

Table of Contents

Sponsors, Committees, Preface

Ceramics

Investigation of Curing Process on Melt Spun Polymethylsilsesquioxane Fiber as Precursor for Silicon Oxycarbide Fibers M. Narisawa, R. Sumimoto, K. Kita, H. Mabuchi, Y.W. Kim, M. Sugimoto and M. Yoshikawa	1
Synthesis of SiC Based Fibers with Continuous Pore Structure by Melt- Spinning and Controlled Curing Method K. Kita, M. Narisawa, H. Mabuchi, M. Itoh, M. Sugimoto and M. Yoshikawa	5
Effect of Nd_2O_3 and Sm_2O_3 on the Microstructure and Electrical Properties of WO_3 Capacitor-Varistor Ceramics T.G. Wang, G.Q. Shao, W.J. Zhang and X.B. Li	9
The Effect of Particle Morphology and Particle Size Distribution on the Property of Slip Casting SiC M.J. Deng, Q.D. Wu, X.L. Ji, N. Li and C.S. Hua	13
Preparation and Thermoelectric Properties of Bi-Doped Mg_2Si Nanocomposites M.J. Yang, W.J. Luo, Q. Shen, H.Y. Jiang and L.M. Zhang	17
The Effect of Water-Soluble Plasticizer on Barren Raw Material Hard Plastic Extruding Course X.L. Ji, L. Wei, Q.D. Wu and F. Xu	21
Stoichiometric Controlling of Spark Plasma Sintered Boron-Carbon Ceramics S. Zhang, C.B. Wang, Q. Shen and L.M. Zhang	25
Optimal Design for Ceramic Radomes with A-Sandwich Structure Q.W. Liu, F. Chen, Q. Shen and L.M. Zhang	29
Effect of Bi Doping on the Thermoelectric Properties of $\text{Mg}_2\text{Si}_{0.5}\text{Sn}_{0.5}$ Compound W.J. Luo, M.J. Yang, Q. Shen, H.Y. Jiang and L.M. Zhang	33
Effect of CaO on Sintering and Crystallization of $\text{CaO-Al}_2\text{O}_3\text{-SiO}_2$ System Phosphorus Slag Glass-Ceramic J.S. Cheng, H.G. Qiu and L.Y. Tang	37
Reinforcement of B_4C Ceramics with Multi-Walled Carbon Nanotubes F. Zhang, Z.Y. Fu, J.Y. Zhang, H. Wang, W.M. Wang and Y.C. Wang	41
Damping Properties and Mechanism of 0-3 PMN/CB/EP Composites M.X. Shi, Z.X. Huang, T. Wei and L.M. Zhang	45
Field-Assisted Isothermal Oriented Crystallization of $\text{SrO-TiO}_2\text{-SiO}_2$ Polar Glass-Ceramics H.C. Wang, Q.M. Liu and J.S. Cheng	49
Structure and Property of Ti-Al-C/TiB_2 Composite Ceramics X.M. Min, G. Xu and B.C. Mei	53
Synthesis, Characterization and Catalytic Properties of $\text{La}_4\text{BaCu}_{5-x}\text{Ni}_x\text{O}_{13+\delta}$ ($x=0, 1, 2, 3, 4, 5$) X.H. Huang, H. Chen and T.T. Wu	57
Oxidation of $\text{ZrB}_2/\text{ZrO}_2$ and $\text{ZrB}_2/\text{ZrO}_2/\text{SiC}$ Ceramics H.P. Yuan, J.R. Song, J.G. Li, Q. Shen and L.M. Zhang	61
Molten Salt Synthesis and Photoluminescence of $\text{YVO}_4\text{:Eu}$ Microcrystalline Phosphors Y.J. Liang, R. Liu, W.S. Yan and X.Y. Wu	65
Synthesis, Characterization and Electromagnetic Wave Absorption Properties of Z-Type Hexaferrites Prepared by Molten Salt Method H.F. Li, R.Z. Gong, L.R. Fan, G. He and X. Shen	69
Carbothermal Reduction and Nitridation Synthesis of $\gamma\text{-AlON}$ Powder under High Heating Rate D. Peng, H. Wang, W.M. Wang, Y.C. Wang and Z.Y. Fu	73
Synthesis of Ultra-Fine ZrB_2 Powder by Borothermal Reaction under High Heating Rate G. Sun, H. Wang, W.M. Wang, Y.C. Wang and Z.Y. Fu	77
Microstructure and Properties of Mulite-FeCr Multifunctional Composite H. Wang, W.M. Wang and Z.Y. Fu	81

