

Contents

Characterization and properties

Improving ·OH scavenging properties of nanoceramics by doping and pre-irradiation <i>V.V.Seminko, P.O.Maksimchuk, O.O.Sedyh, A.V.Aslanov, Yu.V.Malyukin</i>	6
Effect of chlorine molecular form on the induced singlet oxygen luminescence <i>M.Y.Losytskiy, R.A.Kharchenko, Y.I.Harshuts, P.A.Viryh, N.V.Kutsevol, V.M.Yashchuk</i>	12
Radioactivity induced in radiation-resistant composite scintillators by irradiation with bremsstrahlung photons <i>V.F.Popov, A.Yu.Boyarentsev, N.Z.Galunov, B.V.Grinyov, N.L.Karavaeva, A.V.Krech, L.G.Levchuk</i>	18
Development of epoxy composite protective coatings for increasing the radiation stability of <i>n</i> -Ge single crystals <i>Yu.A.Udovyt'ska, V.T.Maslyuk</i>	24
Influence of current density of anodizing on the geometric characteristics of nanostructures synthesized on the surface of semiconductors of A3B5 group and silicon <i>Ya.O.Sychikova, I.T.Bogdanov, S.S.Kovachov</i>	29
Mechanical properties of laminated ZrB ₂ -SiC/SiC _w ceramics <i>Yupeng Xie, Yuxiang Wang, XianDe Wang</i>	35
Glass-ceramic matrices based on borosilicate and phosphate materials for the immobilization of radioactive waste <i>S.Y.Sayenko, Y.O.Svitlychnyi, V.A.Shkuropatenko, A.V.Zykova, O.G.Ledovska, L.M.Ledovska, G.O.Kholomyeyev, A.G.Myronova, M.O.Odeychuk</i>	39
Indium antimonide whiskers under strain for sensor applications <i>A.Druzhinin, I.Ostrovskii, Yu.Khoverko, N.Liakh-Kaguy</i>	46
Comparative analysis of thermal conductivity of polymer composites with random and segregated distribution of single and hybrid nanocarbon filler <i>Yu.Perets, L.Vovchenko, O.Turkov, L.Matzui, Ye.Mamunya, O.Maruzhenko</i>	54
Transport properties of the bismuth telluride thin films with different stoichiometry in the temperature range 77–300 K <i>E.I.Rogacheva, K.V.Novak, A.N.Doroshenko, O.N.Nashchekina, A.V.Budnik</i>	67
Magnetoresistance features of bismuth films in inhomogeneous magnetic field <i>V.N.Samofalov, A.S.Aseyev</i>	75
Structure, mechanical characteristics, oxidation and cavitation resistance of Fe–Cr–Al based alloys <i>I.V.Kolodiy, V.A.Belous, M.A.Bortnitskaya, R.L.Vasilenko, V.N.Voyevodin, V.I.Kovalenko, A.S.Kuprin, V.G.Marinin, V.D.Ovcharenko, G.Y.Rostova, P.I.Stoiev, M.A.Tikhonovsky, G.N.Tolmachova, A.S.Tortika</i>	79
Study on the modification of Cr ₁₂ MoV die steel <i>Fu Sijing, Jiang Binghua, Wang Jing, Cheng Hong</i>	87

Dynamic mechanical properties of austenitic 304L stainless steel with different strain rates <i>Jiao Yufeng, Hou Yanli</i>	93
Effect of the deposition temperature on the phase-structural state and hardness of ion-plasma coatings obtained on the basis of the quasi-binary WB_2 - TiB_2 system <i>O.V.Sobol', Osman Dur</i>	100
Cobalt based coatings as catalysts for methanol oxidation <i>T.A.Nenastina, M.V.Ved', N.D.Sakhnenko, I.Yu.Yermolenko, M.Volobuyev, V.O.Proskurina</i>	107
Kinetics of structure transformation in pulsed plasma high-Cr coatings under post-heat treatment <i>B.V.Efremenko, Yu.G.Chabak, V.G.Efremenko, V.I.Fedun, T.V.Pastukhova, Hossam Ahmed Halfa, A.Yu.Azarkhov, V.M.Vlasovets</i>	117
Fabrication process and properties of Cu-coated carbon fiber reinforced Al matrix composites <i>Jun Liang, Ming Wang, Chunjing Wu, Weizhong Tang, Hang Ping</i>	125
The study of the effect of polyoxadiazole fiber on the thermophysical properties of polymer composite materials based on phenylene C-1 <i>O.I.Burya, A.-M.V.Tomina</i>	136
Preparation and characterization of natural rubber compounds with filler of oil palm empty bunches powder and carbon black <i>Eva Marlina Ginting, Nurdin Bukit, Motlan, Magdalena Tiur Saragih, Erna Frida, Bunga Fisikanta Bukit</i>	140

Modeling and simulation

Extended quasi-correlated orbitals with long-range effects: Application to organic single-molecule electronics <i>A.V.Luzanov</i>	147
Formation of volume conductive inclusions under layerwise sample growth <i>R. Ye. Brodskii</i>	159
Analysis of anisotropy of the Young's modulus of ideal orientation of α -iron textures <i>N.A.Volchok, D.A.Dyachok, Z.A.Briukhanova, E.V.Dyshlov</i>	170
Advanced approach to estimation scintillator energy resolution <i>A.Gektin, A.Vasil'ev, V.Suzdal, I.Tawrovsky, A.Sobolev</i>	179

Technology

Synthesis, characterization and antimicrobial properties of chemically modified apatite-related calcium phosphates <i>O.V.Livitska, N.Yu.Strutynska, O.M.Vasyliuk, I.I.Grynyuk, S.V.Prylutska, N.S.Slobodyanik</i>	184
Influence of the isomorphism of the solid solutions of barium strontium titanates on segnetoceramic properties <i>G.N.Shabanova, S.M.Logvinkov, A.N.Korohodska, E.V.Khrystych, V.V.Deineka, D.V.Taraduda</i>	192

Synthesis of red phosphors based on double molybdates of rare-earth elements and monovalent metals
O.P.Perepelytsia, S.G.Nedilko, V.I.Maksin, T.I.Ushchapivska 197

Effects of interface roughness on thermal stress in through silicon via structure
Liwen Zhang, Yang Li, Na Li, Jincan Zhang, Zhi Li..... 203

Adsorption properties of silica gel *in situ* modified with copolymers of 4-vinylpyridine and styrene towards ions of toxic metals
E.S.Yanovska, L.O.Vretik, O.U.Kondratenko, O.A.Nikolaeva, D.Sternik 210

Devices and methodics

A flexible and highly selective nonenzymatic uric acid sensor based on free-standing carbon fiber
Y.Li, Y.X.Zhang, W.Xue, Y.J.Zhou, D.D.Duan, Y.P.Ding, R.Z.Zhang 218

Advanced detonation gun application for aluminum oxide coating
K.V.Korytchenko, O.Y.Hichlo, I.O.Belousov, A.V.Mats, O.A.Repikhov, C.Senderowski, D.P.Dubinin, A.V.Tytarenko 224

Personalia

Prof. A.V.Gektin - 70 years 230

Prof. V.D.Ryzhikov - 80 years 231