

Table of Contents

Referee panels and Preface

Dealkylation of Alkyl and Aryl Ethers with AlCl_3-NaI in the Free Solvent Condition J. Asghari and M. Ghiaci	3
Comparison of Photocatalytical Properties of Anatase and Rutile TiO_2 in Degradation of 4-Chlorophenol in Aqueous Solution S. Bakardjieva, J. Šubrt, V. Štengl, E. Večerníková and P. Bezdička	7
Synthesis of Poly(ethylene-oxide)/MoO_3 Nanocomposite Films W. Chen, L.Q. Mai, Q. Xu and Q.Y. Zhu	13
Synthesis and Li-Insertion Properties of Poly(ethylene-oxide)/V_2O_5 Nanocomposite Films W. Chen, L.Q. Mai, Q. Xu and Q.Y. Zhu	19
Thermal and Polarization Studies of Carbonaceous Cement B. Chowdhury and M.T. Weller	25
Methods of Thermal Analysis in the Detection of Thaumassite and its Presence in the Sulfate-Attacked Concrete M. Drábik and L. Galikova	33
Cyclic Load Indentation of Polycrystalline Alumina D. Galusek and F.L. Riley	39
Electrochemical Analysis of Metal Oxides T. Grygar, P. Bezdička, D. Hradil and Ľ. Pikna	45
Synthesis and Photochemical Properties of Layered Double Hydroxide Intercalating 4-Hydroxy-3-Methoxycinnamic Acid Q. He, S. Yin and T. Sato	51
Comparison of Ion Exchanged Hydrosodalite Synthesised by Different Routes E. Kendrick, R. Morris and S. Dann	57
Alumina-Based Ceramics for Cutting Application B. Kubíková and J. Cibulková	63
Preparation and Analysis of $\text{Na}_2\text{Al}_2\text{O}_2\text{F}_4$ M. Kucharík, F. Šimko, V. Daněk and M. Chrenková	69
Present Status of the Optical Transmittance Thermal Analysis, a Microstructure Related Method J. Majling	75
Novel Method for Soft Template Removal in the Synthesis of MCM-41 Mesoporous Materials E. Meretei, D. Méhn, J. Halász and I. Kiricsi	79
Rare Earth Ferricyanides Z. Mitrosová, A. Zentko, J. Trpčevská, M. Lukáčová, K. Csach and M. Bokor	85
Thermochemical Properties of Potassium Niobate Octafluoride K_3NbF_8 I. Nerád, E. Mišíková and V. Daněk	91
Thin Films of Amorphous and Hydrated Vanadium Oxides: Growth, Properties and Applications A.L. Pergament, G.B. Stefanovich, E.L. Kazakova, D.G. Stefanovich and A.A. Velichko	97
Potentiodynamic Electrochemical Impedance Spectroscopy for Solid State Chemistry G.A. Ragoisha and A.S. Bondarenko	103
Homogeneous Reactions in Spinel Induced by High-Energy Milling V. Šepelák and K.D. Becker	109
Pigments Based on Mica Coated with Oxide of Metals V. Štengl, J. Šubrt, S. Bakardjieva, P. Bezdička, A. Kalendova and P. Kalenda	115
Homogenous Precipitation with Urea – an Easy Process for Making Spherical Hydrous Metal Oxides V. Štengl, J. Šubrt, P. Bezdička, M. Maříková and S. Bakardjieva	121
Synthesis, Crystal Structure and Magnetic Properties of New Pyrochlore-Related Oxides $\text{Ln}_2\text{Mn}_{2/3}\text{M}_{4/3}\text{O}_7$ (Ln=RE; M=Mo, Re) G.V. Bazuev, T.I. Chupakhina, V.N. Krasilnikov and V.G. Zubkov	129

