

Table of Contents

Preface

v

Chapter 1: Powder Synthesis and Characterization

Influence of Sulfate Ion on Phase and Dispersion of $Y_3Al_5O_{12}$ Nanopowders with the Co-Crystallization Method

M.M. Hao, Z.Q. Zeng, G.F. Fan, X.H. Wang, W.Z. Lu and F. Liang 3

Effect of Ammonia on CeO_2 Microspheres Prepared by Internal Gelation Process

X.Q. Ding, J.T. Ma, X.Y. Zhao, S.C. Hao, C.S. Deng and G.X. Li 9

Research on the Densification Process of the Mechanically-Alloyed Amorphous 2Si-B-3C-N Powder

P.F. Zhang, D.C. Jia, B. Yang and G.X. Wang 15

Preparation and Characterization of SiC Nanoparticles for ATF-FCM

Z. Chen, R.Z. Liu, J.X. Chang and M.L. Liu 22

Fabrication and Characterization of Li_4SiO_4 Ceramic Pebbles Doped with Y_2O_3 and Nb_2O_5

M. Wang, M.Q. Xiang and Y.C. Zhang 28

Oxidation Behavior of β -Sialon Ultrafine Powders Prepared by the Combined Sol-Gel and Microwave Carbothermal Reduction Nitridation Method

F.L. Li, F. Fu, L.L. Lu, H.J. Zhang and S.W. Zhang 34

Effect of the Synthesis Method on the Properties of Ultrafine YAG Powder

J.G. Song, L. Chen, C.L. Pang, J. Zhang, X.Z. Wang, Y. Liu, X.L. Zhang, S.L. Guo and M.H. Xu 40

Effect of Synthetic Technology on the Properties of Co_2O_3 Powder

G. Xiong, H.M. Sun, X. Yang, J.S. Li, M.H. Chen, J.G. Song, L. Chen, A.X. Chen and C. Yang 46

Preparation of Zirconium Sol by Precipitation Method

L. Li, Y.Y. Song, G.R. Geng and F.T. Liu 52

Preparation of Al_2O_3 -SiC Composite Powder by Carbothermal Reduction of Coal Gangue and its Influence on Properties of Blast Furnace Stemming

Q. Wang, L.N. Zhang, X. Min, M.H. Fang, X.W. Wu, Y.G. Liu and Z.H. Huang 58

Preparation of Spherical Silica with Controllable Size

S.L. Wang, Z. Wang, B.H. Li and M. Xu 65

Fabricating Uniform Tetragonal Barium Titanate Nanocrystals via Sand Milling Assisted by an Innovative Two-Step Calcination

Q.C. Zhao, X.H. Wang, J.Y. Kim, H. Zhang, H.L. Gong, B.C. Luo and L.T. Li 71

The Microstructure and Growth Behavior of $Bi_2Fe_4O_9$ Superfine Particles Synthesized by Hydrothermal Method

H.P. Song, Q. Sun and Y.Y. Wang 78

Preparation of β'' -Alumina with η Type Nanometer Alumina Powder via Solid Phase Synthesis

C. Zhang, L. Zhang, Y.A. Chang and J.H. Liu 84

Chapter 2: Oxide Ceramics and Composites for Structural Applications

The Effect of Dispersion Method on the Mechanical Properties of Graphene

Reinforced Alumina Composites

L. Wang, J.Q. Bi, W.L. Wang, X.X. Hao, X.C. Gao and W.K. Yan 93

Effect of WO_3 on the Performances of Cordierite Ceramics Synthesized by Using Kyanite as Raw Materials

M.L. Qin, X.T. Wang, Z.F. Wang, Y. Ma and H. Liu 99

Improvement of Thermal Stability of ZrO_2 - SiO_2 Aerogel Modified by Ca(II) Cations

H.Y. Zhao, X.L. Li, J. He, Z.P. Hu and H.J. Yu 105

The *In Situ* Preparation of $MgAl_2O_4$ /YAG Eutectic Composites by Reaction Sintering Using Induction Heating

H. Xu, X.T. Wang, Z.F. Wang, Y. Ma and H. Liu 111

Corrosion of $MgAl_2O_4$ Spinel with Different Al_2O_3 Contents in Iron-Containing Gasifier Slag

H.G. Sun, H.X. Li and W.B. Jiao 118

Fabrication of MgO /Graphene Composites by Combustion Synthesis and Spark Plasma Sintering

