

Table of Contents

Preface

Chapter 1: Novel Processing and Manufacturing

Preparation and Characterization of High Purity β-SiC Powder E.J. Jung, Y.J. Lee, S.R. Kim, W.T. Kwon, S.Y. Choi and Y.H. Kim	3
Synthesis of Fiber-Like SiC by Carbothermal Reduction of Used Silica Bricks Z.H. Pan, Z.H. Huang, W.J. Li, Y.G. Liu and M.H. Fang	7
Microwave Synthesis of Nano SiC Doping $\text{Mg}(\text{B}_{1-2x}(\text{SiC})_x)_2$ Superconductor and Superconductivity Y.D. Peng, Q.L. Xia, Q.M. Huang, L.Y. Li, H.Z. Wang, R. Bao and J.H. Yi	11
Preparation of Both Reactive α-Si_3N_4 and SiC Mixed Powder in Flame-Isolation Nitridation Shuttle Kiln X.Y. Zhu, Y. Li, J.P. Wang, Y.W. Zhai, J. Bo and J.F. Zhang	17
Synthesis of AlN Powder from Precipitation Precursor by Carbon Thermal Reduction in Flowing Nitrogen H.F. Lu, M.L. Qin, S.H. Jiang, A.M. Chu, Y. Zhang and X.H. Qu	24
Single Phase Ti_2AlC Powder Synthesized from Ti-Al-0.6~0.9TiC-0.1Sn Mixture M.Q. Li, H.X. Zhai and Z.Y. Huang	28
Synthesis of $\text{Ti}(\text{C},\text{N})$ Powder via CRN Method from Rutile/Carbon Mixtures K. Chen, Z.H. Huang, M.H. Fang, Y.G. Liu and X. Ouyang	32
Influence of the Dispersant on the Bead Milling of Alumina L. Yuan, L.H. Qi and W. Pan	36
Synthesis and Surface Characterization of a Silica White Prepared from High Si:Al Fine Powder N.C. Chen, C.J. Zhao, W. Wang and M.Y. Li	40
Extraordinary Adsorption Properties of Nano Porous Hydrophobic Silica Aerogels X.Q. Wei, X.Y. Ni, Z.H. Zhang, J. Shen, A. Du and G.Q. Zu	45
Preparation of Mullite Nanocomposites Powders by the Hydrothermal Crystallization Method from Coal Gangue L.X. Tong, J.H. Li and F. Liu	49
Effects of Solvents on Synthesis and Dispersion of Zircon Powder via Non-Hydrolytic Sol-Gel Route W.H. Jiang, S. Cheng, Q.X. Zhu and J.M. Liu	54
Preparation of Rare-Earth Doped Zirconia Nanoparticles via Supercritical Hydrothermal Method for Luminescence Properties Y. Hakuta, K. Sue, Y. Takebayashi, S. Yoda, T. Furuya and H. Takashima	59
Fabrication of Graphene/Zirconia Nanocomposite by Mixing Graphite Oxide and Zirconia Nanopowders and Pressureless Sintering Z.E. Yin, H. Zhang, Y.R. Kang, J.M. Feng and Y.L. Li	65
Study on Properties of Slurry for Making Zirconia Fiber H.R. Sun, Y.F. Chen, X. Shi, S.C. Zhang and W. Wu	69
Synthesis of Amorphous Al_2O_3-ZrO_2 Powders Prepared by Citric Acid Gel Process Y. Wang and J.C. Liu	73
Low Temperature Molten Salt Synthesis of Nano Crystalline MgAl_2O_4 Y. Safaei Naeni and F. Golestani-Fard	77
Synthesis and Characterization of Magnetite Particles by Co-Precipitation Method M.Y. Li and X.D. Sui	82
Synthesis and Characterization of Spinel-Type NiCr_2O_4 Nanocrystalline Z.Q. Hu, X.Q. Liu, D.F. Huang, H. Gao and J.X. Liu	86
Effect of MgO and NH_4OH on Formation of $5\text{Mg}(\text{OH})_2 \cdot \text{MgSO}_4 \cdot 3\text{H}_2\text{O}$ Whiskers R. Yu, J.H. Pee, H.T. Kim, K.J. Kim, Y.W. Kim and Y.J. Kim	91
Hydrothermal Synthesis of Yttrium Hydroxide Nanotubes H.J. Ren, G.Q. Tan, L.H. Song, W. Zhang and A. Xia	95

Preparation and Thermodynamic Study of Self-Dispersal Nano-AIOOH H.D. Liao, W.P. Zhang, X.M. Sun, J.Q. Meng, Y. Wei and J. Tang	100
Synthesis and Optical Properties of Single-Crystalline Silicon Nitride Nanowires with Controlled Dimensionality Z.H. Wang, F. Chen, Q. Shen and L.M. Zhang	106
Preparation and Characterization of Calcium Silicate Slag Based Lightweight Wall Materials L. Hou, J.H. Li and L.X. Tong	110
Preparation and Properties of Nano-Hydroxyapatite Derived from Sol-Gel Method for Cu²⁺ Polluted Water S.H. Wang, H. Wang, Z.X. Hou, C. Wang, X.D. Hu, H.R. Lu, Z.L. Xue and C.L. Niu	115
Reverse Microemulsion Synthesis of Hydroxyapatite Nanoparticles and Adsorption Performance Study S.H. Wang, C. Wang, Z.X. Hou, H. Wang, X.D. Hu, H.R. Lu, Z.L. Xue and C.L. Niu	119
Phase Behaviors of Talc Minerals in Carbothermal Reduction Process W.J. Li, Z.H. Huang, Z.H. Pan, Y.G. Liu and M.H. Fang	123
Cryomilling and Characterization of Metal/Ceramic Powders Q. Hou, Z.C. Shi, R.H. Fan and L.C. Ju	127
Synthesis of Cubic Ni Nanoparticles by Electric Current Heating Method Using Ni Wire I. Tada, T. Okamoto, Y. Kuroki, T. Hagizawa, K. Oh-Ishi and M. Takata	132
Effects of Different Reducing Agents and Protective Agents on the Preparation of Nano-Silver Powder F.R. Zhai, Y.M. Liu, Z.Z. Yi, H.W. Zhang and M. Lu	136
Synthesis and Characterization of Silver-Coated Copper Powder Layer X.Y. Zhu, L. Hu and M. Dong	141
Synthesis and Characterization of Nanocrystalline PZT Powders by a Simple Sol-Gel Method S.P. Zhang, X.H. Wang and L.T. Li	147
Effect of Dispersant Content on Nanograined BME MLCC Powder Prepared by Aqueous Chemical Coating Method Y.C. Zhang, X.H. Wang, J.Y. Kim and L.T. Li	153
Preparation of Ultra-Fine La₃NbO₇ Powder by Solid State Reaction L. Dai, Q. Xu, S.Z. Zhu and L. Liu	158
Synthesis of Cobalt Sulfide Nanocrystallites via an Efficient Microwave Hydrothermal Process B. Li, L.Y. Cao, J.F. Huang and J.P. Wu	162
Solvothermal Growth of Cobalt Oxide Hexagon Nanodiscs L.F. Wang, Z.J. Peng, M. Lei and X.L. Fu	166
Synthesis of n-Hexadecylphosphonic Acid-Coated Monodisperse Fe₃O₄ Superparamagnetic Nanoparticles X.S. Tang and M. Li	170
Structure and Luminescence Characteristics of Terbium Hydroxide Nanosheets Doped with Eu³⁺ L. Zhang, C.X. Li, D.Y. Jiang, L. Su and Q. Li	174
Luminescent Properties of MgLaLiSi₂O₇:Eu³⁺ Phosphors via Sol-Gel Process X.M. Han, D.H. Ren, Y.L. Wang, G.F. Sun and X.W. Qi	178
Preparation and Luminescence of ZnAl₂O₄:Mn Phosphors M.T. Tsai, B.Y. Pan and F.Y. Liang	182
Preparation and Photo-Catalysis Properties of Fe₃O₄/TiO₂ Nanocomposite D. Shi, Z.L. Zhang, D.C. Li, Q. Han and T.P. Xing	187
TiO₂ Whisker Prepared with Titaniferous Blast-Furnance W.L. Zhang, S.J. Gao and Y.N. Zhao	191
Hydrothermal Synthesis and Characterization of LiZr₂(PO₄)₃ J.Y. Niu, Z.W. Chen, C.G. Sun, L. Feng, Z.M. Li and J. Li	195
Effect of Acticarbon on the Electrochemical Characteristics of LiFePO₄ Battery Powder by Microwave Hydrothermal Y. Sun, J.F. Huang, L.Y. Cao and J.P. Wu	199