Effect of Crystal Solvent on Magnetic Properties of Iron(II) Complexes M. Boca and R. Boca	135
A Tuning of the Spin Crossover in Fe(II) Complexes R. Boča	141
A Field Induced High-Spin Molecule: {Fe(II)-Fe(III)}₆ Cluster L. Dlháň, M. Gembický, R. Boča, R. Herchel and F. Renz	147
Iron Chemical State and Structural Properties of Fe-Zn Manganites and their Carbonate Precursors G. Fierro, M. Lo Jacono, R. Dragone, G. Ferraris, G.B. Andreozzi and G. Graziani	153
Relation between Structure and Interactions J. Hauck and K. Mika	159
Study of (Ln,Sr)(Fe,Co)O_{3-δ} Type CMR Materials by ⁵⁷Co Emission Mössbauer Spectroscopy Z. Homonnay, Z. Klencsár, E. Kuzmann, Á. Németh, P. Rajczy, K. Kellner, G. Gritzner and A. Vértés	165
Magnetic Anisotropy in Nickel(II) Complexes A. Mašlejová, M. Gembický, I. Svoboda and R. Boča	171
Fitting the Heat Capacity for Spin Crossover Systems B. Papánková, P. Šimon and R. Boča	177
The Electronic Structure of Oxide Ceramics with High-Valent Manganese, Cobalt, Nickel and Copper – as Seen by X-Ray Absorption Spectroscopy (XANES) D. Reinen and Z.W. Hu	183
The Synthesis and Conductivities of the Apatite-Type Phases La_{9.33}Si_{6-x}Ge_xO₂₆ J.E.H. Sansom and P.R. Slater	189
The Synthesis and Characterisation of New Apatite-Type Oxide Ion Conductors P.R. Slater and J.E.H. Sansom	195
Structure and Electronic Properties of the Heavy Transition Metal Pyrochlores and Weberites A₂B₂O₇, A=Ca, Cd, Hg, Tl, Pb; B = Os, Ru, Re M.T. Weller, J. Reading and C.S. Knee	201
Silica Fume Treatment for Improving Durability of Alkali Resistant Glass Fibres in Cement Matrixes A. Ayadi, M. Palou and A. Iratni	209
A Significant Improvement of the Electrical Conductivity of Semiconducting Vanadate Glasses Caused by Heat Treatment K. Fukuda, A. Ikeda and T. Nishida	215
The Structure and Properties of Cuprous Ion Conducting Glasses M. Jamnický, J. Sedláček and P. Znášík	221
Simplified Modeling of Spinel Crystal Setting in a HLW Vitrification Facility M. Jiříčka and L. Němec	227
Glass Formation in the PbCl₂-Sb₂O₃-TeO₂ System P. Kostka, D. Ležal, M. Poulain, J. Pedlíková and M. Novotná	235
Interpretation of Radiation-Induced Phenomena in Chalcogenide Glasses of Ge–Sb–S System Using Free Volume and Covalent Chemical Bonds Concepts A. Kovalskiy, T. Kavetskiy, J. Plewa and O.I. Shpotyuk	241
‘Ea-δ Rule’ Discovered from the Crystallization Study of Gallate and Vanadate Glasses S. Kubuki, K. Fukuda, A. Ikeda and T. Nishida	247
Microstructural Analysis and Properties of Fused Cast Zirconia Refractories Corroded in Lead Glass J. Sedláček, M. Jamnický and J. Lokaj	253
Precipitation and Crystal Growth in High Level Waste Glass O. Stahlavsky and M. Mika	259
Re-Investigations of Selected Properties of both Polymorphic Modifications of Silver Tellurate(IV) E. Tomaszewics, M. Kurzawa and T. Groń	265
Influence of * and * SiC Seeds on Microstructural Development and Mechanical Properties of Liquid Phase Sintered SiC with RE₂O₃ and AlN Additives M. Balog, P. Šajgalík, Z. Lenčes and F. Monteverde	273