N. Lu, J.X. Liu, G. He and J.T. Li 125

Preparation and Properties of Phase Change Thermal Insulation Materials

S.C. Zhang, W. Wu, Y.F. Chen, L.S. Tao, K. Fang and X.K. Sun 131

Rheological Behaviors of Calcium Aluminate Cement-Hydratable Alumina Bonded Corundum-Spinel Castables Suspensions with Different Dispersants

M.F. Cai, Y.H. Liang, Y.C. Yin, J.H. Nie and Y.L. Guo 137

Potash Erosion Resistance of Chromium-Containing Materials

Q. Luo, H.Z. Gu, A. Huang and M.J. Zhang 144

Preparation of Lightweight Mullite-Anorthite Refractories by Different Routes

D.Y. Zhang, L. Qu and W.J. Yuan 150

Light Burning Condition of Preparing Dolomite Clinker Using Natural Dolomite

W.N. Zhang, X.T. Wang and Z.F. Wang 156

Crystallization and Optical Properties of $Sr_3Al_2O_6$ - $SrAl_2O_4$ Eutectic Glass

J.X. Liu, N. Lu, G. He, X.Y. Li, J.Q. Li and J.T. Li 163

Thermal Expansion of $SrZr_{4-x}Ti_x(PO_4)_6$ Ceramics

Y. Wang, Y.Y. Song, Y.Y. Zhou, L.P. Yang and F.T. Liu 169

The Mechanical Properties and Thermal Resistance of Fly Ash Geopolymer Foams

H.T. Ng, C.Y. Heah, Y.M. Liew, M.M.A.B. Abdullah and K. Hussin 175

Thermal Resistance of Fly Ash Geopolymers with Alumina as Additive

Y.S. Ng, Y.M. Liew, C.Y. Heah, M.M.A.B. Abdullah and K. Hussin 182

Preparation and Characterization of 3Y- ZrO_2 Composite Ceramics

Y.Y. Ju, X.X. Gan, J.G. Song, F. Wang, Q. Huang and C. Xiong 189

The Effects of Carbon Content on $ZrCO$ Microspheres Prepared by Internal Gelation Process with Carbon Black

X. Sun, J.T. Ma, X.Y. Zhao, S.C. Hao, C.S. Deng, Z.Q. Li and B. Liu 195

Toughened Laminated Alumina/Silica Ceramics Formed by Weakening Interlayer Bonded Strength

