

Table of Contents

Preface, Organizers, Committees

1. SYNTHESIS OF NANOPOWDERS

Vapour Phase Synthesis of Nanocrystalline In Situ YAG:Ce	5
H. Paul, H. Kaps, T. Gleich, V. Raeesi, U. Herr and M. Zachau	7
Synthesis of Nano-Powder Materials Using Spray-Pyrolysis Method	
B. Górnicka, B. Mazurek, W. Mielcarek, K. Prociów and J. Warycha	13
Microwave-Assisted Hydrothermal Synthesis as a Rapid Route Towards Manganite Preparation	
A. Rizzuti, M. Viviani, A. Corradi, P. Nanni and C. Leonelli	21
Growth and Properties of Ytterbium Doped KY(WO₄)₂ Nanocomposites	
M.T. Borowiec, A. Deptuła, W. Łojkowski, S. Gierlotka, V. Dyakonov, W. Łada, T. Olczak, D. Wawszczak, P. Aleshkevych, W. Domuchowski, T. Zayarnyuk, M. Barański, M. Czech and H. Szymczak	25
Synthesis Improvement of Yb³⁺-Activated SnO₂ Nanocrystals	
E. Callone, G. Carturan, Y. Jestin and M. Ferrari	31
Optimization of Conditions of Preparation of YAG Nanopowders for Sintering of Translucent Ceramics	
T. Chudoba, M. Teyssier and W. Łojkowski	41
The Effects of Oxidized and Oxide-Free Boron on the Mg-B-H Nanohydrides Transformation in the Nearly Nanosized Powders	
R.A. Varin, C. Chiu, Z.S. Wronski and A. Calka	47
Comparative Analysis of ZnS:Mn²⁺ Nanophosphors Prepared by Hydrothermal and Low Temperature Precipitation Methods	
J.H. Park, S.H. Lee, J.S. Kim, T.W. Kim and H.L. Park	53

2. CHARACTERISATION OF NANOPARTICLE STRUCTURES

Doping and Characterisation of Nanocrystalline Materials	59
T. Wichert and Z. Guan	61
Nanocomposite Powders by Evaporation Driven Self Assembly During Spray Drying: Some New Insights on the Structure Modifications	
D. Sen, O. Spalla and A. Thill	73
Ceria-Zirconia Nanoparticles Doped with La or Gd: Effect of the Doping Cation on the Real Structure	
V. Sadykov, V.V. Kriventsov, E.M. Moroz, Y.V. Borchert, D.A. Zyuzin, V.P. Kol'ko, T.G. Kuznetsova, V.P. Ivanov, S.N. Trukhan, A.I. Boronin, E.M. Pazhetnov, N.V. Mezentsseva, E.B. Burgina and J.R.H. Ross	81
Metastabilization of Tetragonal Zirconia by Doping with Low Amounts of Silica	
A. Adamski, P. Jakubus and Z. Sojka	89
Particle Size Distribution of ZrO₂:Pr³⁺ – Influences of pH, High Power Ultrasound, Surfactant and Dopant Quantity	
S. Möller, J.D. Fidelus and W. Łojkowski	97
The Effect of Yttrium and Indium Doping on the Structure and Electrical Properties of Zinc-Ferrite Nanoparticles	
M. Maletin, E.G. Moshopoulou, S. Jankov, S. Rakic and V.V. Srdic	101
Effects of Thermal Treatment on the Structure of Eu:YAG Nanopowder	
M.L. Saladino, E. Caponetti and S. Enzo	107
Evaluation and X-Ray Induced Modification of the Cerium Oxidation State in Cerium Calixarene Complexes	
Y. Suchorski, J. Gottfriedsen, R. Wrobel, B. Strzelczyk and H. Weiss	115

3. CHARACTERISATION OF OPTICAL PROPERTIES

121

Luminescence of Doped Nanoparticles of Wide Band Gap II-VI Compounds

M. Godlewski, S. Yatsunenko, M. Zalewska, A. Klonkowski, T. Strachowski and W. Łojkowski 123

The Luminescence Properties of ZnO:Al Nanopowders Obtained by Sol-gel, Plasma and Vaporization-Condensation Methods

L. Grigorjeva, D. Millers, K. Smits, C.J.A. Monty, J. Kouam and L. El Mir 135

Zirconia Based Nanomaterials for Oxygen Sensors – Generation, Characterisation and Optical Properties