Determination of the Content of Ferromagnetic and Diamagnetic Solid Fraction in Suspension and Solid Mixtures by SQUID System F. Boháková, I. Šimáček, A. Cigáň and J. Maňka	279
Polymorphism and Disorder in Pseudo-One-Dimensional Compounds AMTS₄ (A...NH₄, K; M...Cu, Ag; T...Mo, W). H. Boller, K.O. Klepp, G. Gутtenbrunner and C. Spindler	285
Substitution in Y_{1-x}Eu_xBa₂Cu₃O_{7-δ} and its Influence on Microstructure and Magnetic Properties A. Cigáň, J. Maňka, Š. Buchta, A. Koňakovský, F. Hanic and V. Zrubec	291
Substitution of Ti⁴⁺ for Cuⁿ⁺ in Yba₂Cu_{3-x}T_xO_{7-δ} F. Hanic, A. Cigáň, J. Briančin, I. Van Driessche, J. Maňka, Š. Buchta, E. Bruneel and V. Zrubec	297
Stabilization and Properties of High Temperature Forms of Zirconia F. Hanic, M. Hartmanová, F. Kundracik and E.E. Lomonova	303
Hydration of Portland Cement – Natural Zeolite Mortar in Water and Sulphate Solution I. Janotka and S.C. Mojumdar	309
The Effect of CuO on the Sintability and Dielectric Properties of CeO₂-TiO₂ Ceramics D.H. Kim, C. An, K. Bang, J.C. Kim and H.G. Lee	317
Preparation, Spectral Properties and Structures of Cu(L_N)_xNi(CN)₄ (L_N = N-methylated Derivates of 1,2-diaminoethane; x = 1,2) J. Kuchár, J. Černák, Z. Mayersová, P. Kubáček and Z. Žák	323
Synthesis and Crystal Structure of [Ni(phen)₃]₂[V₄O₁₂] · 7H₂O. R. Kucsera, R. Gyepes and L. Žúrková	329
Reactivity of FeVO₄ towards Zn₃(VO₄)₂ M. Kurzawa, A. Blonska-Tabero and I. Rychlowska-Himmel	335
Novel compound Zn₃V₂MoO₁₁ and the Reactivity of ZnMoO₄ towards Zn₂V₂O₇ in the Solid State M. Kurzawa and M. Bosacka	341
Synthesis and Characterization of New Compounds Ni₂CrV₃O₁₁ and Zn₂CrV₃O₁₁ M. Kurzawa, I. Rychlowska-Himmel, A. Blonska-Tabero, M. Bosacka and G. Dabrowska	347
A New Compound Mg₂CrV₃O₁₁ and Phase Relations in the MgV₂O₆ – MgCr₂O₄ System in the Solid State M. Kurzawa, I. Rychlowska-Himmel, M. Bosacka and G. Dabrowska	353
Substitutional Solid Solutions of Cr₂O₃ in Fe₄V₂Mo₃O₂₀ with a Limited Admixture Solubility M. Kurzawa, P. Tabero and E. Filipek	359
Macro-Defect-Free (MDF) Cements with High Moisture Resistance: Chemical, Thermal, SEM and Magnetometric Study S.C. Mojumdar, A. Ray, M. Drábik, A. Cigáň, F. Hanic and P. Capek	365
Crystal Growth of the Bi_{1-x}(Sr,Ca)_xMnO₃ Manganites M. Nevřiva, P. Beran, D. Sedmidubský, A. Strejc, J. Hejtmánek, C. Martin, O. Pérez, S. Malo and B. Raveau	371
Preparation of Leucite Based Materials M. Novotná, V. Šatava, D. Ležal, A. Kloužková and P. Kostka	377
Structural Properties of Co(III), Hg(II) and Pb(II) N-Ethyl-N-Phenyl-Dithiocarbamates and their Application in the Rubber Industry D. Ondrušová, M. Pajtášová, E. Jóna and M. Koman	383
A New Host for MnO₄³⁻: Synthesis and Characterisation of the NaCaV_{1-x}Mn_xO₄ System C. Owens and M.T. Weller	389
Ettringite & its Chromate Analogue, Structure and Thermal Stability M. Palou, J. Majling, M. Drábik and A. Ayadi	395
Effect of Low Level La(III) Doping on the Superconducting Bulk Tl-1223 System G. Plesch, A. Cigáň, J. Maňka, J. Kliment, F. Hanic, G. Gritzner, V. Zrubec and M. Koňakovský	401
Thermoelectric Oxide Materials and Characterisation Part 1. Aging Processes and High Temperature Stability J. Plewa, A. Mrotzek, E. Müller and H. Altenburg	405
Study of Organo-Modified Forms of Natural Zeolite of the Clinoptilolite Type M. Reháková, E. Chmielewska and S. Nagyová	411
Synthesis and Characterisation of Perovskite-Type Oxynitrides J. Rooke and M.T. Weller	417

