of the coating vary in depth according to arbitrary continuous positive functions, independent of each other. Mathematical statement of the problem is made in terms of the linear theory of elasticity. Using integral transformation technique the problem is reduced to the solution of a dual integral equation. Kernel transform of the integral equation, which is calculated numerically from a two-point boundary value problem for a system of ordinary differential equations with variable coefficients, is approximated by a product of fractional quadratic functions. Using these approximations, an approximated solution of the problem is constructed in analytical form. The solution is asymptotically exact both for small and big values of the characteristic geometrical parameter of the problem (ratio of thickness of the coating to radius of the contact area). Approximated analytical expressions relating the displacement of the punch, indentation force acting on the punch and the size of the contact area are obtained. Correlation between the contact normal stresses arising on surface of the coated half-space and on surface of the homogeneous half-space without a coating is studied. Some relations are obtained analytically using asymptotic analysis and illustrated numerically. Results on numerical simulation of an indentation of a conical punch into a hard homogeneous or functionally graded (with linearly varying elastic moduli in depth) transversely isotropic coating are provided. The materials widely used in electronics are chosen for numerical examples. Qualitative differences in process of elastic deformation of bodies with homogeneous and functionally graded coatings are illustrated. (C) 2016 Elsevier Ltd. All rights reserved.

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Идентификаторы авторов:

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Volkov, Sergey	K-7462-2017	
Vasiliev, Andrey	C-1456-2017	

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Запись 30 из 88

Заголовок: MANAGEMENT AND EVALUATION OF EDUCATIONAL PROGRAMMES IN HIGHER EDUCATION BASED ON THE REQUIREMENTS OF EMPLOYERS

Авторы: Zaitseva, NA (Zaitseva, Natalia A.); Efremova, MY (Efremova, Mariya Y.); Larionova, AA (Larionova, Anna A.); Kurkina, NR (Kurkina, Nadiria R.); Breusova, EA (Breusova, Eugeniya A.)

Источник: MODERN JOURNAL OF LANGUAGE TEACHING METHODS **Том:** 7 **Выпуск:** 2 **Стр.:** 167-176 **Опубликовано:** FEB 2017

Аннотация: The relevance of the study of the quality of educational programs' management and assessment in higher education based on the requirements of the employers is confirmed by the presence of dissatisfaction of employers all over the world by the quality of preparation of graduates for the future work. For the analysis of the problem methods of systematization and generalization, quantitative and qualitative study, allowing considering the problem comprehensively, taking into account many factors affecting the development of the higher education system were used. This article summarizes the results of the data analysis on the role of international rankings of universities and Russian experience of participation of employers in educational programs of universities. Moreover, recommendations to encourage universities and employers to intensify their cooperation on a mutually beneficial basis were made. The article will be useful for regional and Federal governments, higher education institutions, as well as for anyone who is interested in management issues and assessing the quality of educational programs in higher education based on the requirements of employers in the Russian Federation.

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Запись 31 из 88

Заголовок: Synthesis of adaptive tracking systems based on the hypothesis of stationarity of the Hamiltonian on the switching hypersurface

Авторы: Kostoglotov, AA (Kostoglotov, A. A.); Lazarenko, SV (Lazarenko, S. V.)

Источник: JOURNAL OF COMMUNICATIONS TECHNOLOGY AND ELECTRONICS **Том:** 62 **Выпуск:** 2 **Стр.:** 123-127 **DOI:** 10.1134/S1064226917020061 **Опубликовано:** FEB 2017

Аннотация: Application of the method of the combined maximum principle to the synthesis of filters for tracking maneuvering aircrafts is demonstrated. The derived estimation equations are determined to within the synthesizing function. In constructing this function, the condition of stationarity of the Hamiltonian function on the switching hypersurface is used, which ensures adaptation to the observed motion. A tracking algorithm characterized by a lower, as compared to the Kalman filter, computational complexity and higher estimation accuracy during aircraft maneuvering has been synthesized.

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Идентификаторы авторов:

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Lazarenko, Sergey	A-2465-2014	0000-0002-7533-2822

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Запись 32 из 88

Заголовок: Method for Numerical Solution of the Stationary Schrodinger Equation

Авторы: Knyazev, SY (Knyazev, S. Yu.); Shcherbakova, EE (Shcherbakova, E. E.)

