

Contents

Characterization and properties

Some approach to the fluorophore-tagging and barcoding of nano-scale objects <i>A.S.Lebed, S.L.Yefimova, A.V.Sorokin, I.A.Borovoy, Yu.V.Malyukin</i>	5
HCP and FCC phases in Ni-Pd laser thin films <i>A.G.Bagmut, I.G.Shipkova, V.A.Zhuchkov</i>	12
Structure and substructure of zinc selenide films <i>M.M.Ivashchenko, A.S.Opanasyuk, S.M.Danilchenko</i>	18
Supramolecular organization of porphyrin derivatives in the Langmuir films <i>A.V.Kazak, N.V.Usol'tseva</i>	24
Electrical properties and mechanisms of the point defect formation in PbTe(In) films prepared by modified "hot wall" technique <i>A.M.Samoylov, B.L.Agapov, S.V.Belenko, E.A.Dolgopolova, A.M.Khoviv</i>	29
The electromagneto-optical effect in local areas of single magnetic domains in epitaxial films of yttrium iron garnet <i>V.E.Koronovskyy, N.D.Gorchinskii</i>	37
Mechanism of AlN film formation at thermochemical nitridization of sapphire <i>Kh.Sh-ogly Kaltayev, S.V.Nizhankovskiy, N.S.Sidelnikova, M.A.Rom, A.Ya.Dan'ko, M.V.Dobrotvorskaya, A.Ye.Belyaev, V.V.Strelchuk, A.F.Kolomys</i>	41
Effect of a weak constant magnetic field on the silicon single crystal structure <i>V.A.Makara, D.V.Kalinichenko</i>	50
Relaxation of electrical resistance and phase separation in $\text{ReBa}_2\text{Cu}_3\text{O}_{7-\delta}$ (Re = Y, Ho) single crystals strongly underdoped with oxygen <i>A.A.Zavgorodniy, R.V.Vovk, M.A.Obolenskii, Z.F.Nazyrov, S.Roshko, V.M.Pinto Simoes</i>	56
Relaxation processes in lead zirconate-titanate based piezoelectric ceramics. 2. Influence of thermal treatment <i>D.V.Kuzenko, V.M.Ishchuk, A.I.Bazhin, N.A.Spiridonov</i>	66
Study of structure perfection of KDP single crystals using the X-ray dynamic diffraction effects <i>V.M.Puzikov, V.F.Tkachenko, V.A.Tsurikov</i>	71
Effect of thallium impurity on the growth kinetics and perfection of KDP crystals <i>A.P.Voronov, V.M.Puzikov, V.I.Salo, V.F.Tkachenko, G.N.Babenko, N.S.Gerasimenko, V.A.Tsurikov</i>	77
On the formation of oxide species in melts of CsCl-LiCl-YCl ₃ system <i>V.L.Cherginets, T.P.Rebrova, T.V.Ponomarenko, Yu.I.Dolzhenko</i>	84
CdS films growth by chemical bath deposition technique with substrate vibrating agitation <i>N.P.Klochko, G.S.Khrypunov, N.D.Volkova, V.R.Kopach, V.M.Lyubov, D.A.Kudiy, M.M.Kharchenko, V.O.Nikitin</i>	89

Modeling and simulation

Features of binary melt solidification at variable crystal pulling rate
V.N.Kanishchev, S.V.Barannik 95

Investigation of size dependences of surface tension and evaporation heat
of aluminum droplets using different pair potentials
N.Yu. Sdobnyakov, V.M. Samsonov, A.N. Bazulev, D.A. Kulpin, D.N. Sokolov..... 101

Technology

Characterization of TiO₂ films obtained by electrochemical
plasma treatment of titanium
O.Chernyayeva, D.Lisovytskiy..... 107

Wet chemical synthesis and characterization of luminescent colloidal nanoparticles:
ReVO₄:Eu³⁺ (Re = La, Gd, Y) with rod-like and spindle-like shape
V.K.Klochkov, A.I.Malyshenko, O.O.Sedykh, Yu.V.Malyukin..... 111

Laser-induced incandescence of borate glass doped with carbon microparticles
A.V.Kopyshinsky, Ya.P.Lazorenko, S.E.Zelensky..... 116

Production of radiopure natural and isotopically enriched cadmium
and zinc for low background scintillators
*G.P.Kovtun, A.P.Shcherban', D.A.Solopikhin, V.D.Virich, V.I.Zelenskaja, R.S.Boiko,
F.A.Danevich, V.M.Kudovbenko, S.S.Nagorny* 121

Plastic scintillators based on polymers with hindered excimer forming
A.F.Adadurov, D.A.Yelyseev, V.D.Titskaya, V.N.Lebedev, P.N.Zhmurin..... 128

Instruction for Authors..... 135