W.B. Dong, J.P. Fan, D.H. Zhang, J.G. Zhang and J. Zhang 200

Preparation and Properties of C_f/Mullite Composites by PIP	
Y.Y. Wang, L.P. Yang, K. Jiang and F.H. Yang	206
Effect of Nano-Al₂O₃ Particles Addition on Thermal Shock Resistance of ZTA/Cordierite Composites	
H.T. Chen, Z.J. Zhang, L. Zhang, H.X. Lu, K. Gao, H.L. Wang and R. Zhang.....	212
Effect of SiC_p Addition on Microstructure and Mechanical Properties of ZTA Ceramics by Microwave Sintering	
Y.Q. Chen, S. Li, W. Li, T.T. Su, B.B. Fan, H.X. Li and R. Zhang.....	217
Effect of Sintering Temperature on Properties of YAG Porous Ceramics via Atmospheric Sintering Method	
F. Wang, M.H. Xu, A.X. Chen, L.T. Liu, Z.H. Li, R.X. Deng, J.G. Song, L. Chen and C.W. Hao.....	224
The Influences of Addition of MgCO₃ on the Properties of the Magnesia Prepared Using Magnesite	
W.N. Zhang, L. Wang and N. Deng	230
Effect of Silicon Addition on the Properties of Carbon Fiber Reinforced Mullite Based Castable Composites	
O.Y. Si, Y.B. Li, S.J. Li, R.F. Xiang, Q.H. Wang and N.N. Xu.....	236
Fabrication of Porous Mullite Ceramics with Different Phase of Alumina for Insulation Materials	
H. Luo, Y.B. Li, S.J. Li, R.Y. Chen, R.F. Xiang, N.N. Xu, Q.H. Wang and O.Y. Si	242
Effect of Micro-Sized Alumina Powder on the Hydration Process of Calcium Aluminate Cement	
Z.F. Xia, Z.F. Wang, X.T. Wang, H. Liu and Y. Ma.....	249
Mechanical and Thermal Properties of MgAl₂O₄-Y₃Al₅O₁₂ Ceramic Composites	
J.B. Liu, Z.F. Wang, X.T. Wang, H. Liu and Y. Ma	255
Sintering and Crystallization of Al₂O₃-La₂O₃-ZrO₂ Eutectic Glass	
G. He, J.X. Liu, N. Lu, G.H. Liu and J.T. Li	261
Preparation and Performances of Geopolymer-Based Plant Fiber Composites	
S.J. Wei, J.L. Tan, W.L. Lu, L.P. Liu, S.J. Yu and G.J. Zheng	266
Research on the Performance of Carbon Fiber Reinforced Inorganic Polymer Composite	
X.M. Zhang, S. Li, L.F. Gao, K. Yu, Y.Y. Xiao, K.X. Dong and Q.M. Lu	272
Molten Salt Synthesis and Formation Mechanism of Plate-Like MgAl₂O₄ Spinel	
X.L. Hou, J.T. Huang, Z.H. Hu, Z.J. Feng, M. Zhang, M.Q. Liu and X.B. Li.....	278
Cryomilling and Characterization of Ti/Al₂O₃ Powders	
J.Y. Wu, Q. Liu, Z.H. Wang and Z. Wang	285
Densification Technique of Al₂O₃/Al Metal Ceramics Using Powder Metallurgy Method	
Y.Y. Ju, A.X. Chen, R.H. Wang, F. Wang, M.H. Xu, D.M. Du, J.G. Song and L. Chen	291
Effect of Sintering Aids Sorts on Properties of Prepared Al₂O₃-Al Cermet	
R.H. Wang, X.B. Bai, X.D. Jiang, D.L. Yi, F. Wang, A.X. Chen, J.G. Song and L. Chen	297

Effect of Molding Processing on Properties of Al₂O₃-Al Cermet Prepared via Powder Metallurgy Method	
R.H. Wang, X.B. Bai, X.D. Jiang, D.L. Yi, F. Wang, A.X. Chen, J.G. Song and L. Chen	303
Chapter 3: Non-Oxide Ceramics and Composites for Structural Applications	
Low-Temperature Sintering of Porous Silicon Carbide Ceramics with H₃PO₄ as an Additive	
T. Gu, F. Chen, H.L. Yuan, Q. Shen and L.M. Zhang	311
Co-Catalyzed Si₃N₄/Sialon Nanofibers Reinforced SiC Refractories	
M. Zhang, J.T. Huang, X.B. Li, Z.H. Hu, M.Q. Liu and Z.J. Feng	316
A Mechanically-Alloyed Amorphous 2Si-B-3C-N Ceramic with a Crystallization Temperature up to 1800°C	
P.F. Zhang, D.C. Jia, B. Yang and G.X. Wang	323
Characterization of Fiber-Like SiCN Formed during the Nitridation of Silicon	
L. Qu, W.J. Yuan, C. Zhang and J. Li	330
Characterization of C_f/SiC Composite Fiber Bundle Surface Based on an Optical System	
J.H. Wei, H.J. Wang and B. Lin	336
Joining SiC Ceramics with Ti₃SiC₂/Ti_xC_y Multi-Interlayer by Spark Plasma Sintering	
Z.Q. Wang, Q. Liu, A.K. Yang and Z.H. Zhong	343
Modification of the Fiber-Matrix Interface in the Carbon Fiber Reinforced ZrB₂- Based Ultra-High Temperature Ceramic Composites	
Y.F. Zu, J. Li, J.X. Dai and J.J. Sha	349
Polymer-Derived Nano-Sized SiC-Containing ZrB₂ Composites: Densification, Microstructure and Flexural Strength	
S.Q. Guo	355
Preparation and Ablation Performance of BN Fiber Fabrics Reinforced Nitrides Composites	
X.L. Qi, M.X. Zhang, R. Li, C.L. Zhou, J.X. Tang, Z.Q. Cheng, Z.H. Wang and Z.H. Wang	361
The Microstructure and Shear Properties of SiC/SiC Composite Pins with Designed SiC Fiber Preform	
S.H. Liu, H.P. Qiu, L. Wang, B.Y. Zhang, M.W. Chen, W.J. Xie and Y.Y. Liang	367
The Matrix Cracking Stress and Residual Thermal Stress of 2D SiC/SiC Composite Fabricated by PIP Process	
H.P. Qiu, S.H. Liu, L. Wang, B.Y. Zhang, M.W. Chen, W.J. Xie and Y.Y. Liang	375
Synthesis of the ZrB₂-SiC Ceramic from Polymeric Precursor Pyrolysis	
R. Cai, Z.K. Ma, H.P. Qiu, S.H. Liu, W.J. Xie and M.W. Chen	382
Thermal Expansion of Ca_{1-x}Sr_xZr₄(PO₄)₆ Ceramics	
Y.Y. Song, Y.Y. Zhou, Y. Wang, L. Li and F.T. Liu	389
Quartz Fibers Reinforced SiNB Ceramic Matrix Composites Prepared by PIP	
L.F. Gao, S. Li, S.Q. Wang, K. Yu, X.M. Zhang, Y.Y. Xiao and K.X. Dong	395
Preparation and Performance of C/C-SiC Ceramic Matrix Composites	
F.H. Yang, Y.Y. Wang, R.X. Liu, C.L. Zhou, L.P. Yang and K. Jiang	402