Источник: RUSSIAN PHYSICS JOURNAL **Том:** 59 **Выпуск:** 10 **Стр.:** 1616-1622 **DOI:** 10.1007/s11182-017-0953-6 **Опубликовано:** FEB 2017

Аннотация: The aim of this work is to describe a method of numerical solution of the stationary Schrodinger equation based on the integral equation that is identical to the Schrodinger equation. The method considered here allows one to find the eigenvalues and eigensolutions for quantum-mechanical problems of different dimensionality. The method is tested by solving problems for one-dimensional and two-dimensional quantum oscillators, and results of these tests are presented. Satisfactory agreement of the results obtained using this numerical method with well-known analytical solutions is demonstrated.

Идентификационный номер: WOS:000395090500014

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Shcherbakova, Elena	L-1686-2016	0000-0002-9239-1955

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Запись 33 из 88

Заголовок: Plane contact problem on indentation of a flat punch into a transversely-isotropic half-plane with functionally graded transversely-isotropic coating

Авторы: Vasiliev, AS (Vasiliev, A. S.); Volkov, SS (Volkov, S. S.); Aizikovich, SM (Aizikovich, S. M.); Mitrin, BI (Mitrin, B. I.)

Источник: ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND PHYSIK **Том:** 68 **Выпуск:** 1 **Номер статьи:** 4 **DOI:** 10.1007/s00033-016-0746-8 **Опубликовано:** FEB 2017

Аннотация: Plane contact problem of the theory of elasticity on indentation of a non-deformable punch with a flat base into an elastic transversely-isotropic half-plane with a transversely-isotropic functionally graded coating is considered. Elastic moduli of the coating vary with depth according to arbitrary functions. An approximated analytical solution effective for a whole range of geometrical parameter (relative layer thickness) of the problem is constructed. Some properties of the contact normal pressure under the punch are obtained analytically and illustrated by the numerical examples for a transversely-isotropic homogeneous and functionally graded coatings with different types of variation of elastic moduli with depth. The distinctions in distribution of contact normal pressure for homogeneous and functionally graded materials, coated and non-coated bodies are studied analytically and numerically.

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Vasiliev, Andrey	C-1456-2017	
Mitrin, Boris Igorevitch	J-6386-2012	0000-0002-5639-274X

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Запись 34 из 88

Заголовок: THE PROSPECTS OF USING SOCIAL MARKETING IN ECONOMIC CRIMINOLOGY IN THE CONDITIONS OF AN EMERGING INNOVATIVE ECONOMY

Авторы: Popkova, EG (Popkova, Elena G.); Grechenkova, OY (Grechenkova, Oksana Yu); Boris, OA (Boris, Olga A.); Przhedetskaya, NV (Przhedetskaya, Natalja V.); Gornostaeva, ZV (Gornostaeva, Zhanna V.)

Источник: RUSSIAN JOURNAL OF CRIMINOLOGY **Том:** 11 **Выпуск:** 2 **Стр.:** 280-288 **DOI:** 10.17150/2500-4255.2017.11(2).280-288 **Опубликовано:** 2017

Аннотация: The paper examines the prospects of using social marketing in economic criminology with the purpose of strengthening economic security in contemporary Russia. The research and practical task of improving the efficiency of the country's system of economic criminology is at the center of the authors' attention. The law

enforcement bodies alone cannot solve the problems of ensuring economic security: the number and complexity of such problems are constantly growing, which results in a growing workload for criminalists; at the same time, their staffing levels are reduced to save budgetary funds. The authors analyze the dynamics of the number of crimes connected with the development of innovative economy, and the dynamics of the effectiveness of economic criminology in Russia in 2003-2016. They determine the potential of social marketing as an instrument of counteracting economic crimes, offer a theoretical model for solving topical problems of economic security in contemporary Russia through the use of social marketing in economic criminology, and present a number of practical recommendations to adapt social marketing to the goals of economic criminology. The conducted research allows the authors to conclude that our society is interested in maintaining economic security and is ready to assist law enforcement bodies. Hence, social marketing is a promising instrument of the economic criminology system in contemporary Russia; it helps establish close cooperation between criminologists and the civil society, which will strengthen economic security without any additional burden on the state budget.

