

# Contents

## *Characterization and properties*

Deep acceptor trapping centers in $\text{CdI}_2\text{-PbI}_2$ crystal system <i>O.V.Galchynsky, N.V.Gloskovska, L.I.Yarytska</i> .....	243
Synthesis, characterization and electrical properties of $\text{Pb}_{(8-x)}\text{Na}_2\text{Nd}_x(\text{VO}_4)_6\text{O}_{(x/2)}$ solid solutions <i>E.I.Getman, T.M.Savankova, A.V.Ignatov, K.G.Didorenko, A.Y.Talykova, L.I.Ardanova</i> .....	247
Influence of $\text{CeO}_2$ nanocrystals size on the vacancies formation processes determined by spectroscopic techniques <i>P.O.Maksimchuk, V.V.Seminko, I.I.Bespalova, A.A.Masalov</i> .....	254
Spectroscopical study of natural nanostructured carbonaceous material shungite <i>A.A.Konchits, B.D.Shanina, M.Ya.Valakh, I.B.Yanchuk, V.O.Yukhymchuk, A.V.Yefanov, S.V.Krasnovyd, M.A.Skoryk</i> .....	260
Thermionic properties of lutetium borides single crystals <i>D.A.Voronovich, A.A.Taran, N.Yu.Shitsevalova, G.V.Levchenko, V.B.Filipov</i> .....	266
Influence of plastic deformation in processes of agglomeration of the diamond hybrid material on structure and hardness of CVD-diamond <i>A.Shulzhenko, E.Ashkinazi, A.Sokolov, V.Gargin, A.Kotko, M.Loshak, L.Aleksandrova, V.Tkach, L.Romanko, V.Ralchenko, V.Konov</i> .....	274
Polystyrene-based plastic scintillator for $n/\gamma$ -discrimination <i>P.N.Zhmurin, V.N.Lebedev, V.D.Titskaya, A.F.Adadurov, D.A.Elyseev, V.N.Pereymak</i> .....	282
Specificity of radioluminescence of polycrystalline and composite scintillators based on organic single crystals granules <i>T.E.Gorbacheva</i> .....	290
Annealing temperature modes influence on properties of heterophase nanocomposites based on ceramics "glass — Ag—Pd" systems <i>Ya.I.Lepikh, T.I.Lavrenova, T.N.Bugayova, N.P.Zatovskaya, P.O.Snigur</i> .....	297
Magneto-resonance properties of manganite-perovskite nanocomposite with $\text{Bi}_2\text{223}$ -superconductor additives at $T = 300 \text{ K}, 4.2 \text{ K}$ <i>T.V.Kalmykova, S.Yu.Polevoy, S.V.Nedukh, S.I.Tarapov, V.Yu.Tarenkov</i> .....	302
Determination of characteristics of substructure and orientation inhomogeneity in polycrystalline specimens <i>E.E.Badiyan, A.G.Tonkopyrad, O.V.Shekhovtsov, R.V.Shurinov, T.R.Zetova, K.S.Kazachkova</i> .....	307
Influence of impurities on the absorption spectrum of thin $\text{Cs}_4\text{PbI}_6$ films <i>O.N.Yunakova, V.K.Miloslavskii, E.N.Kovalenko, V.V.Kovalenko</i> .....	313
Formation and evolution of intermixing zones in C/Si multilayer under heating <i>I.A.Zhuravel, Ye.A.Bugayev, A.V.Penkov, E.N.Zubarev, V.A.Severyukova, V.V.Kondratenko</i> .....	318

### **Technology**

Study on lithium dihydrogen phosphate crystal growth conditions in nonstoichiometric solutions <i>A.N.Iurchenko, A.P.Voronov, G.N.Babenko, M.A.Stumbra, V.M.Puzikov</i> .....	324
Preparation of pellets from uranium dioxide without binder <i>M.P.Odeychuk, S.A.Sirenko</i> .....	329
Synthesis of Na <sup>+</sup> ,CO <sub>3</sub> <sup>2-</sup> -containing calcium phosphate nanoparticles and their thermal transformations <i>A.I.Malyshenko, N.Yu.Strutynska, I.V.Zatovsky, N.S.Slobodyanik, M.Epple, O.Prymak</i> .....	333

### **Devices and instruments**

Peculiarity of sapphire application in medicine <i>L.A.Lytvynov</i> .....	338
The highly efficient gamma-neutron detector for control of fissionable radioactive materials <i>V.D.Ryzhikov, B.V.Grinyov, G.M.Onyshchenko, L.A.Piven', S.V.Naydenov, O.K.Lysetska</i> .....	345
Alpha-, beta-, gamma-radiometric measurements using semiconductor detectors <i>A.N.Grigoryev, A.V.Sakun, V.V.Marushchenko, Z.V.Bilyk, Yu.V.Litvinov, O.Yu.Chernyavsky, E.Voronkin</i> .....	352
X-ray method for determination of mineral constituent in solid fuel <i>I.F.Mikhailov, A.A.Baturin, A.I.Mikhailov</i> .....	356
Apparatus for studying electro-physical properties of materials at low temperatures under external magnetic fields <i>O.M.Bovda, V.V.Derevyanko, T.V.Sukhareva, V.A.Finkel</i> .....	360

### **In memory**

<i>Prof. O.V.Shisikin (29.07.1966-17.07.2014)</i> .....	364
---	-----