

Table of Contents

Preface and Committees

SECTION I – POWDER SYNTHESIS AND CHARACTERIZATION

Boron Nitride Nanoparticles: One-Step Synthesis from Single-Source Preceramic Precursors

S. Bernard, V. Salles, S. Foucaud and P. Miele 1

Flame Synthesis of Ceramic Particles

Y. Takao 8

Synthesis of Ceramic Materials from Waste Residues

S. Portofino, S. Galvagno, A. De Girolamo Del Mauro and E. Calò 16

Production of Nanopowders with the Help of Fiber Laser

M. Ivanov, Y. Kotov, O. Samatov, O. Timoshenkova and T. Demina 22

A New Powder Filler, Obtained by Applying a New Technology for Fly Ash Inertisation Procedure

E. Bontempi, A. Zacco, L. Borgese, A. Gianoncelli, R. Ardesi and L.E. Depero 27

Microstructural Tailoring of YAG and YAG-Containing Nanoceramics through Advanced Synthesis Routes

P. Palmero 34

Ceramic Matrix Composites in the Alumina/YAG System

R. Lach and K. Haberko 44

Solvothermal Synthesis of ITO Nanoparticles Precisely Controlled in Size and Shape

A. Muramatsu, T. Sasaki, Y. Endo, Y. Doi and K. Kanie 50

La_{1.97}Sr_{0.03}Zr₂O₇ Pyrochlore Powder for Advanced Energy Application

Y. Chen, N. Orlovskaya, N. Miller, H. Abernathy, D. Haynes, D. Tucker and R. Gemmen 56

Microemulsion Synthesis Strategies for ZrW₂O₈ Precursors

İ. Vural, N. Khazeni, B. Mavis, G. Gündüz and Ü. Çolak 61

Synthesis of Scandium Oxide Nanoparticles from Solution

N. Poirot, P. Boy, P. Belleville and L. Bianchi 70

Elaboration and Mechanical Characterization of Al₂O₃-ZrO₂-YAG Ultrafine Composites

P. Palmero, V. Naglieri, G. Spina and L. Montanaro 76

Effects of Firing Temperature and Time on the Luminescence of Phosphors in Strontium Aluminate System Co-Doped by Eu₂O₃ and Dy₂O₃ and Prepared by Solid State Reaction Processing

S. Yesilay Kaya, B. Karasu, G. Kaya and E. Karacaoğlu 82

Influences of Eu²⁺ and Dy³⁺ Contents on the Properties of Long Afterglow Strontium Aluminate Phosphors

S.Y. Kaya, B. Karasu, G. Kaya and E. Karacaoğlu 88

Synthesis and Luminescence Properties of Rare-Earth Doped Gadolinium Silicon Oxynitride with Cuspidine Structure

S. Mihara, K. Yamaguchi, H.T. Hintzen, A.C.A. Delsing, S. Koda and K. Itatani 95

Preparation and Characterization of New Oxyfluoride Phases (Ba,Na)(Ti,Mg)(O,F)

D. Talantikite-Touati and L. Benziada 101

The Isothermal and Non-Isothermal Crystallization Kinetics La₂O₃ Doped, Sol-Gel Derived Mullite

V. Mandić, E. Tkalec and S. Kurajica 107

Sol-Gel Synthesis Assisted by Supercritical CO₂ - A Flexible Process for Ceramic Powder and Membrane Preparation

A. Hertz, V. Durand, S. Sarrade, C. Guizard, A. Julbe, J. Ruiz and F. Charton 113

Production of Foundry Filters Using Al₂O₃ from the Al-Anodizing Process

G.G. de Moraes, B.G. Oliveira, C. Siligardi, M.D.d.M. Innocentini, A.A.M. Oliveira Jr., J.B.R. Neto, D. Hotza and A.P.N. de Oliveira 119

Synthesis and Characterization of Al₂O₃(Matrix)-30%ZrO₂ and Al₂O₃(Matrix)-30%Y_{0.1}Zr_{0.9}O₂ Nanocomposites

V. Sirota, R. Lyubushkin, M.G. Kovaleva and O. Maradudina 125

SECTION II – SHAPE FORMING AND COMPACTION MECHANISMS

Theoretical and Experimental Analyses of Colloidal Processing of Nanoparticles Y. Hirata, K. Matsushima, S. Baba, N. Matsunaga and S. Sameshima	131
Influence of Energy Input on Suspension Properties A. Meyer, K. Lenzner and A. Potthoff	141
Improving the Porosity Features Control of Ceramic Cellular Components through a Modified Gelcasting Process M. Lombardi, S. Meille, J. Chevalier and L. Montanaro	147
Influence of Different Suspension Properties on Internal Structure and Deformation Behavior of Spray Dried Ceramic Granules S. Eckhard and M. Fries	157
New Low Toxic Water-Soluble Monomers for Gelcasting of Ceramic Powders M. Szafran, A. Szudarska and P. Bednarek	163
Saccharides Derivatives in Shaping of Ceramic Powders – New Monomers and Dispersants P. Bednarek, M. Szafran and T. Mizerski	169

SECTION III – SINTERING AND RELATED PHENOMENA

Pulsed Electric Current Sintering of Electrical Discharge Machinable Ceramics J. Vleugels, O. Malek, K. Vanmeensel, S.G. Huang, S.L. Ran, O. Van der Biest and B. Lauwers	175
Reactive Spark Plasma Sintering of Si_3N_4 Based Composites Z. Taslicukur, F.Ç. Şahin, G. Göller, Y. Onüralp and N. Kuskonmaz	185
Modelling Multi-Cracking in Thin Films during Constrained Sintering Using Anisotropic Constitutive Law and Material Point Method F. Li and J.Z. Pan	191
Simultaneous Synthesis and Sintering of $\text{Al}_2\text{O}_3/\text{Mo}_2\text{N}$ Composites Using Capsule-Free Nitrogen Hot Isostatic Pressing and their Characterization H. Ken, T. Katsuya, M. Yasushi and K. Masaki	197
Numerical Modeling and Experimental Characterization of the Pyroplasticity in Ceramic Materials during Sintering P. Bene, D. Bardaro, D. Bello and O. Manni	203
Description of Carbides Sintering Process Using Kuczynski and Frenkel Sintering Models A. Gubernat	209
The Rapid Automated Materials Synthesis Instrument (RAMSI): A High Throughput Combinatorial Robot for Nanoceramics Discovery T. Lin, S. Kellici, K.N. Gong, K. Thompson and J.A. Darr	215
Effect of the Two-Step Sintering in the Microstructure of Ultrafine Alumina A.S.A. Chinelatto, M.K. Manosso, E.M.J.A. Pallone, A.M. Souza and A.L. Chinelatto	221
Enhanced Densification and Grain-Size Refinement in Cation-Doped Tetragonal Zirconia K. Hiraga, H. Yoshida, K. Morita and B.N. Kim	227
Synthesis and Sintering of Mullite Ceramics Using Microwave Heating T. Ebadzadeh and H. Barzegar-Bafroei	232
Low-Temperature Sintering of Apatite-Type Lanthanum Silicate with Fluoride Additives J. Takahashi, H. Honda, T. Akashi, K. Abe, H. Itoh and M. Kishi	235