Influence of Carbon Fiber Treatment on Flexural Properties of C/SiC Composites	
W.J. Xie, H.P. Qiu, M.W. Chen and S.H. Liu	408
Spark Plasma Sintering and Characterization of Mixed <i>h</i>-BN Powders with Different Grain Sizes	
F.R. Zhai, M. Lu, K. Shan, Z.Z. Yi and Z.P. Xie	414
Influence of Technological Conditions on the Properties of PcBN Composites Fabricated by Spark Plasma Sintering	
Y.P. Ding, M.X. Zhang, Q. Luo, C.J. Dong, J.J. Yao, Y. Wang, K. Gao and R. Zhang	420
Study on the Microstructure and the Machining Performance of Ti₃SiC₂-TiB₂-TiC Composite Ceramic	
X.J. Tang, J.S. Li, F. Zhao and L. Qing	426
The Preparation of C/SiC-ZrC Composite Material by Adding SiC and ZrC Powders in Organic Precursors	
L.P. Yang, Y. Wang, K. Jiang, F.H. Yang, Y.Y. Wang, C.L. Zhou and F.T. Liu	432
Processing and Properties of (Zr,Hf)B₂-SiC Ceramic Composites	
X.T. Zhao, H.L. Wang, G. Shao, B.B. Fan, H.X. Lu, H.L. Xu, D.L. Chen and R. Zhang	438
Isothermal Oxidation Resistance of Zr₃[Al(Si)]₄C₆-Based Composite Ceramics at 1000-1300°C in Air	
L. Yu, H. Liu, K. Liang, Z.D. Zang, J.C. Shi, Y.R. Shen, Q. Tian and X.H. Wang	444
Preparation and Properties of NZP Family Ceramics	
H. Li, H.Z. Xu, Y.Y. Wang, C.L. Zhou, R.X. Liu and L.P. Yang	450
Fabrication of Dense Silica Ceramics through a Stereo Lithography-Based Additive Manufacturing	
Y.Y. Wang, L. Li, Z.Y. Wang, F.T. Liu, J.H. Zhao, P.P. Zhang and C. Lu	456
Chapter 4: Coatings and Films	
Preparation of Dense Al₂O₃ Film on 8YSZ Coating by Sol-Gel Method	
M. Wang, Z.Y. Wang, Y.J. Yuan and W. Pan	465
Thermal Shock Resistance of Yb₂SiO₅/Si and Yb₂Si₂O₇/Si Coatings Deposited on C/SiC Composites	
X. Zhong, Y.R. Niu, T. Zhu, H. Li, X.B. Zheng and J.L. Sun	472
Stress Evolution and Element Diffusion in Bi-Layered Yb₂SiO₅/Mullite Environmental Barrier Coatings under High-Temperature Molten Salt Corrosion	
H.F. Chen, Y.X. Du, J. Feng, G. Yang and Y.F. Gao	478
Study of Glass-Ceramic Coating on the SUS430 Stainless Steel Plate with High Temperature Oxidation Resistance	
Y.J. Huang, S.X. Wang, W.J. Wang and H.F. Lan	487
Thermal Shock Behavior and Bonding Strength of MoSi₂-BaO-Al₂O₃-SiO₂ Gradient Porous Coating with Polymethyl Methacrylate Addition for Porous Fibrous Insulations	
Y.Y. Su, X.L. Li, H.J. Tang, Z.H. Zhao and J. He	493
Synthesis of Boron Nitride Coating on Graphene	
G.X. Sun, J.Q. Bi, W.L. Wang, X.X. Hao, X.C. Gao, W.K. Yan and L. Wang	499
Deposition and Electrical Resistivity of Oxygen-Deficient Tin Oxide Films Prepared by RF Magnetron Sputtering at Different Powers	
Q. Wang, Z.J. Peng, Y. Wang and X.L. Fu	504

