

# Contents

## *Characterization and properties*

Scintillation crystals based on solid solutions of oxyorthosilicates <i>O.Sidletskiy</i> .....	414
The study of the dislocation resonance in LiF crystals under the influence of the low-dose X-irradiation <i>G.A.Petchenko, A.M.Petchenko</i> .....	421
Correlation between Arrhenius equation parameters concerning to Cd(Zn)Te melting and crystallization process <i>L.P.Shcherbak, O.V.Kopach</i> .....	425
Morphology and optical properties of films with magnetite nanoparticles <i>O.Korovyanko, N.Dmitruk, S.Mamykin, M.Sytnyk, O.Lytvyn, P.Fochuk</i> .....	429
Luminescent properties of rhodamine 6G dye in silica sol-gel matrices <i>O.N.Bezkrovnaya, I.M.Pritula, V.V.Maslov, V.M.Puzikov, M.I.Kolybayeva, A.V.Kosinova, Yu.A.Gurkalenko, A.V.Lopin</i> .....	433
Structural evolution of $ZrO_2$ - $Y_2O_3$ xerogels under high hydrostatic pressure <i>O.A.Gorban, S.A.Sinyakina, Yu.O.Kulik, T.A.Ryumshina, S.V.Gorban, I.A.Danilenko, T.E.Konstantinova</i> .....	438
The nature of trapping centers in amorphous biphenyl containing polymer <i>A.F.Adadurov, A.I.Bedrik, E.C.Velmozhnaya, P.N.Zhmurin, V.N.Lebedev, V.D.Titskaya</i> .....	444
Effects of UV radiation on selective reflection and dielectric properties of cholesterol ester mixtures with photoactive nematics <i>M.I.Serbina, L.N.Lisetski, I.A.Gvozдовskyy, A.V.Koval'chuk, G.S.Chilaya</i> .....	449
Aggregates of multiwalled carbon nanotubes in nematic liquid crystal dispersions: experimental evidence and a physical picture <i>S.S.Minenko, L.N.Lisetski, A.I.Goncharuk, N.I.Legovka, V.V.Ponevchinsky, M.S.Soskin</i> .....	454
Phase diagram and optical properties of liquid crystalline binary cobalt caprylate — lanthanum caprylate liquid crystal system <i>I.I.Tokmenko, T.A.Mirnaya, G.G.Yaremchuk</i> .....	460

Optical and photoelectrical properties of Langmuir-Blodgett diphthalocyanine thin films <i>A.V.Alpatova, S.G.Yudin, V.V.Lazarev, Y.A.Draginda, A.V.Kazak, S.P.Palto</i> .....	465
The binding ability and solvation properties of cationic spherical polyelectrolyte brushes as studied using acid-base and solvatochromic indicators <i>N.A.Vodolazkaya, N.O.Mchedlov-Petrossyan, E.Yu.Bryleva, S.V.Biletskaya, M.Schrinner, L.V.Kutuzova, M.Ballauff</i> .....	470
<b>Modeling and simulation</b>	
New vortex structures in the two-dimensional hydrodynamic <i>A.V.Tur, K.N.Kulik, V.V.Yanovsky</i> .....	477
The complex heat exchange model at growing of large alkali halide crystals <i>A.V.Kolesnikov, V.I.Deshko, Yu.V.Lokhmanets, A.Ya.Karvatskii, I.K.Kirichenko</i> .....	483
<b>Technology</b>	
Anisotropy of sapphire properties associated with chemical-mechanical polishing with silica <i>A.T.Budnikov, E.A.Vovk, S.I.Krivosnogov, A.Ya.Danko, O.A.Lukiyenko</i> .....	488
Growth and optical properties of $Al_2O_3\text{-}\delta\text{:N}_x$ crystals <i>Kh.Sh.-ogly Kaltaev, N.S.Sidelnikova, S.V.Nizhankovsky, A.Ya.Dan'ko, A.T.Budnikov</i> .....	495
Growing of $^{106}CdWO_4$ , $ZnWO_4$ , and $ZnMoO_4$ scintillation crystals for rare events search by low thermal gradient Czochralski technique <i>E.N.Galashov, T.M.Denisova, I.M.Ivanov, E.P.Makarov, V.N.Mamontov, V.N.Shlegel, Yu.G.Stenin, Ya.V.Vasiliev, V.N.Zhdankov</i> .....	504
Comparison of the quality of $Bi_{12}GeO_{20}$ crystals grown by the conventional and low-temperature-gradient Czochralski techniques <i>V.N.Shlegel, D.S.Pantsurkin</i> .....	509
Dependence of $PbMoO_4$ crystal damage threshold on $Nd^{3+}$ concentration and method of doping <i>V.N.Baumer, Yu.N.Gorobets, L.V.Gudzenko, M.B.Kosmyna, B.P.Nazarenko, V.M.Puzikov, A.N.Shekhovtsov, Z.V.Shtitelman</i> .....	515
Synthesis, morphological and structural properties of bio-SiC ceramics <i>V.O.Yukhymchuk, V.S.Kiselev, A.E.Belyaev, M.V.Chursanova, M.Danailov, M.Ya.Valakh</i> .....	520
Modified potassium-sodium niobate based lead-free piezoceramics <i>L.G.Gusakova, V.M.Ishchuk, N.G.Kisel, D.V.Kuzenko, N.A.Spiridonov</i> .....	528
Some peculiarities of the use of sapphire light guides in metallurgy <i>L.F.Zhukov, L.A.Lytvynov</i> .....	533

Sol-gel processing of transparent $\text{Lu}_2\text{O}_3:\text{Eu}^{3+}$ phosphor films <i>N.V.Babayevskaya, A.S.Bezkrovnyi, P.V.Mateychenko,</i> <i>O.M.Vovk, R.P.Yavetskiy</i> .....	537
Optimization of sol-gel synthesis conditions for producing of silica monoliths promising for chromatography: sorption kinetics and mechanical stability <i>A.P.Boichenko, A.M.Frolova, O.Yu.Konovalova, L.P.Loginova</i> .....	543
Combined composite scintillation detector for separate measurements of fast and thermal neutrons <i>N.L.Karavaeva, N.Z.Galunov, E.V.Martynenko, A.V.Kosinova</i> .....	549
Single-crystal silicon solar cell efficiency increase in magnetic field <i>R.V.Zaitsev, V.R.Kopach, M.V.Kirichenko, E.O.Lukyanov,</i> <i>G.S.Khrypunov, V.N.Samofalov</i> .....	554
<i>Author Index, Vol. 17, 1–4, 2010</i> .....	558
<i>Instructions for Authors</i> .....	573