Effect of Cd²⁺ Concentration on the CdS Crystallites Prepared by Microwave Hydrothermal Process	
J.F. Huang, Q.F. Zhang, B.Y. Hu, L.Y. Cao and J.P. Wu	203
Synthesis of V₂O₅ Powders by EDTA Assistance Ultrasound Sol-Gel Process	
Q. Wen, J.F. Huang, L.Y. Cao and J.P. Wu	207
Synthesis of In₂Se₃/CuSe Composite Powder by Solvothermal Method	
J. Gao, Z.G. Zou, F. Long, C.Y. Xie and S.S. Chi	211
Synthesis and Characterization the Intercalation Compound of SnS₂-Ethylenediamine by Hydrothermal Reaction	
Q. Lv, C.X. Li, D.Y. Jiang and Q. Li	215
Synthesis and Characterization of SnS Flake-Like Microcrystals with a Microwave Hydrothermal Processing	
P.P. Zhang, J.F. Huang, L.Y. Cao and J.P. Wu	219
Influence of S/La Molar Ratio on the Morphology and Optical Property of La₂S₃ Microcrystalline Prepared by Microwave Hydrothermal	
Y. Zhang, L.Y. Cao, J.F. Huang and J.P. Wu	223
Synthesis of LiV₃O₈ Crystallites via an Improved Citric Acid Assisted Sol-Gel Method	
D.Q. Wang, L.Y. Cao, J.F. Huang and J.P. Wu	227
Effect of pH Value on Preparation of La₂CuO₄ Microcrystallites Synthesized by Sol-Gel Process	
Y.F. Li, J.F. Huang, L.Y. Cao and J.P. Wu	231
Phase Control of Nanosized NaYF₄ Upconversion Particles	
J. Guo, F.Z. Ma, Y. Shi and J.J. Xie	235
Preparation and Property Characterization of Talc/Phthalocyanine Blue Composite Powder	
Y.X. Zheng, H. Ding, L.F. Mei, X.Y. Zhu and M.M. Wang	239
Preparing and Characterization of Hollow Ceramic Microspheres	
L. Liu and B.C. Xu	245
Ba-Ferrites Hollow Microspheres Prepared by Self-Reactive Flame Spraying Method	
B.C. Xu, R.X. Duan, J.J. Wang, H.F. Lou and L. Zhang	249
Fabrication and Characterization of ZrO₂ Hollow Spheres	
K. Liu, S. Li and C.A. Wang	253
Preparation of Nanometer Carbon Spheres by Hydrothermal Synthesis Method	
N. Zhang, X.Y. Cui, X.J. Zhao, Y.H. Zhou and H.M. Kan	257
Effect of Dispersant on the Measurement of Particle Size Distribution of Titanium Dioxide	
L. Shen, J. Hu and D.P. Wu	261
Controlled Synthesis of Hierarchical Flower-Like CuS Spheres by a Facile Microwave Hydrothermal Method	
H. Qi, J.F. Huang, L.Y. Cao and J.P. Wu	265
Preparation of ZrO₂ Micro Beads by Sol-Gel Method	
S.C. Hao, X.Y. Zhao, J.T. Ma, X.W. Zhou, T.X. Liang, X.M. Fu, Z.M. Lu and W.L. Guo	269
Synthesis of Carbon Nanotubes from Silicalite-1-Coated Substrates	
W. Zhao, A. Pokhrel, H.S. Kim, H.T. Kim and I.J. Kim	275
Preparation and Properties of Rigid Polyurethane Foams Reinforced by Sepiolite Minerals Nanofibers	
F. Wang, J.S. Liang and Q.G. Tang	280
Preparation and Characterization of Coated Carbon Black Pigment	
X. Wang, Q.B. Chang, Q.F. Bao and X.Z. Zhang	284
Wet Foam Stabilized by Amphiphiles to Tailor the Microstructure of Porous Ceramics	
A. Pokhrel, W. Zhao and I.J. Kim	288
Preparation of M-AlN Suspensions for Aqueous Gelcasting	
J. Guo, T. Qiu, J. Yang and Y.B. Feng	293
Reaction Formed SiC Prepared by Room Temperature Freezing Casting	
C.Q. Hu, H. Wang, H.L. Liu, Y.L. Huo, J. Tang and Y.F. Chen	297
The Preparation and Assessment of the Rigid Aerogel Insulation Composites	
R.X. Liu, T.Y. Cui, C.L. Zhou, C.H. Wang, Y.Y. Wang and X.Y. Sui	301
Synthesis of Si-N-C Ceramic Composites by Pyrolysis of Polysilazane and Polycarbosilane	
X.Y. Bao, S. Li, X.X. Tang and Y. Zhang	306

High-Strength Porous YSZ Ceramics Fabricated by TBA-Based Gelcasting with High Solid Loading Slurry	310
J. Zhou, C.G. Wang, S.L. Yao, Y.H. Dong and Y. Huang	
Preparation and Microstructures of Nano-Porous SiO₂ Thermal Insulation Materials by Freeze-Casting of SiO₂ in TBA/H₂O Suspensions	315
J. Tang, Y.F. Chen, H.L. Liu, Y.L. Huo and C.P. Wang	
Making Nano-Porous SiO₂ Insulation through Filter-Pressing of Foamed Slurry	319
X. Shi, S.X. Ouyang, Y.F. Chen, M.Q. Li, S.C. Zhang, W. Wu, H.R. Sun and G.H. Wang	
Preparation of Thin Cordierite Sheets by Aqueous Tape Casting	323
S.H. Wang, C.L. Niu, Z.X. Hou, H.R. Lu, Z.L. Xue, H. Wang and C. Wang	
Calculation of Tape Thickness for Ceramic Tape Casting	328
S.L. Liu, Q. Shen, G.Q. Luo, M.J. Li and L.M. Zhang	
Novel Zn-Doped SnO₂ Hierarchical Architectures: Facile Synthesis, Structural Characterization and Enhanced Photocatalytic Property	334
T.K. Jia, F. Zhang, X.F. Wang and W.M. Wang	
Alumina Ceramic Texturing Induced by High Magnetic Field and its Microstructure	339
L.F. Xu, Y.F. Li, A.Z. Shui and Y.M. Wang	
Microstructures and Properties of Solidified TiC-TiB₂ Ceramic Composites with Increasing Cr Metallic Binder Prepared by Combustion Synthesis in High-Gravity Field	344
L.X. Liu, L. Zhang, Z.M. Zhao and M.Q. Wang	
Fabrication of Bulk Ceramics by High-Gravity Combustion Synthesis	350
G.H. Liu, J.T. Li and Z.C. Yang	
Fusion-Induced Diffusion Joints of Solidified TiC-TiB₂ Ceramic with Stainless Steel and Ti-6Al-4V Alloy Achieved by Combustion Synthesis in High-Gravity Field	354
T. Ma, L. Zhang, Z.M. Zhao and Y.F. Zhang	
Fabrication of Bi-2212 Films on Ag Substrate by Dip-Coating Method	360
J. Xu, M.Y. Li and X.Y. Wang	
Structural and Optical Properties of TiO₂ Nanoarray Films Prepared by Liquid Phase Deposition	364
X.Q. Wang, M. Wang, J.M. Wang, C.L. Zha and C.M. Zhen	
Influence of pH Value on the Phases, Morphologies and Optical Properties of Sm₂S₃ Thin Films	368
Y.C. Hou, J.F. Huang, L.Y. Cao and J.P. Wu	
Enhanced Performance of Alkaline Niobate-Based Ceramics Manufactured by Two-Step Sintering	372
J. Fang, X.H. Wang and L.T. Li	
Effects of Sintering Process on the Properties of Ti₃SiC₂/Cu Composite	377
J.R. Lu, Y. Zhou, Y. Zheng, S.B. Li, Z.Y. Huang and H.X. Zhai	
Microwave Sintered Porous Mullite Composite	382
X.Q. Li, X. Zhang, R. Zhang and B.B. Fan	
Phase Transformation Temperature Adjustment of Calcium Chloride Hexahydrate	386
X.Q. Zhu, J. Hu, H.Y. Zhao and W.H. Li	
Direct Write Assembly of 3-Dimensional Structures with Aqueous-Based Piezoelectric Inks	390
Y.Y. Li, B. Li, J.B. Sun, K.P. Cai, J. Zhou and L.T. Li	
Gel Casting of Large-Sized, Complex-Shaped RBSC Component	395
H.L. Liu, Y.L. Huo, C.P. Wang, J. Tang and Y.F. Chen	
Gelcasting of Fused Quartz Crucible with Large Scale	399
C.G. Sun, J.Y. Niu, H.J. Li, Q. Lian, H.J. Yu and F.F. Zhang	
Preparation and Mechanism of Interconnected Mesoporous Carbon Monoliths from Phenolic Resin/Ethylene Glycol Mixtures	403
G. Zhang, Z.W. Xiao and G.J. Qiao	
Superplastic Forming of Oxide Ceramic Composite	407
G.Q. Chen, Y.F. Zu, J.T. Luo, X.S. Fu and W.L. Zhou	
The Effects of Different Slurry on the Joining Characteristics of SiC Green Body	411
Y.L. Huo, H.L. Liu, C.P. Wang, J. Tang, Y.F. Chen and M.H. Wu	
Microstructure and Mechanical Performances of C/C Composite and TC4 Alloy Brazed Joints	415
J.K. Li, X. Liu and J.E. Zhou	

Effect of Additive Silicon Powder on Physical Property of Cold Ramming Paste for Aluminum Electrolysis	
X.H. Yu, N. Fang, Y.G. Li, G. Xie and L. Tian	421