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Запись 35 из 88

Заголовок: Modeling sustainable balanced development the regions in the single economic space of the state

Авторы: Shatalova, OI (Shatalova, Olga Ivanovna); Shmygaleva, PV (Shmygaleva, Polina Vladimirovna); Bruzhukova, OV (Bruzhukova, Olga Valer'evna); Velichenko, EA (Velichenko, Elena Anatol'evna); Shekhovtsov, EV (Shekhovtsov, Evgeny Vladimirovich)

Источник: RESEARCH JOURNAL OF PHARMACEUTICAL BIOLOGICAL AND CHEMICAL SCIENCES **Том:** 8 **Выпуск:** 1 **Стр.:** 1836-1840 **Опубликовано:** JAN-FEB 2017

Аннотация: In the article, authors proposed and implemented a method of modeling sustainable balanced development regions in the single economic space of the state. It is based on a systematic approach and methods of spatial econometrics, allowing to carry out poly-scenario forecasting sustainable balanced development the regions in the single economic space of the state in the medium term and to optimize strategic regional development programs. The aim of present study is to develop methodological approaches and prediction complex level to development spatial socio-economic macro systems based on eight-stage algorithm multivariate extrapolation of estimated figures. Using which makes it possible to identify forward-path integrated rating for poly-scenery types of changes (inertia, optimistic and pessimistic). In the course of study were used methods such as dialectic, monographic, analytical, systematic, economics and statistics, target-oriented and strategic management. Testing techniques performed on an example of Stavropol Territory economic development indicators.

Идентификационный номер: WOS:000410595600237

ISSN: 0975-8585

Запись 36 из 88

Заголовок: Adaptive system of parameter settings of self-moving harvesters - threshers' operational procedures.

Авторы: Tsarev, YA (Tsarev, Yuriy Aleksandrovich); Trubilin, EI (Trubilin, Evgeny Ivanovich); Truflyak, EV (Truflyak, Evgeny Vladimirovich); Adamchukova, EY (Adamchukova, Elena Yuryevna)

Источник: RESEARCH JOURNAL OF PHARMACEUTICAL BIOLOGICAL AND CHEMICAL SCIENCES **Том:** 8 **Выпуск:** 1 **Стр.:** 1847-1851 **Опубликовано:** JAN-FEB 2017

Аннотация: This article sets out the principle of automatic control of the operational procedures' parameters of a serial harvester - thresher in response to changing soil fertility parameters, based on the developed algorithm and program, using statistical data on the results of the harvesters' check-outs.

Идентификационный номер: WOS:000410595600241

ISSN: 0975-8585

Запись 37 из 88

Заголовок: Nanocomposite films of cobalt-containing polyacrylonitrile as a basis of gas-sensitive material for resistive type sensors

Авторы: Bednaya, TA (Bednaya, T. A.); Konovalenko, SP (Konovalenko, S. P.)

Группы авторов книг: IOP

Источник: 13TH INTERNATIONAL CONFERENCE ON FILMS AND COATINGS **Серия книг:** Journal of Physics Conference Series **Том:** 857 **Номер статьи:** UNSP 012002 **DOI:** 10.1088/1742-6596/857/1/012002 **Опубликовано:** 2017

Аннотация: The structure of the metal-carbon nanocomposite based on cobalt-containing polyacrylonitrile (PAN) is studied. The morphology of a surface with the theory of self organization was analysed. The elemental composition, chemical and electronic states of the elements composing the material films are determined by the X-ray photoelectron spectroscopy (XPS) method. The X-ray diffraction (XRD) method shows that the obtained materials contain crystalline inclusions of CoO, Co₃O₄ and CoO (OH) in the organic matrix of PAN. Gas sensitive characteristics of the obtained films.

