

Table of Contents

Preface, Conference Organization and Sponsor

Chapter 1: Chemical Materials and Technologies in Chemical Manufacturing

The Electric Field and Ultrasonic Treatment Casing of Titanium Dioxide V.V. Smirnova, A.P. Ilyin, A.S. Brichkov and A.V. Zabolotskaya	3
Crystal Structures of Binuclear Coordination Rare-Earth Metal Compounds T.G. Cherkasova and E.V. Cherkasova	9
The Effect of the Method of Gallium Introduction into a Zeolite on its Physico-Chemical Properties and Reactivity in the Course of Propane Aromatization L. Vosmerikova, A.N. Volynkina, V.I. Zaikovskii and A.V. Vosmerikov	15
Influence of Fibrous and Solid Fillers on the Rheological and the Surface Properties of Polymer Composition L. Trufakina, E. Berezina and A. Kuchevskaya	21
The Influence of Manganese Amount in Oxyhydroxide of Aluminium – Precursor of MnO_x-Al_2O_3 Catalysts on Catalytic Activity in Reaction of Oxidation of C_1-C_3 of Hydrocarbons O.I. Sidorova, S. Galanov, E.N. Gryaznova and L.N. Shiyani	27
Nickel-Containing Systems in Reaction of Partial Oxidation of Hydrocarbons S. Galanov, O.I. Sidorova and V.A. Batyрева	33
The Effect of EOR Technologies on the Content of Petroporphyrins and Naphthenic Acids of Recovered Heavy Oils from Usinskoye Field L.D. Stakhina, D.S. Petrenko and A.S. Spabekova	39
Peculiarities of SiO_2-M_xO_y (where M – Mn, Fe, Co, Ni) Thin Films Formation A.S. Brichkov, V.Y. Brichkova, L.A. Egorova, V. Kozik and V.K. Ivanov	44
Nanostructured Polymetallic Powders to Create New Functional Materials on its Base Y.A. Zaharov, V.M. Pugachev, K.A. Daty, A.N. Popova, A.S. Valnyukova, A.S. Bogomyakov and V.G. Dodonov	49
Structural and Mechanical Properties of Highly Paraffinic Crude Oil Processed in High-Frequency Acoustic Field G. Volkova and R.V. Anufriev	55
Acid-Base Properties of the Surface SnO A.A. Pichugina, S.A. Kuznetsova and L.V. Tsyro	62
Structure and Friction Behavior of UHMWPE/Inorganic Nanoparticles A.A. Okhlopko, R.V. Borisova, T.A. Okhlopko and L.A. Nikiforov	69
Formation and Reactivity of Cu Particles on the Surface of Mixed Copper-Zirconium Phosphate N.V. Dorofeeva, O.V. Vodyankina, G.V. Mamontov and V.I. Zaykovskii	76
The Mutual Solubility of Salts of Rare Earth Elements V.A. Batyрева and L.S. Grigor'eva	82
Molecular Complexes of p-Chloranil with Aniline, Phenol and their Derivatives B. Pryalkin and Y.S. Bodagova	89
Synthesis and Characteristics of $\text{CaAl}_2\text{O}_4:\text{Eu}^{3+}$ Phosphor Prepared by Zol-Gel Method L.N. Mishenina, L.A. Selyunina and T.M. Botvina	95
Textural Characteristics and Structural Peculiarities of Supported Vanadium Oxide Materials Prepared by the NH_4VO_3 Aqueous Solution Wetness Impregnation E. Sushchenko and T. Kharlamova	101
Red and Green Phosphors Glow on the Basis of Oxide Glass-Ceramics Doped with Eu^{3+} and Tb^{3+} S. Tsyretarova, N.M. Kozhevnikova, N.S. Eremina and G.M. Mokrousov	107
Interfacial Reactions in the System of $\text{MnTe-H}_2\text{O}$ O.N. Zarubina, G.M. Mokrousov and L.V. Maliy	113
Modification of Polymer Materials by Electron Beam Treatment I. Puhova, K.V. Rubtsov, I. Kurzina, A.V. Kazakov and A.V. Medovnik	118