Effect of Sintering Temperature on the Properties of Porous Silicon Nitride Ceramics L. Li, Y. Li, H.L. Yu, F. Chen, H.S. Wang and H.Y. Jiang	85
Effects of Coated Nano-BN Particles on Microstructure and Properties of BN-AlN Composite M.J. Li, Q. Shen, F. Chen, L.M. Zhang and L.F. Yao	89
Erosion Resistance of $\text{Al}_2\text{TiO}_5/\text{Al}_2\text{O}_3$ Composites to Molten Aluminum M.Z. Li, Y. Hu, F. Chen, Q. Shen and L.M. Zhang	93
Fabrication of Indium Tin Oxide Targets by Spark Plasma Sintering and Hot-Pressing Sintering W. Guo, W.M. Wang, H. Wang, Y.C. Wang and Z.Y. Fu	96
Superfast Sintering of Nanocrystalline Y_2O_3 Ceramics X. Zheng, Z.Y. Fu, J.Y. Zhang, W.M. Wang, H. Wang, Y.C. Wang, S.W. Lee and K. Niihara	100
Low-Temperature Sintering and Microwave Dielectric Properties of the Zn_2SiO_4 Ceramics Y. Dai, Y. Sun and W. Chen	104
Thermal Shock-Resistance Performance of $\text{Al}_2\text{TiO}_5/\text{Al}_2\text{O}_3$ Composites Y. Hu, M.Z. Li, Q. Shen and W.P. Xu	108
Effect of LaCl_3 on the Properties of LAS Ceramics Y. Li, X.L. Zhang, L. Li, H.S. Wang and H.Y. Jiang	112
Preparation of Fine Mullite Powder in a SHS Chemical Furnace System Y. Yang, Y.C. Wang, Z.Y. Fu, W.M. Wang, H. Wang and J.Y. Zhang	115

Low Dimensional Materials

Investigation of Bipolar Resistance Switching Properties in SrTiO_3 Thin Films with Symmetric Electrodes Structure W.D. Yu, X.M. Li, Y.W. Zhang, R. Yang, Q. Wang and L.D. Chen	119
The Effect of Oxygen Annealing on the Resistance Switching Properties of the $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ Films R. Yang, X.M. Li, W.D. Yu, X.J. Liu and Q. Wang	127
Fabrication and Resistance-Switching Behaviors of NiO Thin Films by Thermal Oxidation of Evaporated Ni Films X. Cao, X.M. Li, W.D. Yu, R. Yang and X.J. Liu	131
Synthesis of Metastable Tungsten Carbide Nanoparticles by Mechanochemical Alloying Process G.L. Tan	135
The Rheological Characterization of the Writing Performance of Carbon Black Gel Ink J.J. Qian, A.P. Chen, Z.X. Liu and C.Z. Li	139
Effect of Surfactant on the Properties of Gel Ink Z.X. Liu, A.P. Chen, J.J. Qian and H. Shen	143
Nickel Induced Lateral Crystallization of Amorphous Silicon Film by Electroless Planting W. Li, D.L. Xia, M.X. Song, Z.Z. Zhang, J.M. Ni and X.J. Zhao	147
Study on the Oxidation Resistance of 316 Stainless Steel Nano-Powder Prepared by Ball-Milling Method W.Y. Chen, J. Zhou and Y. Liu	151
Controlled Growth of SnO_2 Micro/Nanocrystals with Different Morphologies via a Solution Method T.K. Jia, W.M. Wang, Z.Y. Fu, F. Huang and H. Wang	155
Synthesis and Characterization of Silver Nanowires by Solvothermal M.X. Song, J.Y. Feng, W. Li, Q. Hu, Z.Z. Zhang, B.F. Liu and X.J. Zhao	159
Thermal Decomposition and Flame Retardance Behavior of Nanometer Magnesium Oxychloride Crystal Salt Involved in SMC J. Li, Z.X. Huang and Y. Zhao	163
Structure and Up-Conversion Luminescence Properties of $\text{Er}^{3+}\text{-Yb}^{3+}\text{Co-Doped TiO}_2$ Nanocrystals Prepared by Sol-Gel Method Z.Z. Zhang, J.H. Zhang, W. Zhou, M.X. Song, W. Li, Q. Hu and X.J. Zhao	167
Controlled Synthesize of BaTiO_3 Nanoparticles and BaCO_3 Nanowires through the Reverse Micelle System Z. Deng, Y. Dai and W. Chen	171