Chapter 2: Engineering Ceramics and Ceramic Composites

Prediction of Critical Pressure in the Preparation of Composites by Vacuum - Pressure Infiltration Process	
M.T. Huang, Y.W. Wang, F.C. Wang and J.B. Gao	427
Debinding Behaviors and Mechanism of Injection Molded ZrO₂ Ceramics Using Kerosene as Solvents	
W. Liu, Z.P. Xie, L.L. Zhang and X.F. Yang	431
Aging Properties of Yttria-Stabilized Zirconia Ceramics	
C.T. Huan, J.F. Xia, D.Y. Jiang and Q. Li	435
The Influence of Y₂O₃ Calcined Temperature on the Performance of ZrO₂	
H.Q. Wang, D.Y. Jiang, J.F. Xia, T. Feng and X.C. Yang	439
Zirconia Fiber Membrane Prepared by Electrospinning	
F. Gao, K. Liu, H.J. Li and J.M. Qi	443
Bond Strength of Different Adhesive Luting Materials to Zirconia Ceramics	
Q. Liu, L.Q. Shao, C. Hu, Y.F. Yi, B. Deng and N. Wen	447
Solid Particle Erosion Behavior of NiCr-Al₂O₃-ZrO₂ (8Y) Ceramic Composites	
F.J. Liu, M.H. Fang, Y.G. Liu and Z.H. Huang	451
Mechanical Properties of ZrO₂-LaMgAl₁₁O₁₉ Ceramics	
X. Min, M.H. Fang, Y.G. Liu, Z.H. Huang, F.J. Liu and C. Tang	455
Fabrication and Optical Properties of Sm₂Zr₂O₇-NiCr₂O₄	
T. Li, L. Liu, Q. Xu and S.Z. Zhu	459
Modeling the Cracking Process of the YSZ Thermal Barrier Coating under the Thermal Shocking Loads	
J.T. Liu, W. Shen, Q.B. Fan and H.N. Cai	463
Design, Preparation and Thermal Properties of (La_{0.4}Sm_{0.5}Yb_{0.1})₂Zr₂O₇ Ceramic for Thermal Barrier Coatings	
L. Liu, Z. Ma, F.C. Wang and Q. Xu	469
Elastic Properties of Spark Plasma Sintered (SPS) ZrB₂/SiC-Sm₂Zr₂O₇ Composites	
Z.Y. Yan, S.Z. Zhu, Q. Xu and Y. Liu	474
The Gibbs Energy Description of Nd:YAG System	
X.J. Cui and W. Pan	479
A Simple Laminated Alumina Based Composite with High Work of Fracture	
W.X. Li, Y. Lu, P.G. Rao and X.L. Huang	484
CASTEP Calculation of Surface Energy of α-Al₂O₃	
Y.Y. Liang, D.M. Chen and J.F. Tong	490
Anti-Bullet Property of Encapsulated AD95 Al₂O₃ Ceramic	
J.B. Gao, Y.W. Wang and F.C. Wang	494
Effect of Different Composite Additives on Thermal Conductivity of Corundum Ceramics	
X.Y. Gu, S.L. Wu, A.H. Zhang, T. Luo and Y.X. Chen	500
Formation and Evolution of Tribo-Layer on Al₂O₃ and Al₂O₃-Based Ceramics in Sliding against Si₃N₄ under Dry Sliding	
J. Shang, J.J. Lu, J.H. Meng and T. Wang	505
Corrosion Behavior of Al₂O₃ Ceramics in the Acid and Alkaline Solutions	
L. Huang, S.S. Luo and W.K. Li	509
Hydrothermal Corrosion of Alumina Ceramics under Static and Quasi-Dynamic Conditions	
D. Galusková, M. Hnatko, D. Galusek and P. Šajgalík	513
Influence of the Two Metal Dopant Improves the Specific Surface Area of Alumina in Catalyst Support	
W.J. Zhang, J. Hu, X.K. He, L. Shen, L. Yan and H. Luo	519
Fabrication and Dielectric Properties of Fe-CNT/Al₂O₃ Bulk Composite Materials	
Q. Hou, Z.D. Zhang, Z.C. Shi, R.H. Fan, J. Li and D.Y. Zhang	523
Research the Performance of Alumina Insulation Material by Freeze-Drying	
D.Y. Yang and G.H. Wei	527

The Screening of Modifying Alumina Used in Automotive Catalyst W.J. Zhang, J. Hu, X.K. He, N. Zhao, Y.B. Duan and L. Shen	531
Effect of Calcination Temperature on Phase Transformation and Microstructure of $\text{Al}_2\text{O}_3/\text{GdAlO}_3$ Compound Powder Prepared by Co-Precipitation Method S. Sun and Q. Xu	535
Fabrication and Properties of $\text{CaAl}_{12}\text{O}_{19}\text{-Al}_2\text{O}_3$ Composite Ceramics X.Y. Liu, Y.G. Liu, D.X. Yang, D.Y. Ye, Z.H. Huang and M.H. Fang	539
The Effects of Density on Thermal Conductivity of Al_2O_3 Fiber Composite Papers S.C. Zhang, Y.F. Chen, X. Shi, W. Wu, H.R. Sun and G.H. Wang	543
Dielectric Properties of Silica Fiber Reinforced Silica Composites C.H. Wang, Q.H. Wei, H.S. Wang, L. Li, Q. Luan and R. Liao	547
Effect of Al^{3+} Additions on the Properties of Quartz Ceramics X.M. Han, L. Zhang and J. Lu	551
3D Interconnective Porous Silica Ceramics Prepared by Gel Casting with Egg White Protein as a Foaming Agent H. Xu, J.C. Liu, Y.N. Zhao and Z.G. Hou	555
Disposing of Silica Fiber' Surface Q.H. Wei, C.H. Wang, H.S. Wang, L. Li, Q. Luan, R. Liao and B. Dong	559
Synthesis of Methacryloxypropyltrimethoxysilane Grafting Silica Cryogels Using Xylene as Solvent H.L. Cheng, L. Miao, L.F. Su, S. Tanemura and G. Xu	563
Synthesis of Plugged Mesoporous SBA-15-Type Silicas from Sodium Silicate W.J. Shan, W. Wang and H.Q. Ru	568
Effect of Pyrophyllite on the Mullite Generation in Ternary Porcelain System J.H. Pee, A.N. Kwak, J.Y. Kim, Y.J. Kim and K.J. Kim	575
Fabrication of Porous Mullite Ceramics with High Porosity Using Foam-Gelcasting F.K. Yang, C.W. Li, Y.M. Lin and C.G. Wang	580
Fabrication and Properties of Mullite Fiber-Reinforced Porous Mullite Ceramics Y. Lang, C.A. Wang and J. Zhou	586
Fabrication and Properties of Porous Anorthite/Mullite Ceramics Y.M. Lin, C.W. Li, F.K. Yang and C.A. Wang	590
Reinforcement of Porcelain by Mullite Fiber for Power Applications L. Chen and L. Qiao	596
A Novel Way to Synthesis Magnesium Aluminate Spinel Powders by Polymer Gel Reaction J.F. Tong and D.M. Chen	600
Properties of Boehmite $\text{AlO}(\text{OH})$ Nanoparticles as the Coatings and Fillers N. Nagai, K. Ihara, A. Itoi, T. Kodaira, Y. Hakuta, H. Takashima, K.K. Bando, N. Itou and F. Mizukami	604
Thermal Properties of Magnesium Hydroxide Using First-Principles Method Q.L. Ren and Q. Luo	609
Rare Earth and Perovskite Composite Ceramics Applied for the Thermistor with Wide Temperature Range B. Zhang, Q. Zhao, A.M. Chang, P.J. Zhao and F. Guan	613
Preparation and Properties of $\text{MgAl}_2\text{O}_4\text{-CaAl}_{12}\text{O}_{19}$ High Temperature Composite Y.H. Wang, Y.G. Liu, T. Yang, Z.H. Huang and M.H. Fang	617
Hollow Multiphase Ceramic Microspheres of $\text{Al+Cr}_2\text{O}_3\text{+SiO}_2$ System Prepared by Self-Reaction Quenching Technology X.D. Cai, J.J. Wang, B.C. Xu, H.F. Lou and X.J. Huo	621
Synthesis and Characterization of Double Pore Size Multiphase Materials from Waste Aluminum Slag and Activated Carbon Y.Q. Chen and R.P. Wu	626
Effect of Al_2O_3 Addition on Microstructure, Thermal Expansion and Mechanical Properties of Ta_2O_5 Ceramics J.E. Zhou, J. Zhang, X.Z. Zhang and X.B. Hu	631
High-Temperature Chemical Stability of $\text{Hf}_6\text{Ta}_2\text{O}_{17}$ Ceramic for Thermal Barrier Coatings M. Li, Q. Xu and L. Wang	635
Microstructure and Properties of Laser Cladding Cu-TiB_2 Composite Coating on Copper X.Q. Guo, J.B. Chen, X.F. Zhang, Y.K. Wang and R. Zhang	639

2+xTi₂-xO_{7-x/2} Y.H. Li, Y.Q. Wang, J. Wen, V.A. James and K.E. Sickafus	643
Study on Mineral Composition and Main Mineral Morphology of Bauxite from ZhongXiang, HuBei Province Y. Li, Z.H. Huang and Y.G. Liu	648
Mineral Compositions and Textures of Jadeite Orebody and its Country Rock in Nammaw, Myanmar H.X. Yang, M. An, D. Ye and E.D. Zu	652
Colorimetry Study on Red Tourmaline Color Genesis Y. Li and Y. Guo	657
Preparation and Characterization of Activated Sericite Modified by Fluorosilicate and Acid Y.B. Wang, H. Ding, L.F. Mei and W. Jiang	661
Evaluation of Firing Temperature of the Bangsan Porcelain J.H. Pee, E.M. Lee, G.H. Kim, Y.J. Kim, K.J. Kim, G.I. Gang, D.S. Jung and H. Katsuki	666
Synthesize Ti₃SiC₂ and Ti₃SiC₂-Diamond Composites at High Pressure and High Temperature A.G. Zhou, L. Li, T.C. Su and S.S. Li	671
Synthesize Ti₃SiC₂ from TiH₂ by Pressureless Sintering L. Li, A.G. Zhou, L.B. Wang and F.X. Hu	676
Fabrication and Properties of C_f/Ti₃SiC₂-SiC Composites Using Ti₃SiC₂ as Inert Filler J.S. Yang, S.M. Dong, P. He, Q.G. Li, B. Wu, J.B. Hu and Z.H. Hu	681
Microstructures, Properties and Fracture Behavior of Solidified TiC-TiB₂ Composites with Increasing Content of TiB₂ X.G. Huang, L. Zhang, Z.M. Zhao and C.Z. Pan	685
Crystal Growth, Fracture Behavior and Toughening of Rapidly-Solidified TiC-TiB₂ Prepared by Combustion Synthesis in High-Gravity Field Z.M. Zhao, L. Zhang, Y.G. Song, W.G. Wang and J.Q. He	691
Theoretical Calculation of Crystal Cohesive Energy of (ZrTi)B₂ Solid-Solutions J.P. Li, S.H. Meng, S.Q. Liu and Y.M. Zhang	697
Tailoring Plate-Like Grained ZrB₂ Ceramic via a Strong Magnetic Field Alignment Method Followed by Spark Plasma Sintering C.F. Hu, Q. Huang, G.J. Zhang and Y. Sakka	702
Effect of BN Short Fiber Content on Mechanical Properties of ZrB₂-SiC UHTCs C.L. Zhou, Y.Y. Wang, Z.Q. Cheng, C.H. Wang and R.X. Liu	706
Ablation Property of ZrB₂-SiC Composite Sharp Leading Edges with Varying Radiuses of Curvature under Oxy-Acetylene Torch R.J. He, X.H. Zhang and P. Hu	710
Fabrication of ZrC-SiC Powders by Means of Liquid Precursor Conversion Method Using ZrC Precursor and Polycarbosilane Q.G. Li, S.M. Dong, Z. Wang, P. He, H.J. Zhou, J.S. Yang, B. Wu and J.B. Hu	715
Preparation and Assessment of C/C-ZrB₂-SiC Ultra-High Temperature Ceramics J. Fan, C.L. Zhou, C.H. Wang, Y.Y. Wang and R.X. Liu	719
Effect of High-Energy Ball Milling of ZrB₂ Powder on the Microstructure and Mechanical Properties of ZrB₂-SiC Ceramics Q.L. Guo, J.G. Li, Q. Shen and L.M. Zhang	723
Study on ZrB₂-SiC Prepared by Field Assisted Sintering W.J. Wang, S.Z. Zhu, Z.Y. Yan and Q. Xu	729
Effect of Adding Phase on the Properties of ZrB₂ Based Ultra-High-Temperature Ceramics J.G. Song, F. Wang, M.H. Xu, S.B. Li and G.C. Ji	735
Preparation and Properties of ZrB₂-Cu Composites by Spark Plasma Sintering S.Z. Zhu, D.L. Gong, Z. Fang and Q. Xu	739
Electrical and Mechanical Properties of ZrB₂-Based Composite Ceramic Y.Y. Wang, K. Liu, C.L. Zhou, C.H. Wang, R.X. Liu and Y.N. Luan	744
Investigation of Microstructure and Thermal Shock Resistance of the B₄C/BN Composites Fabricated by Hot-Pressing Process T. Jiang and C.C. Tian	748
A Multilayer Coating Method to Prepare Borosilicate Glass-Aluminum Composite Coating on Cubic Boron Nitride Particle H.H. Guo, B.B. Fan, J. Li and R. Zhang	753