Идентификационный номер: WOS:000412709600002

Название конференции: 13th International Conference on Films and Coatings (ICFC)

Дата проведения конференции: APR 18-20, 2017

Место проведения конференции: St Petersburg, RUSSIA

Спонсоры конференции: Russian Acad Sci, Russian Acad Sci, Inst Problems Mech Engn, Saint Petersburg Electrotechn Univ LETI, Saint Petersburg Polytechn Univ **ISSN:** 1742-6588

Запись 38 из 88

Заголовок: Interaction of bilayer graphene with MnO(111) surface films

Авторы: Ilyasov, VV (Ilyasov, V. V.); Popova, IG (Popova, I. G.); Ershov, IV (Ershov, I. V.)

Группы авторов книг: IOP

Источник: 13TH INTERNATIONAL CONFERENCE ON FILMS AND COATINGS **Серия книг:** Journal of Physics Conference Series **Том:** 857 **Номер статьи:** UNSP 012012 **DOI:** 10.1088/1742-6596/857/1/012012 **Опубликовано:** 2017

Аннотация: Using density functional theory, we have carried out an ab initio simulation of magnetism and adsorption of Bernal-stacked (AB) bilayer graphene (BLG) on the polar manganese monoxide (111) surface terminated by oxygen. We have carried out a systemic study of the local atomic reconstructions of the bilayer graphene/MnOx(111) interface, and their electronic properties. For the first time, the bond length and the adsorption energy have been found for different reconstructions of the surface atomic structure in BLG/MnOx(111) systems.

Идентификационный номер: WOS:000412709600012

Название конференции: 13th International Conference on Films and Coatings (ICFC)

Дата проведения конференции: APR 18-20, 2017

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Спонсоры конференции: Russian Acad Sci, Russian Acad Sci, Inst Problems Mech Engn, Saint Petersburg Electrotechn Univ LETI, Saint Petersburg Polytechn Univ **ISSN:** 1742-6588

Запись 39 из 88

Заголовок: Characterisation of anti-erosive properties of nanocomposite coatings by the methods of sclerometry

Авторы: Kudryakov, OV (Kudryakov, O. V.); Varavka, VN (Varavka, V. N.); Ilyasov, VV (Ilyasov, V. V.)

Группы авторов книг: IOP

Источник: 13TH INTERNATIONAL CONFERENCE ON FILMS AND COATINGS **Серия книг:** Journal of Physics Conference Series **Том:** 857 **Номер статьи:** UNSP 012025 **DOI:** 10.1088/1742-6596/857/1/012025 **Опубликовано:** 2017

Аннотация: Results of research of coatings of the different metal-ceramics systems are given. Coatings were received by ion-plasma sedimentation in vacuum in the form of multilayered composite material, which had a thickness of layers within nanometric range. Selection of composite systems is determined by applied research problem namely designing of the anti erosive coatings durable in the condition of drop impingement impacts. For this purpose the sclerometric studies, the bench erosive tests and optimization of the obtained data were done.

Идентификационный номер: WOS:000412709600025

Название конференции: 13th International Conference on Films and Coatings (ICFC)

Дата проведения конференции: APR 18-20, 2017

Место проведения конференции: St Petersburg, RUSSIA

Спонсоры конференции: Russian Acad Sci, Russian Acad Sci, Inst Problems Mech Engn, Saint Petersburg Electrotechn Univ LETI, Saint Petersburg Polytechn Univ
ISSN: 1742-6588

Запись 40 из 88

Заголовок: Digital Potentiometers in the Tasks of Settings Precision Analog RC-filters Taking into Account the Tolerances for Passive Components

Авторы: Denisenko, DY (Denisenko, Darya Yu.); Ivanov, YI (Ivanov, Yuriy Iv.); Prokopenko, NN (Prokopenko, Nikolay N.); Dmitrienko, NA (Dmitrienko, Nadezhda A.)

Группы авторов книг: IEEE

Источник: 2017 18TH INTERNATIONAL CONFERENCE OF YOUNG SPECIALISTS ON MICRO/NANOTECHNOLOGIES AND ELECTRON DEVICES

(EDM) **Серия книг:** International Conference and Seminar of Young Specialists on Micro-Nanotechnologies and Electron Devices **Стр.:** 205-210 **Опубликовано:** 2017

Аннотация: The application features of digital potentiometers as controlled elements for the tasks of setting active RC-filters in the structure of communication systems analog interface and automatic control are considered. The research paper is based on a selected method of parameters for setting circuits with digital potentiometers providing necessary precision and setting ranges. The sections contain examples oriented for application of setting circuits of active RC-filters with digital potentiometers.