The Impedance Spectroscopy Study of the Oxides Layer in Thermal Barrier Coatings	
Z.Y. Wang, M. Wang, Y.J. Yuan and W. Pan	510
Ablation Behaviors of ZrC-20vol.%MoSi₂ Composite Coating under Different Heat Fluxes	
T. Liu, Y.R. Niu, C. Li, L.P. Huang, X.B. Zheng and C.X. Ding	516
Oxidation Resistance of ZrB₂-SiC-WSi₂ Coating Prepared by Vacuum Plasma Spraying	
C. Li, Y.R. Niu, T. Liu, J. Zhao, X.B. Zheng and C.X. Ding	522
Preparation of YAM Coating on the ZrB₂ Composites and their Ablation Resistance	
S.B. Li, J.G. Song, H.Y. Ru, X.B. Bai and Z.H. Yi	528
Effects of Bias Voltage on Microstructure, Hardness and Bonding Strength of TiN Coating Deposited by High Power Pulsed Magnetron Sputtering	
W.J. Chang, H. Zhang, X. Xue, S. Liu, J.F. Yang, X. Zhang, L. Long and S.W. Duo	534
Tribological Performances of CrSiN Coatings Deposited by High Power Pulse Magnetron Sputtering	
W.J. Chang, H. Zhang, S.W. Duo, Y.Y. Chen, J. Li, X. Zhang, P.Z. Jiang, X.W. Fan and S.W. Duo	540
Oxidation Behavior of Cr_{1-x}Al_xN Coatings Deposited by Closed Field Unbalanced Magnetron Sputtering at 800°C	
W.J. Chang, H. Zhang, Y.L. Wang, S.W. Duo, C.G. Luo, X.R. Li and S.W. Duo	546
Microstructure and Erosion Properties of HVOF Sprayed Cermet Coatings via Different Feedstock Powders	
W. Fu, Q.Y. Chen, X. Chen, X.B. Bai, H.T. Wang, C. Yang, G.C. Ji and H.L. Yao	552
Bonding Strength and Thermal Insulation Property of Thermal Barrier Coating with Nanometer Alumina Coated Zirconia	
Z.Z. Yi, M. Lu, K. Shan, N. Li, F.R. Zhai and Z.P. Xie	558
Enhanced Bioactivity of Chemically Oxidation-Modified Titanium Alloys	
Y.M. Wang, Y.F. Song, S.L. Deng, O. Akiyoshi, G.X. Wang and Y.F. Yan	564
Fabrication and Growth Mechanism of Nanoleaf Sodium Titanate Coating on High-Purity Titanium Surface	
Y.M. Wang, Y.F. Song, Z. Lu, G.X. Wang, Y.F. Yan, S.L. Deng, S.D. Guo and A. Osaka	570
Chapter 5: Dielectric and Piezoelectric Ceramics	
Preparation and Characterization of PrAlO₃-Doped 0.95MgTiO₃-0.05CaTiO₃ Microwave Dielectric Ceramics	
L.Z. Xie, J.Q. Ren, Z.J. Peng and X.L. Fu	579
Structural Evolution and Microwave Dielectric Properties of Ba(Co_{1/3}(Nb_{1-x}W_{5x/6})_{2/3})O₃ Ceramics	
Z.F. Wang, C.Y. Zhai and X.H. Wang	585
Preparation, Performances and Reaction Process of NiZrNb₂O₈ Microwave Dielectric Ceramics	
M.J. Wu, Y.C. Zhang, J.D. Chen and Y. Zhang	591
Polarity Effect and Dielectric Breakdown of Composite Ferroelectric Films as the Dielectric for Electrowetting Systems	
W.Q. Wang and Y. Su	598

