

COLLECTED SCIENTIFIC TRANSACTIONS

# NANOSISTEMI, NANOMATERIALI, NANOTEHNOLOGII

FOUNDED IN OCTOBER, 2003

Volume 21, Issue 4 (2023)

## CONTENTS

<b>Editorial Announcements</b>	Information for Subscribers	X
	Information for Contributors	XIII
	Publication Ethics	XVI
	Heat Capacity of Thin Films at High Temperatures <i>E. P. SHTAPENKO and Yu. V. SYROVATKO</i>	675
	A1-to-L1 <sub>0</sub> phase Transformation in Nanoscale FePd–Ag Films During Annealing in Vacuum and H <sub>2</sub> <i>L. S. LEVCHUK, R. A. SHKARBAN, D. S. LEONOV, T. I. VERBYTSKA, M. Yu. BARABASH, and Iu. M. MAKOGON</i>	687
	The Ballistic Regime of Charge Transfer in Nanoscale Cuprum Films <i>R. I. BIHUN, V. H. APOPII, and B. P. KOMAN</i>	701
	Surface Morphology of ZnGa <sub>2</sub> O <sub>4</sub> :Cr Thin Films Obtained by RF Ion-Plasma Sputtering <i>O. M. BORDUN, I. O. BORDUN, I. I. MEDVID, M. V. PROTSYAK, I. Yo. KUKHARSKYY, V. G. BIHDAY, I. M. KOFLIUK, I. Yu. KHOMYSHYN, and D. S. LEONOV</i>	709
	Conditions of Plasma Synthesis of Surface Microstructures in the ‘Air–Silver Sulfide (Ag <sub>2</sub> S)’ Steam- and-Gas Mixture <i>O. K. SHUAIBOV, O. Y. MINIA, R. V. HRYTSYAK, R. M. HOLOMB, and Z. T. HOMOKI</i>	721
	Colloid-Chemical Mechanisms of the Formation of Ultra- and Nanosize Iron Oxide/Hydroxide Phases Obtained in the Fe <sup>0</sup> (St3)–H <sub>2</sub> O–O <sub>2</sub> System and Their Electrokinetic Properties. I. Preparation and Formation Mechanisms of Ultradisperse Phases of [Fe(II)–Fe(III)] LDH, Magnetite, Cobalt-Ferrous Ferrite, Lepidocrocite, and Goethite in the Fe <sup>0</sup> (St3)–H <sub>2</sub> O–O <sub>2</sub> System <i>V. A. PROKOPENKO, S. V. NETREBA, O. A. TSYGANOVICH, A. V. PANKO, and</i>	

<i>I. O. AGEYENKO</i>	739
Polyol Synthesis of Nanoparticles for Magnetic Nanofluids	
<i>V. Z. VOYNASH, A. O. PEREKOS, T. G. KABANTSEV, N. V. DANKO, I. L. VINNYCHENKO, and O. D. RUD'</i>	757
Investigation of Hematite Nanoparticles According to Mechanical Characteristics of Aluminium Matrix Composite	
<i>Nabaa S. RADHI, Ahlam Hamid JASIM, Zainab S. AL-KHAFAJI, and Mayadah FALAH</i>	769
Influence of Cobalt Oxide/Zirconium Dioxide Nanoparticles on the Structural and Electrical Behaviour of PVA for Electronic Applications	
<i>Araa Hassan HADI and Majeed Ali HABEEB</i>	779
Morphological and Optical Properties of Polyvinyl Alcohol–Tungsten Carbide Nanostructures for Optoelectronic Nanodevices	
<i>Majeed Ali HABEEB and Zanab Ibrahim ZIKE</i>	791
Fabrication of Novel PEO–PVA/SrTiO <sub>3</sub> –CoO Nanostructures for Low-Cost Pressure Sensor and Gamma-Ray Shielding	
<i>Shaimaa Mazhar MAHDI and Majeed Ali HABEEB</i>	803
Chitosan-Modified Alumina–Zirconia–Carbonate Apatite Nanoparticles-Filled Dental Restorative Composite Materials: Characterization and Mechanical Properties	
<i>Andrie HARMAJI, Novita Dwi SAPUTRI, and Bambang SUNENDAR</i>	817
Applications of 2D Materials (MXenes) in Sensors: A Minireview	
<i>N. V. KRISHNA PRASAD and N. MADHAVI</i>	829
Capacitive Humidity Sensors Based on Nanocellulose Obtained from Various Non-Wood Raw Materials	
<i>Vladyslav LAPSHUDA, Viktoriia KOVAL, Valerii BARBASH, Mykhailo DUSHEIKO, and Olga YASHCHENKO</i>	843
Biosynthesis of Nanocellulose and Study of Its Properties	
<i>Shaimaa H. RABAH</i>	859
Preparation of New PMMA/PEG/Si <sub>3</sub> N <sub>4</sub> Nanocomposites for Biological Applications	
<i>Ghaith AHMED and Ahmed HASHIM</i>	867
Synthesis of New Films From SiO <sub>2</sub> –SrTiO <sub>3</sub> -Nanoparticles-Doped Polystyrene for Environmental and Biomedical Applications	
<i>Arshad Fadhil KADHIM and Ahmed HASHIM</i>	877
The Relationship Between the Clay Mineral Nanoparticles and the Soil Pollution: Prospects for Environmental Sustainability	
<i>O. M. SEMERNIA, O. I. LIUBYNSKYI, I. V. FEDORCHUK, N. M. HORDII, O. S. TIUTIUNNYK, and V. H. SLOBODIANYK</i>	887
Biomechanical Parameters of the Development of Fatigue Processes in the <i>Muscle gastrocnemius</i> of Rats After	

Chronic Alcoholization and the Usage of Water-Soluble C <sub>60</sub> Fullerenes <i>O. P. MOTUZIUK, D. M. NOZDRENKO, K. I. BOGUTSKA, N. E. NURISHCHENKO, V. L. OSETSKIY, and Yu. I. PRYLUTSKYY</i>	899
Evaluation of the Level of Low-Density Lipoproteins in the Blood of Rats with Rhabdomyolytic Renal Failure of Various Severity Degrees and Water-Soluble C <sub>60</sub> Fullerenes Action <i>O. Ya. OMELCHUK, D. M. NOZDRENKO, I. M. VARENIUK, O. P. MOTUZIUK, K. I. BOGUTSKA, V. M. SOROKA, I. V. MISHCHENKO, and S. V. PRYLUTSKA</i>	909
Application of Carbon Nanomaterials for the Regulation of Stress Resistance in Agricultural Plants <i>S. V. PRYLUTSKA, T. A. TKACHENKO, and V. V. TKACHENKO</i>	923

Scientific Editor of the Issue—*V. A. Tatarenko*

Executive Managing Editor—*V. V. Lizunov*

Technical Editor—*D. S. Leonov*

Editorial-Publishing Department, G. V. Kurdyumov Institute for Metal Physics, N.A.S. of Ukraine

Editorial Office: 36 Academician Vernadsky Boulevard, UA-03142 Kyiv, Ukraine

Telephone: +380 44 4241221, +380 44 4249042. Fax: +380 44 4242561

E-mail: [tatar@imp.kiev.ua](mailto:tatar@imp.kiev.ua), [dsleonov@gmail.com](mailto:dsleonov@gmail.com)