Self-Organized Nanostructured Ag/P₂O₅/SiO₂ Material as a Catalyst for High-Temperature Selective Oxidation of Alcohols	
A.S. Knyazev, O.V. Magaev, A.A. Krejker, G.V. Mamontov, E.M. Knyazeva, E.M. Dahnavi and O.V. Vodyankina	126
Thermally-Activated Al(OH)₃: Phase Transformations and Porosity	
A. Savell'eva, T. Bugrova, A. Petrov, V. Dutov and G. Mamontov	133
Influence of Wood Flour Additive on Porous Structure and Strength Properties of Moulded Alumina	
T. Bugrova, A. Tatarkina, I. Zhukov and G. Mamontov	139
Grain Size Effect on the Type VT1-0 Alloy Modified by Aluminum Ion Implantation	
I. Kurzina, A.V. Nikonenko, N. Popova, E.L. Nikonenko and M.P. Kalashnikov	144
Influence of the Catalyst Preparation on Properties of Chromium-Magnesium Catalysts for Freon 125 Synthesis	
A. Zirka, L. Simonova, N. Kosova, I. Kurzina and S. Reshetnikov	152
Hydrothermal Synthesis of Nanocrystalline Titanium Dioxide for Use as a Photoanode of DSSCs	
S. Kozyukhin, A. Sadovnikov, M. Presniakov, A. Baranchikov, L.P. Borilo, V. Kozik and V.K. Ivanov	156
Study of Calcium Magnesium Aluminate CaMgAl₁₀O₁₇ Formation	
E.A. Gavrilenko, E.E. Kuznetsova, L.A. Selyunina and L.N. Mishenina	162

Chapter 2: Biomaterials and Biomedical Technologies, Environmental Engineering and Applied Biotechnologies

Investigation of Intermediate Oxidation Products of Genistein and Luteolin Generated in Aerobic Conditions	
V. Khasanov, S. Kravtsova, K. Dychko and V. Khasanov	171
One Step Microwave-Assisted Synthesis of Fluorinated Titania Photocatalyst	
A.A. Sadovnikov, A.E. Baranchikov, V. Kozik, L.P. Borilo, S.A. Kozyukhin and V.K. Ivanov	177
Effectiveness of the Technologies of Titanium Implants Covering	
T.S. Petrovskaya and V.I. Vereschagin	183
Analysis of the Oxygen-Containing Organic Substances of Natural Water Using Solid Phase Extraction of Distillates	
V. Khasanov, Y. Slizhov, A. Makarycheva and A. Chumakov	189
Synthesis and Biological Properties of Thin-Film Materials on the Basis of SiO₂-P₂O₅-CaO-Na₂O System	
L.P. Borilo, E.S. Lyutova and L.N. Spivakova	196
Integrated Flowsheet for Conversion of Non-Woody Biomass into Polyfunctional Materials	
V. Budaeva, E.I. Makarova and Y.A. Gismatulina	202
Spectral Analysis of Hair to Determine the Elemental Status of Human	
V.I. Otmakhov, N.G. Kataeva, I.S. Kuskova, E.V. Petrova and I.V. Shilova	207
Determination of Antioxidant Composition in Berry Juices Using Solid Phase Extraction with Copper Phthalocyanine	
Z.V. Faustova, Y.G. Slizhov, M.A. Gavrilenko, N.A. Gavrilenko and R.A. Terentiev	213
Peat- and Natural Zeolite-Based Solid Composite Modified by Metal Ions for Photodegradation of Dyes in Waters	
L.B. Naumova, V.N. Batalova and K.V. Alekseenko	218
The Effect of Support on the Surface Properties and Photocatalytic Activity of Supported TiO₂ Catalysts	
A.A. Vodyankin and O.V. Vodyankina	224
Luminescent Materials on the Basis of Yttrium Oxide and Yttrium Aluminum Garnet Used for Photodynamic Therapy	
V.V. Bakhmetyev, L.A. Lebedev, A.B. Vlasenko, S.P. Bogdanov, A.E. Sovestnov, T.S. Minakova, L.Y. Minakova and M.M. Sychoy	232

Chapter 3: Sensors and Measurement in Chemical Research

Sensor Based on Metals Acetylacetonates for Determination of Organic Substances Vapour in the Atmosphere	
E.A. Gazieva, N.A. Gavrilenko, T.A. Kasymova and M.A. Gavrilenko	241
Quantitative Evaluation of Polarity of Silica Gel Modified with Transition Metals Chelates for Gas Chromatography	
A. Makarycheva and Y.G. Slizhov	246
Structure and Sorption Properties of Silica Chemically Modified with Copper Malonate	
E.A. Pakhnutova and Y.G. Slizhov	252
Ion-Exchange Removal of Fe(III) and Mg(II) in the Analysis of Rare Earth Elements in Rocks by Inductively Coupled Plasma Mass Spectrometry	
L.N. Skvortsova, A.S. Podprugin and V.I. Otmakhov	258
Metal-Polymer Sensors for Voltammetric Analysis	
V. Shelkovnikov, M.V. Anishchenko, Y.V. Anishchenko and K.M. Minaev	264
Ion-Exchange Separation and Concentration of Ions of Rare-Earth Elements on Fibrous Sorbents	
L. Bobkova, L.N. Skvortsova, L.B. Naumova and G.V. Kashkan	270