Идентификационный номер: WOS:000412127000047

Название конференции: 18th International Conference of Young Specialists on Micro/Nanotechnologies and Electron Devices (EDM)

Дата проведения конференции: JUN 29-JUL 03, 2017

Место проведения конференции: Erlagol, RUSSIA

Спонсоры конференции: IEEE, Novosibirsk State Tech Univ, Russian Fdn Basic Res, IEEE Russia Siberia Sect

ISSN: 2325-4173

ISBN: 978-1-5090-6688-9

Запись 41 из 88

Заголовок: Acoustic Structural Monitoring of Pipelines

Авторы: Zibrov, VA (Zibrov, Valery A.); Maltseva, DA (Maltseva, Dzhamilya A.)

Группы авторов книг: IEEE

Источник: 2017 18TH INTERNATIONAL CONFERENCE OF YOUNG SPECIALISTS ON MICRO/NANOTECHNOLOGIES AND ELECTRON DEVICES

(EDM) **Серия книг:** International Conference and Seminar of Young Specialists on Micro-Nanotechnologies and Electron Devices **Стр.:** 264-267 **Опубликовано:** 2017

Аннотация: The regularities of acoustic wave propagation at the dividing environment border in the closed structure of water pipes which are incompletely filled with water are considered. The transmitter is located inside of a water pipe. It is proved that for this case, it is appropriate to consider symmetric and asymmetric modes of acoustic wave propagation.

Идентификационный номер: WOS:000412127000059

Название конференции: 18th International Conference of Young Specialists on Micro/Nanotechnologies and Electron Devices (EDM)

Дата проведения конференции: JUN 29-JUL 03, 2017

Место проведения конференции: Erlagol, RUSSIA

Спонсоры конференции: IEEE, Novosibirsk State Tech Univ, Russian Fdn Basic Res, IEEE Russia Siberia Sect

ISSN: 2325-4173

ISBN: 978-1-5090-6688-9

Запись 42 из 88

Заголовок: The Microcircuits MH2XA010-02/03 for Signal Processing of Optoelectronic Sensors

Авторы: Dvornikov, OV (Dvornikov, Oleg V.); Bugakova, AV (Bugakova, Anna V.); Prokopenko, NN (Prokopenko, Nikolay N.); Dzatlau, VL (Dzatlau, Valentin L.); Pakhomov, IV (Pakhomov, Ilya V.)

Группы авторов книг: IEEE

Источник: 2017 18TH INTERNATIONAL CONFERENCE OF YOUNG SPECIALISTS ON MICRO/NANOTECHNOLOGIES AND ELECTRON DEVICES

(EDM) **Серия книг:** International Conference and Seminar of Young Specialists on Micro-Nanotechnologies and Electron Devices **Стр.:** 396-402 **Опубликовано:** 2017

Аннотация: The article considers multichannel integrated circuits (ICs) MH2XA010-02/03, which are realized on the radiation-hardened structured array (SA) MH2XA010 and designed for analog signal processing of optoelectronic sensors. It gives the electric circuits of ICs, the description of their functionality features and the measurement results of their main parameters.

Идентификационный номер: WOS:000412127000087

Название конференции: 18th International Conference of Young Specialists on Micro/Nanotechnologies and Electron Devices (EDM)

Дата проведения конференции: JUN 29-JUL 03, 2017

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Спонсоры конференции: IEEE, Novosibirsk State Tech Univ, Russian Fdn Basic Res, IEEE Russia Siberia Sect

ISSN: 2325-4173

ISBN: 978-1-5090-6688-9

Запись 43 из 88

Заголовок: The Method of Classical Bridge Speeding with the Parasitic Capacitances across the Diagonally Opposite Pair of Junctions

Авторы: Pakhomov, IV (Pakhomov, Ilya V.); Bugakova, AV (Bugakova, Anna V.); Prokopenko, NN (Prokopenko, Nikolay N.)