Influence of the Content of B₄C on Microstructure and Oxidation Resistance of Carbon/Carbon Composites Modified by a Sol-Gel/Solvothermal Process J. Zhu, J.F. Huang, L.Y. Cao and J.P. Wu	757
Effect of Carbon Fibers' Surface Modification on the <i>In Situ</i> Growth of Carbon Nanotubes J.B. Hu, S.M. Dong, X.Y. Zhang, Z.H. Hu, B. Lu, J.S. Yang, Q.G. Li and B. Wu	761
Influence of Adding β-SiC on the Performance of α-SiC Pressureless Sintering Ceramics L.R. Deng, S.H. Lu, X.Y. Wang, J.B. Wang, Y.B. Liu, X.G. Wang and X.L. Yang	765
Effect of Aging pH Value on the Properties of Porous SiC Ceramics Produced through Coat-Mix Process H. Yang, H.S. Zhao, Z.G. Liu, Z.Q. Li and K.H. Zhang	770
Improved Oxidation Resistance of SiC-Based Ceramic Matrix Composites by <i>In Situ</i> Reaction with Si₃N₄ Filler B. Wu, Z. Wang and S.M. Dong	775
The Dispersion of SiC Nanopowders in Ethanol Y. Hou, P. Hu and W.B. Han	779
Preparation and Properties of SiC Nanocrystallite Reinforced Amorphous Si-B-C-N Ceramics X. Huang, Y.J. Li, S. Li, X.X. Tang and Y. Zhang	785
Silicon Carbide Composites Deposited in Silicon Carbide Whiskers by CVI Process F.T. Meng, S.Y. Du and Y.M. Zhang	789
Effects of Carbon Fiber Dispersion on Bending Property of Cf/SiC Brake Materials B.L. He, Y.X. Yu, J. Sun, J. Liu and J.P. Shi	793
Mechanical Properties of Short Carbon Fiber-Reinforced SiC-Matrix Composites and Correlation to Fibers S.Q. Guo, T. Nishimura and Y. Kagawa	798
Preparation of C_f/SiC Composites by Chemical Liquid-Vapor Deposition Process M. Mei, X.B. He, X.H. Qu, H.F. Hu, Y.D. Zhang and S.A. Chen	804
Design on Thermal Protection Structure of C/SiC Lattice Composite Materials Y. Gao, T. Zeng, D.N. Fang and S. Yan	808
Microstructures and Mechanical Properties of SiC-TiB₂ Composite Prepared by Pressureless Sintering X.Y. Yue, J.J. Wang, Q. Sun and H.Q. Ru	812
Fabrication of High Strength α-SiAlON/BN Composition Ceramics by Hot Pressing Y.C. Shan, G. Wang, H. Ye, X.G. Han, J.J. Xu and J.T. Li	816
Porous Si₃N₄ Fabricated Using Benzoic Acid as Pore-Forming Agent H.S. Wang, K. Liu, C.H. Wang, J. Liu, R. Liao, F. Gao and R.X. Liu	820
Preparation of Silicon Nitride Porous Ceramics J. Liu, K. Liu, H.S. Wang, F. Gao and R. Liao	824
Preparation and Properties of Porous Si₃N₄/SiO₂/BN Composite Ceramics W. Dong, C.A. Wang, L. Yu and S.X. Ouyang	828
Electric Conductive Si₃N₄/TiN Composite Ceramic Manufactured by Liquid-Phase Sintering Y. Jiang, L.E. Wu and Z.K. Huang	832
Dispersion of Si₃N₄ Powders in Tert-Butyl Alcohol S.L. Yao, X.P. Lin, J.T. Ma, C.A. Wang and C.S. Deng	837
Sintering Behavior and Properties of Si₃N₄ Ceramics with Yttrium Chloride Additive D. Lu, X.S. Ning, K.X. Chen and H.P. Zhou	841
Porous Nitride Ceramic Composites with Low-Dielectric Properties R. Liao, C.H. Wang, J. Liu, H.S. Wang and Q.H. Wei	849
Dielectric and Mechanical Properties of Porous Si₃N₄-BN Ceramic Composites J.P. Dou, X.L. Liu, J.T. Ma and X.P. Lin	854
Preparation & Characterization of <i>h</i>-BN Coatings on Ti-Based Substrate Synthesized <i>via</i> the PDCs Route: Tribological Applications in Severe Conditions S. Yuan, B. Toury and S. Benayoun	858
First-Principles Investigation of Electronic Structural and Optical Properties of Rare Earth Doped β-Si₃N₄ Crystals D. Qiu, X.F. Lu, B.H. Li and H.J. Wang	864

High Performance Porous Wave-Transmitting Silicon Nitride Ceramics by Gel-Casting Technique	
J. Zhang, J.W. Chen and H.J. Wang	869
Pressureless Sintering of Silicon Nitride Porous Ceramics with High Porosity and Bimodal Pore Structure	
F. Chen, Q. Shen and L.M. Zhang	873
The Influence of Sintering Temperature on Properties and Microstructure of TiN/Si₃N₄ Composite	
L.E. Wu and Y. Jiang	878
First Principles Investigation of Electronic Structure, Chemical Bonding, Elastic and Optical Properties of Novel Rhenium Nitrides	
Q.L. Xia, L.X. Pan, Y.D. Peng, L.Y. Li, H.Z. Wang, R. Bao and J.H. Yi	883
Thermal Expansion of Anti-Perovskite Mn₃Zn_{1-x}Sn_xN Compounds	
X.H. Yan, J.Q. Liu, Z.Y. Hua, B.Y. Li and X.N. Cheng	890
Synthesis of Polyceriborosilazane via Substitution and Polymerization and Pyrolysis to SiBCN(Ce) Ceramics	
S.H. Wang, H.Y. Wang, F.X. Meng and Y.L. Li	894
Fabrication and Properties of AlN/CNT Composite Ceramics	
H.L. Liang, Y.L. Li, J. Tang, H.L. Liu, Y.L. Huo and Y.F. Chen	898
High Frequency Dielectric Properties and Thermal Conductivity of AlN-BN Composites by Spark Plasma Sintering	
Z.X. Qu, W. Qun, C.C. Cui and Y.H. Zhang	902
Fabrication and Properties of Al₂O₃-SiC/Sialon Composite Refractories	
D.Y. Ye, Y.G. Liu, Z.H. Huang, M.H. Fang and Y.Y. Liu	908
Fabrication of the SiOC/HfO₂ Ceramic Composites by the Sol-Gel Method	
D. Shou, D.S. Ruan and F. Hou	912
Carbon Fiber Reinforced Phosphate Porous Ceramic Composites	
P. Zhai, X.F. Duan, D.Q. Chen, C.H. Wang, F. Gao and B. Dong	916
Study on Thermal Insulating Behavior of Silica Glass Fiber/Aluminum Phosphate Composite	
C.P. Wang, H.L. Liu, Y.L. Huo, J. Tang and Y.F. Chen	920
Ultrafine WC-Ni-SiCw Cemented Carbides Fabricated by Spark Plasma Sintering	
H.Y. Rong, Z.J. Peng, X.Y. Ren, Y. Peng, C.B. Wang, Z.Q. Fu, L.H. Qi and H.Z. Miao	924
WC-Ni-SiCw Alloys Prepared by Hot-Pressed Sintering	
X.Y. Ren, Z.J. Peng, H.Y. Rong, Y. Peng, Z.Q. Fu, C.B. Wang, Y. Wen, L.H. Qi and H.Z. Miao	928
TiCN-Based Cermets Strengthened with SiC Nano-Whiskers by Spark Plasma Sintering	
Y. Peng, Z.J. Peng, X.Y. Ren, H.Y. Rong, C.B. Wang, Z.Q. Fu, L.H. Qi and H.Z. Miao	932
Preparation and Properties of Polyalcohol Phase Change Material for Insulation	
W. Wu, Y.F. Chen, X. Shi, S.C. Zhang and H.R. Sun	936
Preparation of Calcium Hexaluminate Using Al₂O₃ and White Beach Sand from Western Australia	
C.Y. Zeng, Z.H. Huang, J.T. Huang, Y. Li, Y.G. Xu, S. Yi, M.H. Fang and Y.G. Liu	940
Preparation and Characterization of Amorphous SiO₂ Coating SiC_p/Cu Composites	
X.Q. Ren, B.B. Fan, Q.F. Han, P.H. Wang and R. Zhang	945
The Effect of SiC Surface Treatment on the Interface Bonding Behavior of SiC/Cu Composite Particles	
B.B. Fan, H.H. Guo, J. Li, H.L. Wang, K. Bao and R. Zhang	951
Two Fracture Dynamics Problems of Fiber Reinforced Ceramics	
N.C. Lü, Y.H. Cheng and J.L. Ji	955
Evaluating Adhesion of Ceramic Coatings by Scratch Testing	
K.M. Li, Y.W. Bao, D.T. Wan, Y.L. Huo and J.Y. Wu	959
The Pyrolysis Processing of Polycarbosilane Studied by TG, XRF, IR, XRD, and XPS	
J. Jiao, H.P. Qiu, X.Q. Li, J.H. Luo and Y. Wang	965
GIAXD and XPS Characterization of <i>sp</i>³C Doped SiC Superhard Nanocomposite Film	
J. Yi, X.D. He, Y. Sun, Z.P. Xie, W.J. Xue and F.Y. Cao	971
Anisotropic Mechanical and Thermal Properties of Nd₂SrAl₂O₇	
J. Feng, Z.C. Huang, R. Zhou and W. Pan	975

