

# Table of Contents

## Preface

<b>X-Ray Diffraction Analysis of YSAG:Yb Ceramic Powders with Different Stoichiometry</b> M.S. Nikova, D.S. Vakalov, V.A. Tarala, I.S. Chikulina, F.F. Malyavin and M.G. Ambarcumov	1
<b>Electrical Conductivity and Phase Transitions in Ferroelectric Solid Solutions</b> $\text{Li}_{0.17}\text{Na}_{0.83}\text{Ta}_y\text{Nb}_{1-y}\text{O}_3$ ( $y = 0 - 0.5$ ) in High Pressure V.V. Efremov, M.N. Palatnikov, Y.V. Radyush and O.B. Shcherbina	6
<b>The Influence of Hydrostatic Pressure on the Binding Energy of Hydrogenic Impurity State in a Wurtzite <math>\text{Al}_y\text{Ga}_{1-y}\text{N}/\text{Al}_x\text{Ga}_{1-x}\text{N}</math> Parabolic Quantum Well</b> F.Q. Zhao and Z. Bo	14
<b>Synthesis and Luminescence Properties of Rare Earth (Eu, Tb) Complexes of Octanoylphenylalanine</b> J.K. Zhang, N. Gerile, Y. Zhang and B. Altan	22
<b>Magnetic Volume Effect of Hydrogen Diffusion in Palladium</b> S. Nasantogtokh, X. Cui and Z.P. Wang	29
<b>Synthesis and Optical Absorption Properties of Yttrium (III) Acylaminocarboxylates Complexes</b> Y. Zhang, N. Gerile, J.K. Zhang, T.N. Bao and O. Tegus	34
<b><math>\text{CaCO}_3</math> Nanopowder Production by Co-Precipitation of Aerosols of Precursor Solutions of <math>\text{Na}_2\text{CO}_3</math> and <math>\text{CaCl}_2</math></b> S. Enkhtor, M. Batpurev, O. Gerelmaa, S. Munkhtsetseg, N. Tuvjargal, G. Erdene-Ochir, L. Enkhtor and G. Ragchaa	41
<b>Estimating Ag-Cu Nanoalloy Applicability for PCM Data Recording</b> Y.Y. Gafner, S.L. Gafner and D.A. Ryzhkova	47
<b>A New Synthesis Method for Lithium Tantalate Charge Doped with Rare-Earth Elements</b> S.M. Masloboeva, M.N. Palatnikov and L.G. Arutyunyan	53
<b>Study on Modified High Voltage (5V) Spinel Lithium Manganate Used for Energy Storage Lithium Titanate Batteries</b> D. Wu, W. Li, O. Tegus and S.Q. Bater	58
<b>Semiconductor Nanostructures for Modern Electronics</b> A.L. Aseev, A.V. Latyshev and A.V. Dvurechenskii	65
<b>Effects of Radio-Frequency Power and Deposition Pressure on Structures and Properties of Silicon-Rich Silicon Nitride Thin Films</b> J.X. Sun, B.Q. Zhou and X. Gu	81
<b>Carrier and Transition Metals (M = Nb, Cr and Fe) Doping Effects on Structure and Electronic Structure in Spinel <math>\text{Li}_4\text{Ti}_5\text{O}_{12}</math> Compounds</b> L. Sarantuya, N. Tsogbadrakh, G. Sevjdidsuren and P. Altantsog	88
<b>Computer Simulation of the Formation Process of Cu-Au Nanoparticles by Condensation</b> Y.Y. Gafner, S.L. Gafner and A.V. Nomoev	96
<b>The Research for Approaches to Increase Power of the Compact THz Emitters Based on Low-Temperature Gallium Arsenide Heterostructures</b> S. Nomoev, I. Vasilevskii and A. Vinichenko	101
<b>Morphology, Sizes and Oxidation of Composite Copper Nanopowders, Obtained by an Electron Beam with Different Energies</b> E.C. Khartaeva, A.V. Nomoev, V.V. Syzrantsev, E.L. Dzidziguri, N.S. Khiterkheeva, S.P. Bardakhanov, E.V. Batueva and S.V. Kalashnikov	109
<b>XRD Quantitative Analysis of Cathode Deposition Formed by DC Arc-Discharge in Water</b> E. Bayanjargal, J. Vanchinkhuu, T. Erdenebat and M. Otgonbaatar	118
<b>Study of Structural and Magnetic Properties of Spinel Zn Doped Cobalt Ferrites</b> B.C. Feng, O. Tegus, T. Ochirkhyag, D. Odkhuu, N. Tsogbadrakh, D. Sangaa and J. Davaasambuu	124
<b>Hardening of Silumin by Composite Particles Core/Shell <math>\text{Si}@\text{Mg}</math></b> V.T. Lygdenov, A.V. Nomoev, V.V. Lygdenov, B.G. Zhalsanov, E.C. Khartaeva, Y.Y. Gafner and L. Enkhtur	134
<b>Recognition of the Crystal Structure Clusters in Fast-Cooled Amorphous Medium</b> E.I. German and S.B. Thydypov	140

**Elastic Properties and Glass Forming Ability of the Zr<sub>50</sub>Cu<sub>40</sub>Ag<sub>10</sub> Metallic Alloy**

R.M. Khusnutdinoff and A.V. Mokshin

145

**Amorphous Porous Phase of Nitinol Generated by Ultrafast Isobaric Cooling**

B.N. Galimzyanov and A.V. Mokshin

150