J.D. Fidelus, W. Łojkowski, D. Millers, L. Grigorjeva, K. Smits and R.R. Piticescu 141

The Influence of ZrO₂ Containing 10% Eu³⁺ on the Polyurethane Hard Domain Structure in Nanocomposites with Luminescence Properties

J. Ryszkowska, E. Zawadzak, P. Zapart, W. Łojkowski, A. Opalińska and K.J. Kurzydłowski 151

Host Size Effects on Optical Properties of Y₂O₃:Eu³⁺ and Gd₂O₃:Eu³⁺ Nanoparticles Synthesized by Laser Pyrolysis

G. Ledoux, Y. Leconte, D. Amans, C. Dujardin, L. Combemale, N. Herlin-Boime and C. Reynaud 157

Concentration Dependent Fluorescence Lifetime in Nanocrystalline Y₂O₃:Eu Phosphors

H. Kaps, M.L. Arefin, U. Herr and H. Paul 165

Time-Resolved Luminescence Characteristics of Cerium Doped YAG Nanocrystals

V. Pankratov, L. Grigorjeva, D. Millers, T. Chudoba, R. Fedyk and W. Łojkowski 173

Optical Properties of ZnS:Mn²⁺ Yellow Nanophosphor Prepared by Spray Pyrolysis

S.H. Lee, J.H. Park, J.S. Kim, T.W. Kim and H.L. Park 179

4. CHARACTERISATION OF MAGNETO-ELECTRICAL PROPERTIES

185

Effect of the A-Site Randomness on Magnetotransport Properties of PrBaMn₂O₆ Manganites

S.V. Trukhanov, I.O. Troyanchuk, A.V. Trukhanov and H. Szymczak 187

FMR Study of Carbon Coated Cobalt Nanoparticles Dispersed in a Paraffin Matrix

M. Soboń, I.E. Lipiński, J. Typek, A. Guskos, U. Narkiewicz and M. Podsiadły 193

Spectroscopic and Magnetic Properties of Gadolinium Macroacyclic and Macrobicyclic Complexes

G. Leniec, S.M. Kaczmarek, J. Typek, B. Kołodziej, E. Grech and W. Schilf 199

Magneto-Chemical Properties of Some New Ni and Co Rare-Earth Metal Tungstates

A. Worsztynowicz, S.M. Kaczmarek and E. Tomaszewicz 207

Temperature Dependence of the FMR Spectra of Polymer Composites with Nanocrystalline α -Fe/C Filler

N. Guskos, M. Maryniak, J. Typek, I. Pelech, U. Narkiewicz, Z. Rosłaniec and M. Kwiatkowska 213

Revisiting Local Electric Fields on Close-Packed Metal Surfaces: Theory Versus Experiments

P.P. Kostrobij, B.M. Markovych and Y. Suchorski 219

High Throughput Screening of the Sensing Properties of Doped SmFeO₃

M. Siemons and U. Simon 225

5. CATALYTIC PROPERTIES

237

Pt-Supported Nanocrystalline Ceria-Zirconia Doped with La, Pr or Gd: Factors Controlling Syngas Generation in Partial Oxidation/Autothermal Reforming of Methane or Oxygenates

V. Sadykov, N.V. Mezentseva, G.M. Alikina, A.I. Lukashevich, Y.V. Borchert, T.G. Kuznetsova, V.P. Ivanov, S.N. Trukhan, E.A. Paukshtis, V.S. Muzykantov, V.L. Kuznetsov, V.A. Rogov, J.R.H. Ross, E. Kemnitz and C. Mirodatos 239

Catalytic Decomposition of Ethylene on Nanocrystalline Cobalt

U. Narkiewicz, M. Podsiadły, I. Pelech, W. Arabczyk, M.J. Woźniak and K.J. Kurzydłowski 249

Catalytic Activity for Methane Flameless Combustion and Thermal Stability of Nano-Sized Lanthanum Cobaltites Doped with Ce, Pr and Tb

A.Y. Kryukov, A.V. Vishniakov, C. Oliva and L. Forni

255

Multi-Wall Carbon Nanotubes as a Support for Platinum Catalysts for the Hydrodechlorination of Carbon Tetrachloride and Dichlorodifluoromethane

M. Bonarowska, K.N. Lin, M. Legawiec Jarzyna, L. Stobinski, W. Juszczak, Z. Kaszkar, Z. Karpiński and H.M. Lin

261