

Contents

Characterization and properties

Structural aspects of the phase and texture formation processes in thin-layer Ni–W/TiN systems which are perspective for creating high-temperature superconductors of the second generation

M.S.Sunhurov, V.V.Derevyanko, S.A.Leonov, T.V.Sukhareva, V.A.Finkel, Yu.N.Shakhov..... 353

Investigations on temperature dependences of parameters of ^{127}I NQR spectrum of $(\text{BiI}_3)_{(1-x)}(\text{PbI}_2)_x$ mixed layered semiconductor and alkaline halogens crystals

I.G.Vertegel, E.D.Chesnokov, O.I.Ovcharenko, I.I.Vertegel, O.S.Ivanov, Yu.P.Gnatenko, O.A.Ponkratenko..... 360

Distribution peculiarities of stray fields and magnetization near magnet singularities

V.N.Samofalov, D.P.Belozorov, A.G.Ravlik, A.S.Aseev 365

Layered crystals FeIn_2Se_4 , In_4Se_3 and heterojunctions on their basis

B.V.Kushnir, Z.D.Kovalyuk, V.M.Katerynchuk, V.V.Netyaga, I.G.Tkachuk..... 372

Sapphire subdivision at different heat treating types

R.Ye.Brodskii, P.V.Konevskiy, R.I.Safronov, A.V.Voloshin..... 376

Liquid crystal dispersions containing nanoparticles of different anisometry: carbon nanotubes and organomodified laponite

A.N.Samoilov, S.S.Minenko, L.N.Lisetski, E.A.Solovyova, N.I.Lebovka, M.V.Vistak 383

Using cyanine dye J-aggregates as luminescence probe for nanostructured media

A.V. Sorokin, I.Yu. Ropakova, I.A. Borovoy, I.I. Beshalova, S.L. Yefimova 388

$\text{GdVO}_4:\text{Eu}^{3+}$ nanoparticles — embedded CaCO_3 microspheres: synthesis and characterization

I.I.Beshalova, S.L.Yefimova, T.N.Tkacheva, K.A.Hubenko, A.V.Sorokin, P.V.Mateychenko 393

Potential producers of biogenic magnetic nanoparticles among disease-producing microorganisms of the brain

S.V.Gorobets, O.Yu.Gorobets, Y.A.Darmenko..... 400

Biogenic magnetic nanoparticles in lung, heart and liver

S.V.Gorobets, O.Yu.Gorobets, O.V.Medvediev, V.O.Golub, L.V.Kuzminykh..... 405

Obtaining urea-formaldehyde foam materials with improved mechanical properties

T.E.Rymar, V.V.Unkovskaja 409

Interaction of Portland cement hydration products with complex chemical additives containing fiberglass in moisture-proof cement compositions

O.I.Demina, A.A.Plugin, E.B.Dedenyova, D.O.Bondarenko, T.A.Kostuk, A.I.Bondarenko..... 415

Internal stresses and magnetic properties of Fe-Co electrolytic coatings

V.O.Proskurina, I.Yu.Yermolenko, S.I.Zyubanova, I.G.Shipkova, B.A.Avrachenko, Yu.I.Sachanova 420

The experimental research on axial compression performance of concrete-filled steel square tube strengthened by internal transverse stiffened bars
Nan Li, Lai Wang, Yajun Xi, Hui Wang, Tong Guan, Furui Dong, Changfeng Sui, Wenbin Cui 427

Modeling and simulation

Kirchhoff and electron curvature indexes for SiC nanoclusters
A.V.Luzanov..... 434

The novel method for LAI inversion using Lidar and hyperspectral data
Zuwei Huang, Feng Liu, Guangwei Hu 442

Nonlinear analysis of concrete-filled steel square tube strengthened by internal transverse stiffened bars under axial compression
Nan Li1, Lai Wang, Yajun Xi, Tong Guan, Hui Wang, Furui Dong 451

Technology

The alternative approach to the preparation of complex calcium phosphates and their characterization
Ok.Livitska, N.Strutynska, Ol.Livitska, N.Slobodyanik 457

Macroscopic simulation of atom-sized structures of functional materials: phenomenology of the elongated electrode system
A.P.Pospelov, G.V.Kamarchuk, A.V.Savytskyi, M.D.Sakhnenko, M.V.Ved', V.L.Vakula..... 463

Properties of Ni-TiO₂ composites electrodeposited from methanesulfonate electrolyte
Yu.E.Sknar, O.O.Savchuk, I.V.Sknar, F.I.Danilov 469

The plastic scintillator for n/γ-discrimination with alkyl-substituted PPO derivative.
P.N.Zhmurin, D.A.Eliseev, V.N.Pereymak, O.V.Svidlo, Yu.A.Gurkalenko 476

Preparation and characterization of mortar mixes containing organic acid/expanded vermiculite composite PCM
Xinzhong Zhang, Weizhun Jin, Yajun Lv, Haibin Zhang, Weibing Zhou, Fangyi Ding 481

Research on game scheduling of galvanizing pipe production
Yingying Li, Shaohua Dong 490

Sensitivity analysis and proportioning design of rock burst similar materials
Yongsheng Liu, Jin Li, Qiulan Wu, Wang Liu 496

Devices and instruments

Study on cutting performance and tool wear of micro-textured tool for milling Ti6Al4V
Shen Xiang-yu, Guo Xu-hong, Deng Da-song, Lu Li-li, Chen Ya-dong..... 501