Using Superhydrophobic SU-8 Film as the Dielectric for Electrowetting-on-Dielectric	
Y.H. Piao and W.Q. Wang.....	604
Preparation of Low Dielectric Constant Porous Silicon Nitride Ceramics for Radome Application	
L. Li, B.X. Zhu, H.S. Wang and J. Zhang	610
BaTiO₃/ Teflon Nanocomposite Ferroelectric Thin Films for Low Voltage Electrowetting Systems	
W.Q. Wang, J.Q. Niu and Y. Su	616
Topochemical Synthesis of High-Aspect-Ratio Lead-Free (K, Na)NbO₃ Plate-Like Structures	
L.Q. Cheng, M. Feng and K. Chen	622
High Piezoelectric Properties and High T_C in KNN-Based Lead-Free Ceramics Sintered in Reducing Atmosphere	
Y.C. Zhen, Z.Y. Cen, W. Feng, X.H. Wang and L.T. Li.....	628
Effect of Sintering Process on Microstructures and Dielectric Properties of Nb-Doped BaTiO₃-(Bi_{0.5}Na_{0.5})TiO₃ Ceramics for X9R MLCC Applications	
L.L. Chen, Z.B. Shen, Q.C. Zhao, Z.M. Cai, X.H. Wang and L.T. Li	634
Dielectric Breakdown Strength and Microwave Dielectric Properties of Alumina Ceramics with CaO-SiO₂- MgO, Yb₂O₃ and ZrO₂ Additives	
G.F. Fan, H.Y. Deng, M.M. Hao, K. Wang, Y.S. Shi, C.H. Li and W.Z. Lu.....	640
Preparation and Properties of Si₃N₄-BaTiO₃ Composite Ceramics	
P.P. Zhang, J. Man, H.S. Wang, Q.H. Wei, Y. Gai, B.X. Zhu and L. Li.....	646
Chapter 6: Transparent Ceramics and Luminescent Materials	
Calculation of Pore Scattering in Transparent Ceramics	
Y. Hu and W. Pan	655
Fabrication of High Dense ZnSe Ceramic by Spark Plasma Sintering: The Effect of the Powder Process Method	
J.L. Gao, P. Liu, J. Zhang, X.D. Xu and D.Y. Tang.....	661
The Effects of Halogen Exchange on the Structural Features, Thermal Behavior and Photoluminescence of Y/Eu Layered Rare-Earth Hydroxide (LRH) Nanosheets	
J.J. Huang, Q.R. Liu, R. Zhang and X.L. Wu	667
Influence of Annealing Atmosphere on Microstructure and Optical Properties of ZnO Thin Films	
J. Shang, L.Y. Zheng, X. Shi, J.T. Zeng and G.R. Li	673
A Facile Co-Precipitation Synthesis and Luminescence Properties of Red-Emitting La₂O₂SO₄: x%Eu³⁺ Nanophosphors	
F. Liu, J.B. Lian, G.X. Xu and N.C. Wu.....	679
Energy Transfer and Spectroscopic Characterization of New Green Emitting Li₃Ba₂Gd₃(WO₄)₈:Tb³⁺ Phosphor	
W.L. Guo, Y.T. Jiao, P.S. Wang, Q. Liu, S. Liu and F. Hou.....	686
Preparation and Characterization of Na₂O-Y₂O₃-P₂O₅-SiO₂ Transparent Glass Ceramics	
M.J. Zhao, X.Y. Zou, Q.L. Wei, S. Meng, H.B. Zhang and C.H. Su	692