Experimental Study and Numerical Simulation on Fatigue Crack Growth Behavior of GH4133B Superalloy R.G. Zhao, X.J. Li, Y.Z. Jiang, X.Y. Luo, J.F. Li, H.C. Li and D.H. Tan	980
Thermophysical and Mechanical Properties of Carbonated Hydroxyapatite Q.X. Zhu, W.H. Jiang, C. Shao and Y. Bao	989
Thermal Stability and Structure of Tellurite Glass Z.X. Hou, Z.L. Xue, S.H. Wang, X.D. Hu, H.R. Lu, C.L. Niu, H. Wang, C. Wang and Y. Zhou	994
Preparation of Light-Weight Forsterite Insulation Materials Through Extrusion Processing L. Yang, Y.B. Li, M.J. Ma, L. Zhao, M. Jiang, Y.W. Li and S.J. Li	998
Preparation of Light-Weight Alumina-Spinel Refractory by Foaming Process X.X. Li, Y.B. Li, L. Zhao, X. Yao, Y.W. Li, S.J. Li, Z.H. Fan and F. Liu	1003
Influence of Calcium Addition on the Chemical Durability of the Model Alumino-Silicate Glasses in Aqueous Solutions D. Galusková, M. Hnatko, J. Kraxner, D. Galusek and P. Šajgalík	1009
Transparent Oxyfluoride Glass-Ceramics Containing CaF₂ Nano-Crystalline Phase Z.X. Hou, Z.L. Xue, S.H. Wang, X.D. Hu, H.R. Lu, C.L. Niu, H. Wang, C. Wang and Y. Zhou	1015
Characteristics of CAS and Bi-Based Glass Frit as the Inorganic Binder of Alumina Insulation Slurry Z. Wang, D.Y. Jiang, T. Feng and J.F. Xia	1019
Preparation and Properties of Sintering Brick from Iron Tailings R.F. Zuo, G.X. Du, L.F. Mei, W.J. Guo and J.H. Liao	1023
Preparation of Superhydrophobic SiO₂ Coating on Stainless Steel Substrate Y.W. Hu, H.R. He and Y.M. Ma	1028
Fabrication of Superhydrophobic Surface of TiO₂ through Sol-Gel Process on Stainless Steel Substrate Y.W. Hu, H.R. He and Y.M. Ma	1032
Structure and Growth Kinetics Features of Ceramic Coatings Produced on Ti-6Al-4V Alloy by Plasma Arc Oxidation S.H. Li, S. Wang, Y.J. Yin, K. Sun and C.W. Tan	1036
Microstructural Evolution and Mechanical Properties of Vertical-Cracked Thermal Barrier Coatings in Thermal Exposure Z. Lu, S.W. Myoung, T.S. Jang, K.H. Lee, J.H. Lee, Y. Jung and U.Y. Paik	1040
Effect of Anisotropic Conductive Properties on Heat Transfer and Temperature Distribution of Coatings and Substrates Z.D. Chang and Z. Ma	1045
Modeling Dynamic Behaviors of Reticulated Ceramic/Metal Composites (RCMC) G.J. Li, Q.B. Fan, J.Y. An and F.C. Wang	1051
Thermal Cycling Behavior of Sm₂Zr₂O₇ Ceramics Thermal Barrier Coatings by APS X.K. Sun, Q.S. Wang, Y.B. Liu and C. Wang	1058
Preparation and Investigation of High Emissivity Coatings Prepared by Plasma Spraying C. Wang, Q.S. Wang and X.K. Sun	1062
Influences of Calcination Ambiences on Morphologies, Phase Composition and Contents of the Elements of Ceramic Coatings on Ti Alloy by Micro-Arc Oxidation J.X. Zhang	1066
ZrSiO₄/SiC Oxidation Protective Coating for Carbon/Carbon Composites Prepared by Hydrothermal Electrophoretic Deposition J. Liu, J.F. Huang, L.Y. Cao and Y. Xin	1070
Silica Coatings Pigmented with Core-Shell Particles for High-Temperature Radiation Heat Shields G.H. Wang, Y. Zhang and Y.F. Chen	1074
Influences of Argon Ambience on Phase Composition and High Temperature Oxidation Resistance Property of Ceramic Coatings on Ti Alloy by Micro-Arc Oxidation G.D. Hao, Z.G. Yang, X.X. Zheng, X.Z. Zeng and X.Y. Wu	1078
The Composition and Hardness of the Coating Containing Zirconia Produced by Micro-Arc Oxidation on Aluminium Alloy S.G. Xin, J. Le and L.X. Song	1082
Fabrication of Superhydrophobic Coatings on Copper Substrate H.Q. Liu, W. Pan and B.C. Xu	1089

Kinetic Analysis of Sulfation of Fe-Ca Based Sorbent for FGD R.F. Zhao, Y.L. Shen, C.X. Ruan and W.M. Gao	1093
The Comprehensive Evaluation on Financial Performance of the Ceramic Company Based on Principal Component Analysis B.C. He and H.T. Jiang	1098

Chapter 3: Electrical, Magnetic and Optical Ceramics

Microstructural Characterization of Diamond/SiC Composites Fabricated by RVI Z.L. Yang, X.B. He, M. Wu, A. Ma, R.J. Liu and X.H. Qu	1105
Hot-Pressed Sintered SiC-Based Composites for Microwave Absorbing Application Q.F. Han, B.B. Fan, X.Q. Ren, H. Chen, B. Zhao, H. Zhou and R. Zhang	1111
Develop Dual-Mode DGS Bandpass Filters Using High Quality Factor Aluminum Oxide Ceramic Substrates C.M. Cheng, K.H. Chen, Y.T. Hsieh, F.C. Jong and S.F. Chen	1115
Effects of Technique Parameters on Gelating Process of Cordierite Ceramics Derived from Sol-Microemulsion-Gel Method S.H. Wang, H.R. Lu, Z.X. Hou, C.L. Niu, Z.L. Xue, H. Wang and C. Wang	1119
Effective Electro-Magnetic Parameters for Microwave Absorbing Ceramics Z.Y. Zeng, X.L. Lü and C. Wu	1124
Analysis of Absorption Properties for Magnetism-Absorbing Agents Mixed with Semiconductor Particulate C. Wu, Z.Y. Zeng, X.L. Lü, Q. Jia and H.C. Tang	1128
Comparison Analysis of Absorption Properties for Microwave Absorbent X.L. Lü, C. Wu and Z.Y. Zeng	1132
Preparation of Nano BaTiO₃-Based Dielectric Ceramics by Different Sintering Methods H.L. Gong, X.H. Wang, J.Y. Kim, Z.B. Tian, G.F. Yao and L.T. Li	1136
The Preparation of Flexible Substrate Using BaTiO₃/Polymer Composites for Application in High Frequency Devices C.M. Cheng, K.H. Chen, Y.T. Hsieh and F.C. Jong	1142
Effect of Bi₂O₃-B₂O₃-CuO Additives on Dielectric Properties and Energy Storage of BaTiO₃ Ceramics W. Deng, J.F. Nie, X. Xiao, J.C. Yuan, B.P. Zhang and Y.H. Lin	1146
Antimony Doping Effect on Barium Strontium Titanate G.B. Ge, J.Y. Zhuang, F. Zhang, Y.L. Chen, Y. Umeda and J.T. Huang	1150
Microwave Properties in BaO-TiO₂ System Added by ZrO₂ and WO₃ X.Y. Yang, X.H. Wang, A. Ji and L.T. Li	1155
Synthesis and Characterization of BaTiO₃-(Bi_{0.5}Na_{0.5})TiO₃ Solid Solution Based Dielectric Ceramics G.F. Yao, X.H. Wang and L.T. Li	1160
On Preparation of SrTiO₃ Thin Films with Self-Assembled Monolayers by Liquid Phase Deposition and its Dielectric Properties W.G. Han, G.Q. Tan, A. Xia and H.J. Ren	1165
Effect of Annealing Treatments on the Physical Characteristics of (Ca_{0.8}Sr_{0.2})TiO₃ Thin Films by Sol-Gel Method C.F. Tseng, Y.P. Lu, H.H. Tung and P.C. Yang	1171
Synthesis of Bismuth Titanate Thin Films by Liquid-Phase Self-Assembled Monolayers H. Lin, G.Q. Tan and H.J. Ren	1175
Synthesis and Characteristics of MgO Coated BST-Mg₂TiO₄ Composite Ceramics Q.Q. Jia, H.M. Ji, S. Liu, X.L. Li and Z.G. Jin	1180
Influence of ZnO and Nb₂O₅ Additions on Sintering Behavior and Microwave Dielectric Properties of (Mg_{0.95}Ca_{0.05})TiO₃ Ceramics C.Y. Luo, M.Z. Hu, Q. Huang, Y. Fu and H.S. Gu	1184
Effect of P-Zn-La-Si-Al-N-Mg-Yb Oxides Additives on Sintering and Microwave Dielectric Behaviors of Nd(Co_{1/2}Ti_{1/2})O₃ Ceramics C.H. Hsu, Y.H. Chang, H.W. Yang, J.S. Lin, C.H. Lai and H.H. Tung	1189
Application of AC Impedance Spectroscopy for Characterization of BiNbO₄ Ceramics A. Lisińska-Czekaj, B. Wodecka-Duś and D. Czekaj	1193