Группы авторов книг: IEEE

Источник: 2017 18TH INTERNATIONAL CONFERENCE OF YOUNG SPECIALISTS ON MICRO/NANOTECHNOLOGIES AND ELECTRON DEVICES

(EDM) **Серия книг:** International Conference and Seminar of Young Specialists on Micro-Nanotechnologies and Electron Devices **Стр.:** 590-593 **Опубликовано:** 2017

Аннотация: The article suggests a method of RC-correction of the four-arm bridge with the high speed and super high speed sensors, which has parasitic capacitances across the diagonally opposite pair of junctions, derived from the leads and the input capacitances of the differential amplifier and also the self capacitances of the sensors. To reduce the transient time at the sensor parameter changes the special active correcting circuit is entered into the circuit, which increases the priming speeds of the parasitic capacitors. The results of the computer simulation are given, which show that the setting time advantage of the transient can reach up to one-two orders.

Идентификационный номер: WOS:000412127000129

Название конференции: 18th International Conference of Young Specialists on Micro/Nanotechnologies and Electron Devices (EDM)

Дата проведения конференции: JUN 29-JUL 03, 2017

Место проведения конференции: Erlagol, RUSSIA

Спонсоры конференции: IEEE, Novosibirsk State Tech Univ, Russian Fdn Basic Res, IEEE Russia Siberia Sect

ISSN: 2325-4173

ISBN: 978-1-5090-6688-9

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Заголовок: MATHEMATICAL MODELING OF MICRO INDENTATION OF A TRANSVERSELY ISOTROPIC HALF-SPACE WITH FUNCTIONALLY GRADED COATING BY A CONICAL INDENTER

Авторы: Aizikovich, S (Aizikovich, S.); Vasiliev, A (Vasiliev, A.); Volkov, S (Volkov, S.); Mitrin, B (Mitrin, B.)

Группы авторов книг: IT/ASCR

Источник: ENGINEERING MECHANICS 2017 **Серия книг:** Engineering Mechanics **Стр.:** 74-77 **Опубликовано:** 2017

Аннотация: The paper considers rigid punch with conical tip which is indented into a surface of an elastic transversely-isotropic half-space with a functionally-graded transversely-isotropic coating. Elastic moduli of the coating vary independently with depth according to arbitrary positive continuously differentiable functions. Integral transformation technique is used to construct a dual integral equation of the problem. Cases of free and fixed boundaries of the contact area are considered. Fixed boundaries

of the contact correspond to the case when the cylindrical punch with conical tip is indented on a depth greater than height of the punch tip. Bilateral asymptotic method is used to construct the approximated analytical expressions for the contact stresses, indentation force and radius of the contact area (in case of free boundaries). Some aspects of modeling of micro- and nano-indentation experiments are discussed. Numerical examples are provided for a case of a hard homogeneous or functionally graded transversely isotropic coating.

Идентификационный номер: WOS:000411657600008

Название конференции: 23rd International Conference on Engineering Mechanics

Дата проведения конференции: MAY 15-18, 2017

Место проведения конференции: Svratka, CZECH REPUBLIC

Спонсоры конференции: Brno Univ Technol, Inst Solid Mech, Fac Mech Engr, Acad Sci Czech Repub, v v i Branch Brno, Inst Thermomechan, Assoc Eng Mech, Acad Sci Czech Repub v v i, Inst Theoret & Appl Mech, ZDAS, a s Zdar nad Sazavon, Czech Soc Mech, IFToMM Member Comm Czech Republ

ISSN: 1805-8248

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Запись 45 из 88

Заголовок: THREE-DIMENSIONAL MODEL OF HYDROACOUSTIC CHANNEL FOR MIMO SYSTEMS RESEARCH DATA

Авторы: Fedosov, VP (Fedosov, V. P.); Lomakina, AV (Lomakina, A. V.); Legin, AA (Legin, A. A.); Voronin, VV (Voronin, V. V.)