Influence of Synthesis Temperature on the Properties of SnO₂ Thin Films via Hydrothermal Precipitation Method	
Y. Liu, J. Zhang, C.L. Pang, Z.L. Wang, J.S. Li, D. Deng, J.G. Song, L. Chen and C.W. Hao.....	699
Effect of the Adjuvants on the Properties of Superfine SnO₂ Powders	
J.G. Song, L. Chen, X.J. Zhou, X. Yang, X.P. Lou, M.H. Chen, X.H. Lai, C. Yang and A.X. Chen.....	705
Transparent Ultraviolet Photodetectors Based on Ga₂O₃ Electrospun Nanowires	
M. Shahid, T.J. Li, M.F. Zhang, J. Cheng, Y. Xing and W. Pan.....	710
Effect of L-Cysteine on Photoluminescence of ZnS:F Quantum Dots	
X.X. Wang, S.Z. Wang, S.W. Duo, X.Y. Jiang, W.L. Li, H.S. Wu, W. Min, X.Y. Yuan and Z. Chen.....	716
Preparation and Properties of Cr,Nd:YAG Transparent Ceramics by Slip Casting	
X.J. Wan, Y.C. Zhang, M. Wang, Y. Liu and Y.S. Li.....	723
A Comparative Study of Relative Translucency of Six All-Ceramic Restorations	
M.L. Zhang, Y. Huang, R.J. Lu and B. Deng.....	729
Synthesis and Property Investigation on the Spherical Lu₃Al₅O₁₂:Tb³⁺ Phosphor with Green Emitting	
H.D. Wang, T. Wu, J. Zhang, T. Wang and S.Q. Li.....	735
Chapter 7: Materials for Energy and Environmental Applications	
Effect of Rare Earth Doping on Electrochemical Properties of Fe₂O₃ Nanoparticle for Supercapacitor	
W.K. Yan, J.Q. Bi and W.L. Wang.....	743
Fabrication of YSZ/SNDC Bilayer Electrolytes by Spark Plasma Sintering	
T.J. Li, M.F. Zhang, Y.J. Yuan, X.H. Zhao and W. Pan.....	748
Preparation and Property of LSGM-Carbonate Composite Electrolyte for Low Temperature Solid Oxide Fuel Cell	
X.P. Lin, H.T. Zhong, X. Chen, B. Ge and D.S. Ai.....	754
Enhanced Ionic Conductivity in Ce_{0.8}Gd_{0.2}O_{2-δ} Nanofiber: Effect of the Crystallite Size	
M.F. Zhang, T.J. Li, X.H. Zhao, H.J. Zhou and W. Pan.....	761
Electronic Structure and Transport Properties of La₂Zr₂O₇ Pyrochlore from First Principles	
Z. Li and W. Pan.....	767
On the Sol-Gel Synthesis and Structure, Electronic and Ionic Conductivities and Impedance Behavior of Y, Fe Co-Doped SrTiO₃ Mixed Conductor	
K. Shan, F.R. Zhai, N. Li and Z.Z. Yi.....	774
Effects of Prilling Process on the Microstructures and Electrical Properties of Lanthanum Chromite Ceramics	
X.L. Yin, Q. Zhao, D.L. He and A.M. Chang.....	782
Design and Simulation of a Novel Thermoelectric Micro-Device with Electrodeposited Bi-Te Alloys	
S. Guo, N. Su, F. Li, D.W. Liu and B. Li.....	788
Preparation and Lithium Storage Performances of Porous Co₃O₄ Nanorods	
L. Li, Z.H. Wang and G.X. Jiang.....	795