Effect of Processing Parameters on the Microstructure of Silicon Nitride Coatings by Chemical Vapor Deposition	175
J.L. Li, F. Chen, J.Y. Niu and H.Y. Jiang	
Graphitic N-Free/N-Doped Nanostructured Carbon Molecular Sieves via CVD Method and their Hydrogen Storage	179
C.X. Zhao, Y.X. Yang, W. Chen, D.Y. Zhao, H.T. Wang and P. Webley	
Laser Energy Dependent Structure of Pulsed Laser Deposited Barium Dtitanate Films	183
L. Li, C.B. Wang, Q. Shen and L.M. Zhang	
Synthesis and Performance of Nanocrystalline 5083 Aluminum Alloy Powders by Cryomilling	187
X.H. Ma, W.M. Wang, H. Wang, Y.C. Wang and Z.Y. Fu	
Preparation of the Boron Nitride Fibers by Chemical Reaction	191
Z.Q. Cheng, H.L. Yu, L. Li, Y. Li, X.L. Zhang and H.Y. Jiang	
 Materials with Designed Structure	
(TiB₂)pNi/Ni₃Al/Metals Graded Materials Prepared by the Field-Activated and Pressure-Assisted Combustion Process	194
Q.S. Meng, S.P. Chen, Q.L. Wang and Z.A. Munir	
Impact of Carbon Nanotube Aspect Ratio and Dispersion on Epoxy Nanocomposite Performance	198
S.Z. Shen, S. Bateman, C. Huynh, M. Dell'Olio, S. Hawkins, W.D. Yang, Q.Y. Yang and K.F. Cai	
Preparation and Characterization of Pt/YSZ Composite Electrode	202
Z. Luo and J.Z. Xiao	
Laser Cladding of Zr_{52.5}Cu_{17.9}Ni_{14.6}Al₁₀Ti₅/TiC Composite Coating on AZ91D Magnesium Alloy for Improvement of Wear Resistance	206
K.J. Huang, C.S. Wang and C.S. Xie	
A New Process for Highly Effective Utilization of Industrial Solid Wastes — Sialite Technology	210
Z.L. Yi, H.H. Sun, J.H. Wan and C. Li	
Study on Low-Temperature Sintering of Microwave Dielectric Ceramics by Sol-Coating Method	214
J.M. Xu, Z.M. Jin and H.J. Gao	
Synthesis of Carboxylic Acids Intercalated Mg-Al Layered Double Hydroxides by a Modified Reconstruction Method	218
W.D. Yang, S. Li, D.Y. Wu, M. Spicer, V. Gutowski and S.Z. Shen	
Effect of Hydrogen Peroxide on TiB₂-Based Materials	222
F. Huang, Z.Y. Fu, A.H. Yan, T.K. Jia, W.M. Wang, H. Wang, Y.C. Wang and J.Y. Zhang	
Preparation and Characterization of the Coated ZrB₂ @ ZrO₂ Ceramic	226
J.R. Song, Q. Shen, J.G. Li and L.M. Zhang	
Preparation and Characterization of Polyaniline/PMN Composite by <i>In Situ</i> Polymerization Method	230
T. Wei, Z.X. Huang, G.R. Yang and M.X. Shi	
Dielectric Properties of PMN/CB/CIIR Composites	234
H. Yan, Z.X. Huang and Y.B. Wang	
The Effect of Particle Size on the Electromechanical Properties of PZT/PVDF	238
X.F. Liu, H.J. Sun, M. Wei and C.X. Xiong	
Preparation of TC4-LY12 Joint by Vacuum Diffusion Welding	242
H. Zeng, G.Q. Luo, Q. Shen, C.B. Wang and L.M. Zhang	
Fabrication of Mg-W System FGM with Density Gradient by Hot-Press Sintering	246
Q.Q. Wei, G.Q. Luo, Q. Shen and L.M. Zhang	
Quasi-Isentropic Compression Characters of Flier-Plates with Graded Impedance	250
C.B. Wang, Q. Shen and L.M. Zhang	
Influence of Buffer Layers on the Structure and Optical Properties of Na-Doped ZnO Thin Films Prepared by Sol-Gel Method	254
D.Y. Wang, J. Zhou and G.Z. Liu	
Preparation of ZrC Powder by Self-Propagating High-Temperature Synthesis	258
J. Li, Z.Y. Fu, J.Y. Zhang, H. Wang, W.M. Wang, Y.C. Wang and Y.B. Cheng	

Preparation of Mg-Cu Composite by Tape Casting and Hot-Pressing J. Li, G.Q. Luo, Q. Shen and L.M. Zhang	262
Numerical Simulation of Dominating Control Factors of Thermal Protection FGM's Effective Thermal Conductivity Q.W. Liu, B. Zhang and L.M. Zhang	266
Spark Plasma Sintering Process of Fe-6.5%Si Alloy from Fe and FeSi Powders X. Zhang, J.G. Li, Q.Q. Qi and L.M. Zhang	270
Study on Electrical Properties of Carbon Fiber Reinforced Cement Paste with CCCW X.M. Fan, X. Dong, M.Q. Sun and Z.Q. Li	273
The Effect of Surface Hydroxyl Groups on the Properties of SR/Al₂O₃ Composites Y.L. Xiong, Q. Shen, F. Chen, J. Zheng and L.M. Zhang	277
Synthesis of Co₂O₄ Microspheres by Hydrothermal-Precipitation for Electrochemical Supercapacitors Z.J. Yu, Y. Dai and W. Chen	280
Preparation and Characterization of Novel Functional Gradient Syntactic Foam Z. Chen, Y. Qin, Z.X. Huang, Q. Shen and L.M. Zhang	284
Effect of Sintering Schedule on the Microstructure of Carbon Nanotubes Reinforced Alumina Fabricated by SPS Method L.W. Huang, Z.Y. Fu, J.Y. Zhang, W.M. Wang, H. Wang, Y.C. Wang, K. Niihara and S.W. Lee	288