Отредактировано: Hou W; Arnone RA

Источник: OCEAN SENSING AND MONITORING IX **Серия книг:** Proceedings of SPIE **Том:** 10186 **Номер статьи:** UNSP 101860W **DOI:**

10.1117/12.2262458 **Опубликовано:** 2017

Аннотация: Currently, wireless hydroacoustic modems are actively being developed, which are used to provide efficient data transmission in the hydroacoustic channel. Such kind of developments are relevant for today, as they are used in various fields of science and fields of activity. An example is the connection with underwater vehicles for scientific, research, search and rescue purposes. Development of this kind of communication systems (modems) is a difficult task, as signal propagation is affected by various factors. As a result, the transfer characteristic changes with time, thereby imposing restrictions on the acoustic communication channel. In this regard, the researchers began the task of further study sonar environment and get a detailed mathematical description of the underwater channel. For this, a huge number of field tests were conducted, aimed at studying the underwater acoustic environment. However, the results of the research are always limited by the conditions in which the test took place. Therefore, it is not always possible to apply these results to the required conditions. All of the above features do not allow you to create some kind of a commonly accepted model for the acoustic channel, as studies based on experiments, collected in localized environments without generalizations. This paper presents, the three-dimensional model of the sonar channel for MIMO systems in the coastal zone, based on the acoustic signal propagation characteristics in the presence of multiple paths, the influence of the Doppler effect (as a result of mobile and / or base station traffic), in terms of signal attenuation, receiver characteristics influence and Transmitting antenna, etc.

Идентификационный номер: WOS:000411756900020

Название конференции: Conference on Ocean Sensing and Monitoring IX

Дата проведения конференции: APR 11-12, 2017

Место проведения конференции: Anaheim, CA

Спонсоры конференции: SPIE

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Запись 46 из 88

Заголовок: THE MOTIVATIONAL ASPECT OF THE INDEPENDENT ASSESSMENT OF ACADEMIC ACHIEVEMENT

Авторы: Efremova, NF (Efremova, Nadezhda F.)

Источник: RUSSIAN PSYCHOLOGICAL JOURNAL **Том:** 14 **Выпуск:** 2 **Стр.:** 227-244 **DOI:** 10.21702/rpj.2017.2.13 **Опубликовано:** 2017

Аннотация: Introduction. New methods for increasing academic motivation in schoolchildren by means of systematic acquiring information about academic achievement have gained importance in recent years. The shift of the paradigm of monitoring and evaluating activities at all the levels of the education system and active implementation of means and methods of standardized testing in the educational practice takes place not only in final examination, but also in the learning process. The paper presents an innovative view on the influence of the objective assessment of academic achievement on schoolchildren's educational activities by increasing confidence in marks, reflection, and self-assessment.

Theoretical Basis. The study describes features of the traditional assessment of academic achievement and monitoring and evaluating activities of external specialized structures with the use of standardized assessment tools. The systematic assessment which creates a reliable feedback and stimulates academic motivation is necessary. Educational audit provides schoolchildren's additional preparation to the techniques of the state final examination. Educational audit can be a form of assessment which depends on neither educational establishments nor educational management structures. The study presents the experience of the center for assessing the quality in school education. The results of the independent assessment of academic achievement increase schoolchildren's academic motivation. Along with a school's external center this assessment enhances schoolchildren's learning activity and adjusts the educational process. Schoolchildren are confident in marks, can compare their own results with statistical norms and results of other pupils, and acquire detailed information on individual achievement. This provides the motivational aspect of independent assessment. Discussion. Independent forms of the assessment of academic achievement are important for schoolchildren's adaptation to techniques of the standardized testing. In conclusion: the reliable assessment of a wide spectrum of schoolchildren's academic achievement can be a technique for increasing academic motivation.

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Заголовок: Extracting of fullerene-like nanoparticles from environmental soots

Авторы: Burlakova, VE (Burlakova, Victoria E.); Novikova, AA (Novikova, Anastasiia A.)