Hydrothermal Synthesis of Fe₃O₄@C Spheres as Anode Material for Lithium-Ion Batteries	
L. Li, Z.H. Wang and G.X. Jiang.....	801
Fabrication of Graphitic Carbon Spheres via a Hydrothermal Carbonization Combined Catalytic Graphitization Method Using Cobalt as Catalysts	
S.S. Li, J.K. Wang, Q. Zhu, X.W. Zhao and H.J. Zhang	807
Effect of pH on the Properties of BiVO₄ by Hydrothermal Synthesis Method	
X. Liu and J.K. Li	813
Synthesis and Characterization of Novel Multipods-Branched Cd-Se-S Micro-/Nano-Structures	
H. Li, Y. Zhang, C.B. Wang, Z.J. Peng and X.L. Fu.....	819
Enhanced Photocatalytic Activity of Cu_{1.8}Se/CuAgSe for Organic Pollutants under Visible and Near-Infrared Light	
L.N. Qiao, M.R. Tang, Y.Y. Gang, H.M. Xu and Y.H. Lin	825
Effect of Anionic Surfactant on Adsorption Properties of Nano Calcium Carbonate	
Q.L. Ren, Q. Luo and F.L. Wang.....	830
Zn-Cr Layered Double Hydroxides Composites for Methyl Orange (MO) Absorption	
T. Zhou, J.P. Ai, W.X. Liao, L.H. Cheng, Y. Zhang, R. Jiang, Z.Q. Chen and W.K. Li	836
The Synthesis and Application of the Hollow Mesoporous SiO₂/ Dense SiO₂/Fe₃O₄ Composite Particles	
Z.J. Ma, Q.Y. Li, K.R. Ma, S.B. Sun, Q. Wei and S.P. Cui	842
Synthesis and Photocatalytic Degradation Performance of g-C₃N₄/ CoAPO-5/rGO Ternary Composite	
L.F. Qiu, X.B. Qiu, Z.W. Zhou and S.W. Duo	848
A Facile Synthesis of NiFe₂O₄ with High Specific Capacitance as Supercapacitor Electrode Material	
X.C. Gao, J.Q. Bi, W.L. Wang, G.X. Sun, X.X. Hao, W.K. Yan and L. Wang.....	854
Synthesis of La₂NiO_{4+δ} Nanofibers by Electrospinning Method and their Application	
Y. Xing, M.F. Zhang, T.J. Li and W. Pan.....	859
Preparation and Optical Properties of ZnO Nanocrystals by Chemical Bath Deposition	
R.F. Zhong, Z. Liu, L. Zhang, T.Z. Liu and S.W. Duo.....	865
Hydrothermal Method Preparation of Flower-Like Ce-Doped ZnO as an Efficient Photocatalyst	
J.P. Ai, W.X. Liao, S.S. Luo, T. Zhou, L.H. Cheng, Z.Q. Chen, Y. Chen, Y.L. Yang and W.K. Li.....	872
The Synthesis, Characterization and Visible-Light Photodegradation Performance of Graphitic Carbon Nitride Coupling with CoAPO-5	
Z.W. Zhou, L.F. Qiu, X.B. Qiu and S.W. Duo	878
Chapter 8: Ceramics-Related Materials	
P-Type Molecular Sieve Antibacterial Agent and Hydrothermal Control	
S.S. Gao, X.L. Wang, Y.C. Pei, X.J. Meng and N.C. Chen	887

Growth of Highly (110) Oriented Diamond Film by Microwave Plasma Chemical Vapor Deposition	
Y.F. Xi, J. Huang, K. Tang, X.Y. Zhou, B. Ren and L.J. Wang.....	893
The Tribological Properties of Water Lubricated Ceramics with Silica Nanoparticle Additives	
M. Ding, B. Lin, T.Y. Sui, S. Yan, J.H. Wei and A.Y. Wang	900
Investigation on Magnetoviscous Effects of Water-Based Magnetic Fluid	
Z.L. Zhang, N.N. Di, L. Bai, Y. Yang and D.C. Li	906
Preparation and Performance of Zirconia Fiber Board	
L.S. Tao, Y.F. Chen, S.C. Zhang, K.W. Deng, H.R. Sun, X.K. Sun, D.C. Yan, K. Fang and N. Li	912
Computer Modeling of Ceramics Sintering: Effects of Inhomogeneity on Sintering Kinetics	
W.D. Luo, H.P. Qiu and J.Z. Pan.....	918
The Study of Heating Mode of an Expansion Insulation Material	
K. Fang, Y.F. Chen, S.C. Zhang, H.R. Sun, X.K. Sun, D.C. Yan and L.S. Tao	934
Effect of Alkali Activator on Preparation, and Mechanical and Thermal Properties of Iron Mine Tailing-Based Lightweight Materials	
S.T. Ge, Y.B. Bi, J.K. Wang, S.S. Li, G. Zhang and H.J. Zhang	940
Temperature Field Simulation of TC4/SiC Bilayer in Laser Forming	
N. Li, L. Gao, Z.Z. Yi, F.R. Zhai and K. Shan	946
Mechanism and Technics to Produce Geographical Indication Products of Chinese Blue-and-White Porcelain	
G.Q. Shao, X.B. Zhong, Y. Zhang, X.Y. Feng, C. Zhu, J.W. Mao, Z.B. Qiu, G.Z. Xie, H.B. Li, Z.C. Zhong and Y.Y. Zhong	952
Effect of B₄C and SiO₂ on Bond Property for Phenolic Resin-Based Adhesive	
F. Zhang, C.Q. Hu, S.C. Zhang, H.R. Sun, Y. Tian, X.K. Sun, K. Fang, D.C. Yan and Y.F. Chen	959
Keyword Index	965
Author Index	971