Synthesis and Characterization of New Inorganic-Organic Hybrid Materials of the Cu(II)-Phenanthroline-Oxovanadate System P. Schwendt, D. Joniakova, R. Gyepes and Z. Mička	423
Structural and Phase Relations in the Sr-Mn-O System D. Sedmidubský, A. Strejc, M. Nevřiva, J. Leitner and C. Martin	427
Structural, Thermal and Dielectric Studies of the Solid Solution $\text{Ca}_{1-x}\text{Sr}_x(\text{Ti}_{1-x}\text{Li}_x)\text{O}_{3-3x}\text{F}_{3x}$ L. Taïbi-Benziada	433
Defect Structure and Ionic Transport in the MF₂-RF₃ (M = Ba, Sr; R = La - Lu, Y, Sc) Solid Solutions V. Trnovcová, N.I. Sorokin, P.P. Fedorov, L.S. Garashina, E.A. Krivandina and B.P. Sobolev	439
Synthetic Ion Exchange Materials and their Analytical Applications: Past, Present and Future D. Varshney	445
Effect of the RE & Sc Oxides Doping on the Properties of Melt Processed Bi-2212 Superconductor D.D. Zaytsev, P.E. Kazin, A.V. Vasiliev and Y.D. Tretyakov	451
Study of Anodic Oxide Layers by Electrochemical Impedance Spectroscopy (EIS) M. Zemanová, J. Hives and M. Chovancová	455
Control of Optical Properties of Adsorbed Cyanine Dyes via Negative Charge Distribution on Layered Silicates J. Bujdák, I.V. Iyin and T. Fujita	463
Reduction of the Negative Charge of Layered Silicates Probed by Cationic Azine Dyes. A. Czímerova, J. Bujdák and A. Gáplovsky	469
Thermal Behaviour of Layered Double Hydroxides Studied by Emanation Thermal Analysis V. Dorníček, V. Balek, F. Kovanda and E. Večerníková	475
Microwave Assisted Synthesis of Substituted Indoles Using Montmorillonite as Catalyst L. Jankovič and P. Komadel	481
Luminescent Material Based on SiO₂ Aerogel and 2 Hydroxy 1-(Morpholinovinylenoxy)-5-Nitrobenzene K. Jesenák, A. Gáplovsky, M. Lácová and L. Kuchta	487
Transition Metal Ions and their Interactions with Pyridine Derivatives in Some Layered Silicates and Clathrates E. Jóna, M. Kubranová, K. Nemčekova, D. Ondrušová and M. Pajtášová	491
Fixation of Li⁺ Cations in Montmorillonite upon Heating P. Komadel, J. Madejová, J. Hrobáriková, M. Janek and J. Bujdák	497
FTIR Study of Structural Modifications of Li-montmorillonites H. Pálková and J. Madejová	503
Process Controlled Thermal Synthesis of Nanostructured SrTiO₃ Powders L.A. Pérez-Maqueda and J.M. Criado	509
Layer Charge Modification by Mechanical Treatment of the Santa Olalla Vermiculite J.L. Pérez-Rodríguez, L.A. Pérez-Maqueda, J. Poyato and A. Lerf	515
Luminescent Hybrid Materials from Zeolites and Rare Earth Complexes D. Sendor, P. Junk and U.H. Kynast	521
Magnetic Nanoparticles Stabilized in Layered Double Hydroxides K.A. Tarasov, V.P. Isupov, M.M. Yulikov, A.E. Yermakov and D. O'Hare	527
The Influence of Re and Fluorides Based Precursor Thin Film on Morphology and Microstructure of Hg-based Cuprate Films Š. Chromik, G. Plesch, V. Štrbík, P. Odier and D. De Barros	535
Pulsed Laser Deposition of Inorganic and Organic Thin Films for Active Layers of Ozone Sensors R. Fryček, V. Myslík, M. Vrnáta, F. Vysloužil, M. Jelínek and T. Kocourek	541
Electrical Properties of SnO₂ and SnAcAc Based Gas Sensors – DC and AC Measurements M. Kovanda, V. Myslík, M. Vrnáta, Z. Rozehnal, F. Vysloužil and P. Fitl	547
Ultrasonic Spray Pyrolysis for Powder Synthesis V. Kozhukharov, N. Brashkova, M. Machkova, J. Carda and M. Ivanova	553

Erbium Medium Temperature Localised Doping into Lithium Niobate and Sapphire: A Comparative Study P. Nekvindová, A. Machková, V. Peřina, J. Červena, P. Čapek, J. Schröfel, J. Špírková and J. Oswald	559
New Spinel-Based Manganites Used in Thick-Film NTC Thermistors R. Okhrymovych, O.I. Shpotyuk, I. Hadzaman, J. Plewa and H. Altenburg	565
The Effect of (Ba/Sr) Substitution on Tl-Based Superconducting Thin Films Prepared from Fluoride Precursors G. Plesch, Š. Chromik, V. Štrbík, M. Kunc, M. Jergel and I. Kostič	571
Lithium Migration Based Fabrication of Few-Modes Planar Glass Waveguides L. Salavcová, P. Nekvindová, J. Červena, A. Langrová, V. Drahoš and J. Špírková	577
Study of MgB₂ Superconducting Thin Films Properties by Tunneling Spectroscopy L. Satrapinsky, A. Plecenik, P. Kůš, V. Jacko, M. Gregor, A. Halabica, M. Hain, Y. Xu and R. Sobolewski	583
The Influence of SrTiO₃/Si Interface Treatment by Sr and Ti on Structural Properties of SrTiO₃ Thin Films M. Španková, Š. Chromik, K. Sedláčková, I. Vávra, Š. Gaži and P. Kůš	589
Redox-Composited Polymer Coatings on Carbon Paper Electrodes and their Suitability for Use within Solid-State Super Capacitors A.M. White and R.C.T. Slade	595
The Influence of Ti Surface Layer on Pt/(Ge or Sn)/Pd/Ti-GaAs Interface J. Zlámal, V. Myslík and P. Macháček	601