

Contents

Characterization and properties

Generation and energy exchange of charge states in organic molecular crystalline scintillators <i>O.A.Tarasenko</i>	5
Functions of biogenic magnetic nanoparticles in organisms <i>S.V.Gorobets, O.Yu.Gorobets</i>	18
Magnetic properties of modified amorphous and nanocrystalline alloys based on Fe and Co <i>B.N.Filippov, A.P.Potapov, V.V.Shulika</i>	27
Spintronic devices based on magnetic nanostructures <i>L.V.Lutsev, A.I.Stognij, N.N.Novitskii, A.S.Shulenkov</i>	33
Semiconductor surfaces structurization induced by ultrasound <i>R.K.Savkina</i>	38
Highly-ordered nanoporous anodic aluminum oxide films <i>A.V.Voloshko, V.V.Danilina, P.V.Mateychenko, I.I.Bespalova</i>	44
Luminescent properties of $Y_3Al_5O_{12}$ nanograined ceramics and single crystals <i>Yu.Zorenko, T.Voznyak, V.Gorbenko, A.Doroshenko, A.Tolmachev, R.Yavetskiy, I.Petrusha, V.Turkevich</i>	48
Self-focusing effect on the second harmonic generation in the KDP single crystals with incorporated anatase nanoparticles <i>V.Ya.Gayvoronsky, M.A.Kopylovsky, V.O.Yatsyna, A.S.Popov, A.V.Kosinova, I.M.Pritula</i>	54
Intrinsic UV-VUV luminescence and X-ray emission spectroscopy of BeO and multicomponent oxide dielectrics <i>V.Ivanov, V.Pustovarov, A.Kikas, T.Käämbre, I.Kuusik, M.Kirm</i>	60
Hybrid scintillators on the basis of ammonium salicylate and ammonium dihydrogen phosphate for neutrons detection <i>A.I.Ananenko, A.P.Voronov, G.N.Babenko, U.T.Vyday, V.I.Salo</i>	66
Exciton migration in pseudoisocyanine J-aggregates formed in polymer films <i>A.V.Sorokin, B.A.Gnap, I.I.Fylymonova, S.L.Yefimova</i>	70
Helical twisting in cholesterics doped by banana-shaped molecules <i>M.I.Serbina, S.I.Maksimenko, R.V.Kondratyeva, L.G.Derkach, N.S.Novikova, L.N.Lisetski</i>	75

Optical and unique photovoltaic properties of
2-cyano-3-(4-dimethylaminophenyl)-2-propentioamide dye deposited
on the gilded substrate

*V.M.Yashchuk, N.A.Davidenko, A.P.Naumenko, V.Yu.Kudrya, Yu.L.Slominski,
K.P.Grytsenko, T.P.Doroshenko, K.M.Kushnir, V.V.Kosach*..... 80

Structure and fluorescence of $ZnWO_4$ films prepared by ion beam sputtering

*A.Dubovik, A.Fedorov, K.Katrunov, A.Lebedynskiy,
G.Onischenko, S.Yakovin, A.Zykov* 84

Modeling and simulation

An interrelation between the adsorption-desorption and surface diffusion mechanisms
under concentration decomposition of an open submonoatomic overlayer

E.P. Feldman, K.V.Gumennyk, L.I.Stefanovich, Yu.V. Terekhova 88

Modeling of magnetic and magnetocaloric properties of $La_{0.7}Ba_{0.3}MnO_3$ manganites
by Monte Carlo method

O.Pavluhkina, V.Buchelnikov, V.Sokolovskiy 97

Cascade model of X-ray M emission for the atoms of heavy metals

M.O.Borovoy, R.M.Ishchenko 102

Technology

Researches and developments on production of Ni–W alloy based substrates
for second generation high-temperature superconductors

*V.A.Finkel, A.M.Bovda, V.V.Derevyanko, S.A.Leonov, M.S.Sungurov,
T.V.Sukhareva, V.M.Khoroshikh, Yu.N.Shakhov* 109

Nonlinear-optical phases in strontium tetraborate–lead tetraborat system

Yu.S.Oseledchik, A.L.Prosvirnin, V.Yu.Lutsenko..... 116

Synthesis and spectral properties of new substituted diazepinoporphyrazine compounds
as optical materials

S.Tomachynskiy, L.Tomachynska, I.Tretyakova, V.Chernii 121

Devices and instruments

Increasing the sensitivity of X-ray fluorescent scheme with secondary radiator using
the initial spectrum filtration

I.F.Mikhailov, A.A.Baturin, A.I.Mikhailov, S.S.Borisova..... 126

Resolving power of scintillation panels based on zinc selenide

V.Litichevskiy, S.Galkin, O.Lalaiants, E.Voronkin, S.Mahota, I.Breslavskiy..... 130

Personalia

До 50-річчя діяльності Б.Є.Патона як Президента НАН України 135