Preparation and Microwave Dielectric Properties of $\text{Ca}(\text{Sm}_{0.5}\text{Nb}_{0.5})\text{O}_3$ Ceramics J.M. Li and T. Qiu	1198
Effect of Sintering Temperature on Structure and Dielectric Properties of BZN Ceramics Y.H. Xu, X.H. Zhu, Q. Zhang, J.G. Zhu and D.Q. Xiao	1203
SAW Properties on X,Y,Z-Cut of $\text{Sr}_3(\text{Nb,Ta})\text{Ga}_3\text{Si}_2\text{O}_{14}$ and $\text{Ca}_3(\text{Nb,Ta})\text{Ga}_3\text{Si}_2\text{O}_{14}$ Piezoelectric Crystal W.Q. Huang and H. Yang	1207
Fabrication and Study of BiNbO_4 Ceramics A. Lisińska-Czekaj and D. Czekaj	1212
Effect of Pre-Calcined Method on Dielectric, Ferroelectric, and Piezoelectric Properties of Lead-Free Piezoelectric $\text{Li}_x(\text{K}_{0.5}\text{Na}_{0.5})_{1-x}(\text{Nb}_{0.8}\text{Ta}_{0.2})\text{O}_3$ Ceramics M.C. Kuan, K.H. Chen, C.M. Cheng, C.C. Lin and S.F. Chen	1218
Effects of CuO Addition on the Microstructure and Microwave Dielectric Properties of MgTa_2O_6 Ceramics B.J. Fu, Y.C. Zhang, X.L. Su, Y.H. Liu and M. Hong	1222
Studies on Structural, Microwave Dielectric Properties, and Low-Temperature Sintering of $1.52\text{Li}_2\text{O}-0.36\text{Nb}_2\text{O}_5-1.34\text{TiO}_2$ Ceramic Q. Zeng and Y.H. Zhou	1226
ZnTiO_3 Doping Effect on Dielectric Properties of CCTO Ceramics via a Molten Salt Process R. Yu, Z.L. Cao, H. Xue and Z.X. Xiong	1231
Dielectric Properties and Photocatalytic Activity of Single Phase BFO Prepared by Chemical Coprecipitation X.L. Liu, X.L. Dou, H.Y. Xie and J.F. Chen	1235
Preparation and Dielectric Properties of Cr Doped Multiferroic BiFeO_3 X.W. Qi, X.Y. Zhang, J.Q. Qi, H.J. Xu and H.F. Wang	1240
Properties of BiFeO_3 Thin Films Prepared with Self-Assembled Monolayers by Liquid Phase Deposition J. Yin, G.Q. Tan, L.H. Song, A. Xia and H.J. Ren	1244
Preparation of Nd and Co Co-Doped BiFeO_3 Thin Films Co-Doping Nd and Co by Sol-Gel Method X. Xue, G.Q. Tan, H.J. Ren and M. Cheng	1249
Density-Functional Studies of Cr Adsorbed on Polar ZnO Surfaces Z.N. Zhang, G.Y. Gan, L.H. Wang, J.K. Yan, J.H. Yi, J.H. Du and J.M. Zhang	1253
Study on Electronic Properties of ZnO Doped with Cr, Mn and Co by First Principles X. Gao, G.Y. Gan, J.K. Yan, J.H. Du, J.M. Zhang, J.H. Yi and L.H. Wang	1257
La Doped Layered Structure Low-Voltage ZnO Varistor X. Gao, G.Y. Gan, L.H. Wang, J.K. Yan, J.H. Yi, J.H. Du and J.M. Zhang	1263
Solid-State Reaction and Gas Sensor Properties of Porous $\text{SnO}_2\text{-In}_2\text{O}_3$ Composites Y. Cao, X.L. Zhou, J.C. Cao, Y.Y. Peng, J.C. Chen and J. Yu	1268
Donor Solid Solubility and Microstructure of Nb-Doped TiO_2 Ceramic Varistor R.J. Jia, J.K. Yan, G.Y. Gan, J.H. Du and J.H. Yi	1273
B_2O_3-Doped $\text{ZnO-Pr}_6\text{O}_{11}$ Based Varistor Ceramics Y.P. Wang, Z.J. Peng, H. Feng, C.B. Wang, Z.Q. Fu, L.H. Qi and H.Z. Miao	1277
Fabrication and Electrical Properties of Vanadium Pentoxide Fibres W. Zhang, H.P. Li and W. Pan	1281
Failure Behavior of PZT 95/5 under Direct Current, Pulsed Electric Field and Shock Compression F.P. Zhang, G.M. Liu, J.M. Du, Y.S. Liu, Y. Liu and H.L. He	1286
Synthesis and Electrical Properties of $\text{PZT/BaFe}_{12}\text{O}_{19}$ Multiferroic Ceramics R.J. de Portugal, J.C. M'Peko, A.C. Hernandez, C.A. Guarany and J.d.L.S. Guerra	1291
Design of the PTO/PZO Ferroelectric Superlattice Assembly T. Hu, C. Zhang and N. Zhang	1296
Effect of Glass Additive on Electrical Properties of PLZST Antiferroelectric Ceramics G. Li, T.Q. Yang, J.F. Wang, Z.J. Sun and J.Q. Guo	1300
The Electrocaloric Effect in BaTiO_3 Thick Film Multilayer Structure at High Electric Field Y. Bai, K. Ding, G.P. Zheng, S.Q. Shi, L.J. Qiao and D. Guo	1304
Influence of Lanthanum Concentration on Properties of BLT Electroceramics B. Wodecka-Duś, A. Lisińska-Czekaj and D. Czekaj	1308

Electrical Characteristics and Microstructures of Pr₆O₁₁-Doped Bi₄Ti₃O₁₂ Ceramics M. Chen, X.A. Mei, R.F. Liu, C.Q. Huang and J. Liu	1313
Electrical and Physical Properties of the Bi_{3.25}La_{0.75}Ti₃O₁₂ Ferroelectric Thin Films Prepared by Conventional Temperature Annealing Process F.W. Yang, K.H. Chen and C.M. Cheng	1317
Ferroelectric and Physical Characteristic of the La and V Doped on Bi₄Ti₃O₁₂ Thin Film Prepared by RF Magnetron Sputtering Method S.F. Chen, K.H. Chen and C.M. Cheng	1321
Ferroelectric Properties and Microstructures of Tb₄O₇-Doped Bi₄Ti₃O₁₂ Thin Films R.F. Liu, X.A. Mei, M. Chen, C.Q. Huang and J. Liu	1325
Electrical Properties and Microstructures of Tb₄O₇-Doped Bi₄Ti₃O₁₂ Ceramics X.A. Mei, M. Chen, R.F. Liu, C.Q. Huang and J. Liu	1329
Ferroelectric Properties of Bismuth Titanate Ceramics by Sm³⁺/V⁵⁺ Substitution C.Q. Huang, M. Chen, R.F. Liu, X.A. Mei and J. Liu	1333
Piezoceramic Stack Actuators for Micropositioning Stage Y.N. Xu and X.C. Chu	1337
Damping Properties of Epoxy-Embedded Piezoelectric Composites X.Q. Hong, X.S. Wang, X.M. Li, R. Chen, X. Yao, Z.J. Sun and J.Q. Guo	1342
Microstructure and Electrical Properties of Porous PZT Ceramics with Unidirectional Pore Channel Structure Fabricated by Freeze-Casting T.T. Xu, C.A. Wang and R. Guo	1347
Electrical and Physical Properties of Lead-Free (Na_{0.5}K_{0.5})NbO₃-Bi_{0.5}(Na_{0.93}K_{0.07})_{0.5}TiO₃ Ceramics C.H. Wang	1351
Sol-Gel Derived Li₂O Doped BNT-BKT-BT Ceramics: Microstructure and Piezoelectric Properties T. Sun, Y.J. Dai and H.Q. Wang	1355
Preparation and Mechanical Energy Harvesting of BaTi_{0.9}Zr_{0.1}O₃ Ceramic Nanofibers X.P. Xiao, P. Hu, Z.X. Xiong, H. Xue, Q.J. Lu, H.L. Ye and G.F. Zhang	1359
Phase Transitions, Dielectric and Piezoelectric Properties of BiScO₃-PbTiO₃ Ceramic Solid Solutions E. D. Politova, G. M. Kaleva, A. V. Mosunov, A. G. Segalla and J.T. Zeng	1363
Enhanced Piezoelectric Properties of CaBi₂Nb₂O₉ with Eu Modification and Templated Grain Growth H.B. Chen and J.W. Zhai	1367
Processing and Electrical Properties of Ta and Li-Modified KNN-Based Lead-Free Thin Films Prepared by the RF Sputtering Technology F.W. Yang, C.M. Cheng and K.H. Chen	1372
Impedance-Frequency Spectrum and Soft/Hard Doping Characteristics of Lead-Free K_{0.5}Na_{0.5}NbO₃-LiSbO₃-BiMnO₃ Piezoelectric Ceramics M.H. Jiang, X.Y. Liu, G.H. Chen and J.F. Ma	1376
Influence of Sintering Conditions on Electric Performance of Textured 92BNT-6BT-2KNN Ceramics C.G. Ye, F. Fu, B. Shen and J.W. Zhai	1380
Piezoelectric and Strain Properties of Strontium-Doped BZT-BCT Lead-Free Ceramics W.F. Bai, W. Li, B. Shen and J.W. Zhai	1385
Enhanced Piezoelectric Properties of (Na_{0.535}K_{0.485})_{0.905}Li_{0.095}(Nb_{0.94}Ta_{0.06})O₃-(Na_{0.5}Bi_{0.5})TiO₃ Lead-Free Piezoelectric Ceramics in the MPB Composition Z.Y. Shen, Z.G. Xiao, Y.M. Li, Z.M. Wang and Y. Hong	1390
Synthesis of Single-Crystalline Plate-Shaped K_{0.5}Na_{0.5}NbO₃ Particles by Multi-Step Molten Salt Method Z. Liu, Y.M. Li, Z.Y. Shen and Z.M. Wang	1395
Influence of Ta⁵⁺ Doping on the Piezoelectric Properties of KNN Ceramics P. Xiong, G.Q. Tan and H.J. Ren	1399
Study on the Pressureless Sintering and Properties of (K_{0.5}Na_{0.5})_{1-x}Li_xNb_{1-y}Ta_yO₃ Lead-Free Piezoelectric Ceramics H.F. Hao, G.Q. Tan, P. Xiong, B. Qin and H.J. Ren	1403
Doping Effect of W⁶⁺ Ions on Microstructural and Magnetic Properties of Mn-Zn Ferrites Q.K. Xing, Z.J. Peng, C.B. Wang, Z.Q. Fu and X.L. Fu	1408

