

CONTENTS

Manufacturing of the aluminum metal-matrix composite reinforced with micro- and nanoparticles of TiO₂ through accumulative roll bonding process (ARB)	1
R. Yousefian, E. Emadoddin and S. Baharnezhad	
Magnetic SiO₂-Fe₃O₄ nanocomposites as carriers of ibuprofen for controlled release applications	12
M. González-Hurtado, J. A. Marins, B. Guenther Soares, J. Rieumont Briones, A. Rodríguez Rodríguez and E. Ortiz-Islas	
Mechanism of stress-driven grain boundary migration in nanotwinned materials	21
N.V. Skiba	
Stress-driven migration of low-angle grain boundaries near crack tips in nanocomposites containing incoherent nano-inclusions	26
S.V. Bobylev and L.-S.D. Galeeva	
Design and construction of an embedded fuzzy-optical system to characterize metamaterials	35
A. Castañeda-Miranda and V.M. Castaño	
Environmentally friendly monolithic highly-porous biocarbons as binder-free supercapacitor electrodes	50
T.S. Orlova, V.V. Shpeizman, N.V. Glebova, A.A. Nechitailov, A.A. Spitsyn, D.A. Ponomarev, A. Gutierrez-Pardo and J. Ramirez-Rico	
Tuning the structure and the mechanical properties of ultrafine grain Al-Zn alloys by short time annealing	61
E.V. Bobruk, X. Sauvage, A. Zakirov and N.A. Enikeev	
Annealing-induced grain rotation in ultrafine-grained aluminum alloy	69
V.N. Danilenko, D.V. Bachurin and A.A. Nazarov	
Copper pentagonal micropylamids grown by mechanically activated electrodeposition	78
A.A. Vikarchuk, N.N. Gryzunova, M.Yu. Gutkin and A.E. Romanov	
Influence of the support on the morphology of Co-Sn, Ni-Sn, Co-Ni nanoparticles synthesized through a borohydride reduction method applying a template technique	82
I.N. Markova, M.B. Piskin, I.Z. Zahariev, E. Hristoforou, V.L. Milanova, D.I. Ivanova and L.B. Fachikov	
Influence of severe plastic deformation on microstructure, strength and electrical conductivity of aged Al-0.4Zr(wt.%) alloy	92
T.S. Orlova, A.M. Mavlyutov, T.A. Latynina, E.V. Ubyivovk, M.Yu. Murashkin, R. Schneider, D. Gerthsen and R.Z. Valiev	
Threading screw dislocations in a two-phase plate and a two-phase sphere	102
A.L. Kolesnikova, M.Yu. Gutkin and A.E. Romanov	
Enhanced oxidation resistance and microhardness of Ni-YSZ composites via the forging in air	117
O.Yu. Kurapova, E.N. Soloyeva, I.V. Lomakin, V.M. Ushakov, I. Yu. Archakov and V.G. Konakov	