Источник: FULLERENES NANOTUBES AND CARBON NANOSTRUCTURES **Том:** 25 **Выпуск:** 8 **Стр.:** 483-487 **DOI:**

10.1080/1536383X.2017.1339274 **Опубликовано:** 2017

Аннотация: It is well known that burning graphite electrodes in electric arc is an efficient method for obtaining of fullerenes. However, fullerenes form in any sooting flames. Therefore, detection fullerene in natural burning fuel is of a great interest for understanding of mechanism of soot formation. This research extracted samples of environmental soots in toluene. Soots and products of extraction were characterized by UV-vis spectroscopy, sedimentation analysis, atomic force microscopy. Analysis of extracts found fullerene-like clusters. The concentration of particles decreased in the following sequence: charcoal - carbon black - gas soot.

Идентификационный номер: WOS:000409998200005

ISSN: 1536-383X

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Запись 48 из 88

Заголовок: APPLICATION OF INERTIAL MEASURING UNIT IN AIR NAVIGATION FOR ALS AND DAP

Авторы: Gura, DA (Gura, D. A.); Shevchenko, GG (Shevchenko, G. G.); Kirilchik, LF (Kirilchik, L. F.); Petrenkov, DV (Petrenkov, D. V.); Gura, TA (Gura, T. A.)

Источник: JOURNAL OF FUNDAMENTAL AND APPLIED SCIENCES **Том:** 9 **Специальный выпуск:** SI **Стр.:** 732-741 **DOI:**

10.4314/jfas.v9i1s.727 **Приложение:** 1 **Опубликовано:** 2017

Аннотация: This article describes the inertial measuring device IMU, as well as its use in airborne laser scanning and digital aerial photography. This device is used during the operation of a scanning unit and an aerial photo camera. The structure of an additional connection for a digital video camera is proposed, which will record video together with the GPS and IMU data stream. Also, conclusions are given about the quality of output data that affect a final product in engineering surveys.

Идентификационный номер: WOS:000410629600047

ISSN: 1112-9867

Запись 49 из 88

Заголовок: Hermeneutic analysis of the Soviet documentary films and telecasts on school and student topic

Авторы: Muryukina, E (Muryukina, Elena)

Источник: MEDIAOBRAZOVANIE-MEDIA EDUCATION **Выпуск:** 3 **Стр.:** 118-133 **Опубликовано:** 2017

Аннотация: This article present the results of the hermeneutic analysis of the Soviet documentary films and telecasts on the school and student topic. Examining the content of documentary films, the author noted a wide range of main topics. Hermeneutic analysis allowed to identify the general goals of documentary films and telecasts on school and student topics: the development of personality based on moral principles of communism; introducing the audience to life in the Soviet Union, to creative work for the benefit of their homeland; the education of patriotism, the ability to defend their Fatherland; through the transmission of a positive experience to encourage the target audience to positive change in themselves, the school or University education. A documentary on the school and student topic gave the fillings of optimism, success, loyalty to the chosen strategy of education in the country. The stereotypical devices of representation of reality in documentaries on school and student issues find expression in the following: the positive message of media agency to the education system, the desire of using media to demonstrate its achievement.

Идентификационный номер: WOS:000410615600011

ISSN: 1994-4160

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Запись 50 из 88

Заголовок: The impact of mass communication on a modern society

Авторы: Roudenko, AM (Roudenko, A. M.); Kotlyarova, VV (Kotlyarova, V. V.)

Источник: MEDIAOBRAZOVANIE-MEDIA EDUCATION **Выпуск:** 3 **Стр.:** 134-142 **Опубликовано:** 2017

Аннотация: The authors analyze the phenomenon of mass communication, which plays an important role in ensuring social progress in society. Mass communications are the most important factor in forming of public opinion. A special role in this belongs to TV, radio, press and electronic media, focused on the Internet. In mass media communication is carried out with large, unstable, disordered in the space, non-contact, emergent, heterogeneous masses, using the newest methods of communication and information transfer are changed the character of communication as well. The impact of mass communication on society is multifaceted. They realize a number of positive functions: the elimination of temporal and spatial limits, the factor of recreation and relaxation, the enlightening role, the value-normative role, participation in the self-realization of a man. The negative influence is that in the mass media, especially in social networks, highly suggestive technologies that help to change the structure of social relations are very actively used. Mass communication has always been an important factor in the transmission, retransmission and maintenance of myths. In the sphere of mass communications, various psychological methods of impact and manipulation are used.

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