Calcium Behaviors in MnZn Ferrite at Different Temperatures Y.Q. Cai, Y.Y. Lin, X. Li, J.T. Huang and T. Aoki	1412
Effects of Eu^{3+} Substitution on Nanosized Mn-Zn Ferrite Powders Synthesized by Combustion Processing H. Zhang, Y. Shi, X. Zeng and X.Y. He	1416
Molten Salt Synthesis of $\text{Ni}_{0.5}\text{Zn}_{0.5}\text{Fe}_2\text{O}_4$ Ferrites H.T. Jiang, X.F. Wang, L.L. Wang and C.L. Yu	1420
Effect of SiO_2 Content on the Electromagnetic Properties of CoZn-Z Type Barium Ferrite Prepared with Ferrous Micro-Beads Y.M. Sun, W. Qun, Z.X. Qu and M.W. Shi	1424
Fabrication of Iron Carbide and Nitride Ceramics with Controlled Magnetic Properties by the Non-Oxide Sol-Gel Process X. Lao, X. Yan, J. Xie and Y.L. Li	1429
The Structure and Ferromagnetic Properties of the Single Phase $\text{Bi}_{0.95}\text{Eu}_{0.05}\text{Fe}_{0.95}\text{Co}_{0.05}\text{O}_3$ Nanoparticles Prepared by Sol-Gel X.A. Li, P. Li, Y.T. Li, J.P. Yang, Q.F. Bai, Z.R. Liu and B.L. Wang	1434
Room-Temperature Ferromagnetism in Co-Doped SrTiO_3 Nanofibres W. Zhang, H.P. Li and W. Pan	1438
Study on Magnetic Liquids Properties for Sensor Design X.Z. He, D.C. Li, H.N. Zhang and Z.L. Zhang	1442
Study on Magnetic Fluid Static Seal of Large Gap D.C. Li, H.N. Zhang and Z.L. Zhang	1448
Structure Design of Magnetic Fluid Static Seal at Large Diameter Flange X.Z. He, D.C. Li, H.N. Zhang and Z.L. Zhang	1455
The Experimental Study of the Magnetic Fluid Damper Based on the Principle of Second-Order Buoyancy Y. Ding, D.C. Li, Q.L. Wang, H.N. Zhang and Z.L. Zhang	1459
Experimental Study on the Second-Order Buoyancy of Magnetic Fluid X.Z. He, D.C. Li, W.M. Yang and H.N. Zhang	1464
Properties of Fluorinated Surfactant and Wetting Effect on Fe_3O_4 Nanoparticles H.C. Cui, D.C. Li and C. Wang	1470
Study on the Structure of the Magnetic Fluid Damper J. Yao, D.C. Li, Z.L. Zhang and J.H. Zhang	1474
Effects of Magnetic Fluid on Magnetic Fluid Damper J.H. Zhang, Z.L. Zhang, D.C. Li and J. Yao	1479
Photoluminescence of $\text{ZrO}_2\text{-ZnO}$ Hybrid Nanotube Arrays Produced by Electrodeposition L.M. Guo, X.H. Wang and L.T. Li	1484
Effects of Sm^{3+} Doping on the Photoluminescence Properties of $\text{Ca}_9\text{Eu}_{1-x}\text{Sm}_x(\text{VO}_4)_7$ Red-Emitting Phosphors L.H. Liu, R.J. Xie, X.D. Sun, Q. Huang and N. Hirosaki	1488
Effects of PEG on Properties of $\text{SrAl}_2\text{O}_4\text{:Eu}^{2+}$, Dy^{3+} Long Afterglow Phosphors Prepared by Combustion Synthesis X.X. Liu, M. Liang, G.H. Peng and Z.H. Liang	1494
The h-BN Protective Method Used for the Synthesis of Highly Uniform Spherical Si-Based Oxynitride Phosphors J.Y. Tang, W.H. Zhang and X. Xu	1499
Zinc Oxide Films Doped with Aluminum, Gallium or Tin Prepared by Dip Coating Process Using Ethanol Solution Y. Sawada, H. Ohkubo, Y. Seki, K.M. Lin, K. Sano, S. Seki, T. Uchida and Y. Hoshi	1503
The Synthesis of TiO_2 Nanoarray Films on Glass Substrate by Anodic Oxidation Method X.Y. Zhu, X.Q. Wang, J. Guo and Y.L. Li	1507
Photoluminescence Enhancement of CdS Nanocrystals Fabricated on Dithiocarbamate Functionalized PET Substrates C.L. Zhao, L. Xing, X.H. Liang, J.H. Xiang, F.S. Zhang, L.J. Cui, B. Song, S.W. Chen, H.Z. Sai and Z.Y. Li	1511
Luminescent Properties of Ce Doped LuAG Thin Films Prepared by Pechini Sol-Gel Method Q. Ma, S.Q. Shen, J.J. Xie, F.Z. Ma, Y. Shi, W. Xiong and J. Wang	1516

Preparation and Characteristic Development of Nano Zn_2SiO_4: Mn Green Phosphors by La_2O_3 Doping	
F.W. Yang, C.M. Cheng and K.H. Chen	1520
Relationship between Infrared Radiant Properties in Different Waveband and Structure of Fe–Co–Ni–Cr Spinel	
H. Guan, J.H. Cheng, B.X. Jiao and X. Zhang	1524
Relationship between Structure and Infrared Radiation of Fe–Mn–O Ceramics	
J.H. Cheng, H. Guan and B.X. Jiao	1529
The Preparation of ZnO Nanopowders and Dye Sensitized Solar Cells By Sol-Gel Method	
Y.X. Wang, S. Jian and B.X. Zhao	1533
Light Scattering Properties for PLZT Transparent Ceramics of Different Zr/Ti Ratios	
B. Xia, X.Y. He, X.S. Zheng, P.S. Qiu, W.X. Cheng and X. Zeng	1537
Recovery and Separation of Si and SiC in Wire Cutting Waste Slurry from Photovoltaic Silicon	
Y.X. Wang, C. Jiang and H.Y. Liang	1541
Fabrication of ZnO Nanospheres and Application to Dye-Sensitized Solar Cells	
Y.X. Wang, B.X. Zhao and J. Sun	1545

Chapter 4: Ceramics for Electrochemical, Chemical and Energy Applications

Properties of Yttria-Stabilized-Zirconia Based Ceramic Composite Abradable Coatings	
M. Zhao, L.X. Zhang and W. Pan	1551
Preparation and Performance of Ni-YSZ/YSZ Co-Ceramic Using Multiple Gel-Tape Casting	
Z.Z. Yi, F.R. Zhai, H. Tian and Z.P. Xie	1555
Fabrication and Properties of $\text{Ba}(\text{Zr}_{0.63}\text{Ce}_{0.27})\text{Y}_{0.1}\text{O}_{3-\delta}/\text{ZnO}$ Electrolyte Materials	
R.S. Guo, L.J. Wu, Y.Y. Gao, Y.P. Deng and H. Jiang	1559
Electrical Conductivity and Characterization of CeO_2 Doped 8YSZ Electrolyte with 2%wt CuO Doping	
J.S. Zhang, Y.F. Wu, L.H. Luo, G.Y. Shen and H. Su	1564
Fuel Processing in Direct Methanol and Carbon Deposition Behaviour on Ni/CeO_2-ZnO Anodes for Solid Oxide Fuel Cell	
G.Y. Shen, Y.F. Wu, L.H. Luo, H. Su and J.S. Zhang	1569
A Study on Electrical Resistivity of $\text{BaO}-\text{CaO}-\text{SiO}_2-\text{Al}_2\text{O}_3$ Seal Glass Used in Solid Oxide Electrolytic Cell (SOEC)	
J. Hao, C.S. Deng, Q.F. Zan and J.M. Xu	1574
Application of Rape Pollen in Anode Substrates of Solid Oxide Fuel Cell	
H. Su, Y.F. Wu, L.H. Luo, J.S. Zhang and G.Y. Sheng	1579
Synthesis of $\text{Sr}_2\text{Fe}_{1-x}\text{Mn}_x\text{NbO}_{6-\delta}$ Powders and their Stability as Electrode of Solid Oxide Electrolysis Cell	
B. Ge, D.S. Ai, C.S. Deng, J.T. Ma and X.P. Lin	1584
Hydrothermal Synthesis of $\text{Li}_2\text{MnSiO}_4$ Powders as a Cathode Material for Lithium Ion Cells	
S.H. Luo, M. Wang, X. Zhu and G.H. Geng	1588
Mixtures of $\text{TiO}_2 \cdot 0.2\text{H}_2\text{O}$ and LiFePO_4 as Li-ion Battery Cathode Materials	
Z.J. Hong, Z.L. Tang, Y.X. Xu, Y. Hong, A. Tan and Z.T. Zhang	1592
Application of Electrochemical Impedance Spectroscopy in Organic Solar Cells with Vertically Aligned TiO_2 Nanorod Arrays as Buffer Layer	
Y.C. Zhang, X.J. Jiao, C. Zhou, H.P. Shen, F. Hao, K. Hotozuka and H. Lin	1598
Magnetron Sputtering of Tantalum Oxide Thin Electrolyte Film for Electrochromic Applications	
C.C. Liu, K.I. Liu, H.T. Lin and J.L. Huang	1604
Application of Three-Dimensional ZnO Inverse Photonic Crystal in Dye-Sensitized Solar Cells	
J.J. Gao, B. Li, Z.D. Liu, X.J. Jiao, J. Zhou, H. Lin and L.T. Li	1609
Photovoltaic Performance Optimization of Natural Trolius Sensitized Solar Cells	
G.J. Yang, S.R. Wang, H. Lin, G. Wang, Y.C. Zhang, F. Hao and H.Y. Chen	1614

