

Contents

Characterization and properties

- Preparation and characterization of ${}^6\text{LiF}/\text{ZnS}(\text{Ag})$ scintillator with varying granulometry
V. Tarasov, O. Zelenskaya, O. Shpilinskaja, L. Trefilova, L. Andruschenko, L. Borysova, Yu. Hapon 153
- Study of structure formation of transparent spinel-containing glass-ceramic materials for laser techniques
O. Savvova, O. Tur, O. Babich, O. Fesenko, Yu. Smyrnova, I. Tymoshchuk 163
- A study on the influence of composition and fractal structure of the Fe-Cr-Ni alloy on its properties
D. B. Hlushkova, V. M. Volchuk 173
- High temperature hot corrosion and oxidation of 733E831 based superalloy with TiO_2 thermal barrier coating
Kheder A. Salah, Mahmood A. Hamood, Mazin A. Abed 178
- The influence of aluminum on the morphological, optical properties and electronic structure of ZnO thin films
V.V.Zaika, N.K.Shvachko, V.H.Kasiyanenko, V.L.Karbiivskyy, V.O.Moskaliuk, I.V.Sukhenko, A.P.Soroka 185
- Regularities of fretting-corrosion wear of coatings formed by gas-thermal spraying methods
M.V.Kindrachuk, V.V.Kharchenko, V. Ye.Marchuk, I. A.Humeniuk, N. M.Stebeletska, M. A. Hlovyn, I.V.Kostetsky 192
- Protective properties of ZnO nanofilm against wear and mechanical damage of sensitive SPR sensor element
A. Fedorenko, N. Kachur, O. Sulima, V. Maslov 199
- Application of new plasma coatings for restoration of the surface of material
V. M. Volchuk, D. B. Hlushkova 205
- Influence of dispersed filler on the abrasive wear index of ultra-high molecular polyethylene
S.V.Tomin, O.V.Yeromenko, Ye.A.Yeriomina 210
- Effects of nano-silica on mechanical properties of recycled concrete: a review
Yuqing Yan, Fang Qin 215

Modeling and simulation

- Monte Carlo modeling of atomic clusters in mesoscopic range
M.A.Ratner, V.V.Yanovsky 225
- First-principles study of fundamental properties of BX (X= As, P,N and Bi) compounds
Yousra Megdoud, Yamina Benkrima, Latifa Tairi, Redha Meneceur, Sebti Ghemid, Hocine Meradji 232

Technology

On regularities of some carbohalogenation processes in chloride and bromide melts of various cation composition
V.L.Cherginets, A.L.Rebrov, T.P.Rebrova, T.V.Ponomarenko, A.G.Varich, O.I.Yurchenko, V.V. Soloviev 246

Enhancing the stability of perovskite nanocrystals in polyacrylate composites
T.Skrypnyk, I.Bespalova, L. Boesel, O. Sorokin 252

Synthesis and modification of 7-aryol derivatives of 4,7-dihydro-[1,2,4]triazolo-[1,5-a]pyrimidine as potent inhibitors of sirtuin-2
K. I. Marchenko, A. V. Kyrychenko, N. M. Kolos 260

Metal complex catalysis of initiated oxidation of hydrocarbons and alcohols: features of inhibition
I.A.Opeida, O.A.Velichko, Ye.V.Sheludko, A.V.Pavliuk, R.B.Sheparovych, V.E.Sheludko, M.N.Baran 269

Synthesis and evaluation of a novel anti-water blocking agent for low-permeability reservoir
Xing-bin Zhao, Yan-fei Li, Zhao Huang, Ming-biao Xu, Tao Wang, Da-long Feng, Wei Huang 276

Optimization of the heat treatment processes of porous thermal insulation materials
R. Klimov, I. Sokolovska, O. Hluschenko 285

Methodics and devices

On finding the diffusion coefficient of an impurity on the results of evaporation refining
A.I. Kravchenko 290

Hysteresis in resistance isotherms as a function of moisture for porous glass with conductive nanoparticles
Ya.I.Lepikh, I.K.Doycho 293

Effective functional materials for treatment of water from organic compounds
V.V. Datsenko, E.B. Khobotova 296