Stability of Dye Sensitized Solar Cells with Glass Frit Sealant H.Y. Chen, S.R. Wang, H. Lin, G. Wang, S.H. Wang and G.J. Yang	1619
Effects of Surfactants on the Synthesis of Silica Aerogels Prepared by Ambient Pressure Drying H.Z. Sai, L. Xing, J.H. Xiang, F.S. Zhang, L.J. Cui, X.H. Liang, B. Song, C.L. Zhao and Z.Y. Li	1625
Manufacturing Technology for Niobium Oxide Electrolytic Capacitor and Several Correlative Mechanisms B. Li, T. Zang, J. Zhou, H. Guo, Z.X. Qi and S. Wang	1631
An Energy Storage Material Fabricated by Coating Ba_{0.40}Sr_{0.60}TiO₃ Nano Particles with Aluminum Oxide Doped with Zinc Oxide Shell C. Xu, B. Shen and J.W. Zhai	1635
Facile Synthesis of Hierarchically Macro/Mesoporous Carbons by Polymerization-Induced Phase Separation Combined with Starch Template Z.W. Xiao, G. Zhang and G.J. Qiao	1641
The Thermoelectric Performance Enhancement of N-Type BiTeSe Alloys by Addition of ZnAlO T. Zhang, J. Jiang, S.H. Yang, Y.B. Zhai and G.J. Xu	1647
The Influence of RuO₂ Addition on the Thermoelectric Properties of BiSbTe Alloys Y.K. Xiao, Z.X. Li, J. Jiang, S.H. Yang, T. Zhang, Y.B. Zhai and G.J. Xu	1651
Influence of Operational Parameters on Oil-Water Separation Efficiency of Titanium Oxide Modified Alpha-Alumina Microfiltration Membrane J.E. Zhou, X.B. Hu, Y.Q. Wang, X.Z. Zhang and J.T. Pan	1655
Facile Fabrication of Open-Ended High Aspect-Ratio Anodic TiO₂ Nanotube Films and their Applications J.J. Liao, S.W. Lin, N.Q. Pan, X.K. Cao and J.B. Li	1659
The Effect of Acid Etching Process on Surface Morphology and Electrocatalytic Capability of RuO₂-IrO₂-TiO₂/Ti Anode D. Qu, J. Hu, L. Shen, W.J. Zhang and W. Wang	1663
The Effect of Sintering Temperature on Microstructure and Electrocatalytic Capability of RuO₂-IrO₂-TiO₂/Ti Anode D. Qu, J. Hu, L. Shen, W.J. Zhang and H. Tang	1668
Synthesis of Nano-Sized SrTiO₃ Photocatalyst by Sol-Gel Method W. Zhao, J.J. Yao, J. Ya, L. E, Z.F. Liu and H.P. Zhou	1673
Photocatalytic Enhancement in Methylene Blue Degradation of TiO₂ Photocatalysts via Graphene Hybridization F. Zhou, Y.Q. Fu and X. Wan	1677
Influence of Microwave-Hydrothermal Temperature on Synthesis of TiO₂ Thin Films on PMMA Substrates from Colloidal Anatase Aqueous Solutions Z.Q. Zhang, J.F. Huang, L.Y. Cao and J.P. Wu	1682
Load TiO₂ or TiO₂-N on the Porous Carbon J. Chen, L.F. Mei and L.B. Liao	1686
Pores Formation Mechanism of Undoped TiO₂ Ceramics J. Yuan, J.K. Yan, G.Y. Gan, J.H. Du and J.H. Yi	1690
Fabrication of Oxide Compound Nano-Films Materials by LBL Self-Assembly Technology C.X. Li, P.F. Zhu, D.Y. Jiang, Q. Lv and Q. Li	1696
Super-Hydrophilic Lu³⁺-Doped TiO₂ Photocatalysts for Self-Cleaning Applications W.Y. Xu, L.N. Meng, C. Yang and G.L. Huang	1700
Effect of Testing Conditions on ZnFe₂O₄ Film Photoelectrocatalytic Properties J.G. Jin, G.Q. Hou and W.L. Zhang	1704
Enhanced Visible Light Activity of Ag-Loaded TiO₂ Nanotube Arrays by AC Electrodeposition J. Zhao, J.L. Zhao, X.X. Wang, Y.Y. Jia and C.C. Tang	1708
Preparation of Nano-ZnFe₂O₄ Doped TiO₂ Photocatalytic Films on Porous Hayddites K.J. Xu, Y.Q. Guo, X.K. Liu, Q.W. Sun and S.H. Dong	1713
Fabrication of Li₂TiO₃ Ceramic Pebbles by Gelcasting Method M. Hong, Y.C. Zhang, Y.H. Liu and B.J. Fu	1717
ZrC Oxidization Mechanism in Air Y.W. Zhang, J.Y. Zhang, J.J. Xie and Z.Y. Fu	1721

Chapter 5: Biomaterialized Ceramics, Bioceramics and Bioinspired Designs

Biomimic Enamel Remineralization by Hybridization Calcium- and Phosphate-Loaded Liposomes with Amelogenin-Inspired Peptide	
J.J. Luo, T.Y. Ning, Y. Cao, X.P. Zhu, X.H. Xu, X.Y. Tang, C.H. Chu and Q.L. Li	1727
Preparation of Patterned BiFeO₃ Thin Films on the Functional Silicon Substrates Surface	
G.Q. Tan, M. Cheng, Y. Wang, L. Cheng and A. Xia	1731
Effects of Annealing Temperature on Morphology and Dielectric Property of BiFeO₃ Films	
L.L. Zhang, G.Q. Tan, M. Cheng, H.J. Ren and A. Xia	1736
Preparation of Mineralized Electrospun PCL/Gelatin Scaffolds via Double Diffusion System	
Z.Z. Guo, H. Li, W.C. Guan, B. Xue and C.R. Zhou	1740
Fabrication and Mechanical Properties of Chitosan-Montmorillonite Nano-Composite	
Z.J. Shou, H.R. Le, S.Y. Qu, R.A. Rothwell and R.E. Mackay	1746
Matching Ability of Dental Shaded Zirconia Ceramics and Veneering Porcelain	
L.M. Dong, C. Wang, N. Wen, Y.F. Yi, Q.F. Zan and J.M. Tian	1751
Influence of Low Temperature Aging on the Flexural Strength of Y-TZP Ceramics	
C. Wang, L.M. Dong, Y.F. Yi, N. Wen, Q.F. Zan and J.M. Tian	1756
Affection of Post-Core Materials on the Resultant Color of Lithium Disilicate Ceramic Restorations	
T. Sun, L.Q. Shao, Y.L. Wang, Y.F. Yi, B. Deng and N. Wen	1761
Effect of Zirconia Surface Roughness on Shear Bond Strength to Resin Cements	
C. Hu, L.Q. Shao, Y.F. Yi, Q. Liu, B. Deng and N. Wen	1765
Effects of Alveolar Bone Loss and Post-Core Design on Stress Distribution of Severely Damaged Canine	
Y. Gao, L.Q. Shao, B.L. Deng, S.Y. Zhou, Y.F. Yi, B. Deng and N. Wen	1770
Relative Translucency of Dental Lithium Disilicate Ceramic Restorations	
L.Q. Shao, T. Sun, Y.N. Gan, Q. Liu, Y.F. Yi, B. Deng and N. Wen	1775
Influence of Thickness on Residual Stress Profile in Veneering Ceramic Layered: Measurement by Hole-Drilling	
L.L. Wang, L.Q. Shao, Y.F. Yi, Q. Liu, B. Deng and N. Wen	1779
Masking Ability of IPS e.max ALL-Ceramics System of HO Series	
S.Y. Zhou, L.Q. Shao, L.L. Wang, Y.F. Yi, B. Deng and N. Wen	1784
The Influence of Background Color to 3 All-Ceramic System Core Materials	
B. Deng, H.C. Liu, Y.F. Yi, L.Q. Shao, N. Wen, B. Gu, Y.H. Liu, R.J. Lu and J.H. Chen	1788
The Transmittance Test of 3 All-Ceramic System Core Materials	
R.J. Lu, H.C. Liu, Y.F. Yi, L.Q. Shao, N. Wen, B. Gu, Y.H. Liu and B. Deng	1793
Effects of the Mechanical Properties of Veneering Porcelain on Stress Distribution of Dental Zirconia Layered Structure: A Finite Element Model Study	
Y.F. Yi, L.Q. Shao, C. Wang, N. Wen, B. Deng and J.M. Tian	1797
Preparation of Pigmented Glass for Infiltration and Investigation of its Physical and Mechanical Properties	
H.X. Lu, Y.F. Yi, B. Deng, L.Q. Shao, L.S. Zhao, G. Shi, R.J. Lu and N. Wen	1802
Colorimetric Comparison of Two Kinds of VITA Shade Guides	
H.X. Lu, Y.F. Yi, B. Deng, L.Q. Shao, L.S. Zhao, G. Shi, R.J. Lu and N. Wen	1807
Corrosion Behavior of Mesoporous Hydroxyapatite Coated AZ31 Magnesium Alloys	
X.Y. Ye, S. Cai and Y. Dou	1811
Improving Bioactivity of Porous β-TCP Ceramics by Forming Bone-Like Apatite Layer on the Surfaces of Pore Walls	
Q.F. Zan, Y. Zhuang, L.M. Dong, C. Wang, N. Wen and G.H. Xu	1815
Preparation, Characterization and <i>In Vitro</i> Release Kinetics of Vancomycin Carried β-TCP/Chitosan Composite Microspheres Used as Bone Tissue Engineering Scaffolds	
L. Zhang, X.M. Cui, Q.F. Zan, L.M. Dong, C. Wang and Q. Yang	1821
Influence of Surface Composition of Silicon-Based Material on their Bioactivity	
Y.R. Niu, X.B. Zheng and Y.T. Xie	1826