

# Table of Contents

## Preface, Committees and Sponsors

## Chapter 1: Nanoscale Materials and Nanocomposites

<b>Thermoelectric Properties of Binary-Phased Nanocomposites</b>	
P.X. Lu	3
<b>Effect of Additives on the Formation of SmCo Magnetic Nanoparticles by Chemical Synthesis</b>	
J.J. Tian	9
<b>Research Development of Preparation Technology of BaTiO<sub>3</sub> Nano-Power</b>	
M.C. Che and J. Chen	17
<b>Synthesis of PbS Nanocrystals by Heterogeneous Reaction</b>	
R.L. Zhang and S.Z. Tang	26
<b>Lubrication Mechanism of Nanoparticles in Metal Hot Deformation</b>	
T.L. Niu, J.L. Sun, Y.D. Wang, Z.X. Zhu and Y. Li	31
<b>The Preparation and Photo-Thermal Property of Ag<sub>2</sub>S Nanomaterials</b>	
X.Z. Yuan, H.Q. Xu, Y. Shan and K.Z. Chen	39
<b>Multiwalled Carbon Nanotubes Covered with Cobalt (II) Phthalocyanine by <i>In Situ</i> Synthesis and its Electrochemical Sensing Performance towards DA and UA</b>	
H.H. Wang, N. Li, K. Li, Y. Bu, W.L. Dai and X. Zuo	43
<b>Mild and Low-Cost Synthetic Process for Monodispersive Platinum Nanoparticles on Carbon Aerogel</b>	
F. Li, G.Y. Zhao, Y. Yang, G. Patrick and R. Moutloali	53
<b>Synthesis and Characterization of Poly(2-acrylamido-2-methyl propyl sulfonic acid-co-2-hydroxyethyl methacrylate)/ Silver Nanoparticle Composite Hydrogel as Catalysts for the Reduction of 4-Nitrophenol</b>	
Y.L. Li, B.H. Liu and S.B. Lin	59
<b>Synthesis and Optical Property of β-In<sub>2</sub>S<sub>3</sub> Nanorods</b>	
G.D. Liu, Y.G. Wang, J. Zhang and Y. Tian	67
<b>Preparation of Chromium Nitride Nanopowders Using High Pressure Gas-Solid Reaction Bed</b>	
X.Q. Li, K.M. Wang, S.S. Gao, W.L. Huan and H.B. Jia	74
<b>Preparation of Silver Nanoparticles in Water-Alcohol Media</b>	
X.N. Gao, D.B. Tian, J.L. Wang, J. Hou, Y.J. He and Y.D. Liang	78
<b>New Preparation Method and Characterization of Nanosilver</b>	
X. Liu, C.P. Wei, L.D. Dong, S.N. Zhao, J. Li and F.M. Wang	82
<b>Influence of Nd Doping on the Magnetic Properties of Nd<sub>2</sub>Fe<sub>14</sub>B/α-Fe Nanocomposite Magnets</b>	
X.D. Fan, N. Tian and C.Y. You	88
<b>Influence of Fabrication Parameter on the Nanostructure of SiNWs under HF/AgNO<sub>3</sub>/Fe(NO<sub>3</sub>)<sub>3</sub> Etching System</b>	
Y.Y. Xiao, X.H. Chen, W.H. Ma, S.Y. Li, Y.P. Li, J.L. He, J. Li and H. Zhang	93
<b>Giant Magnetoimpedance in Fe<sub>73.5</sub>Cu<sub>1</sub>Nb<sub>2</sub>V<sub>1</sub>Si<sub>13.5</sub>B<sub>9</sub> Nanocrystalline Ribbons</b>	
H.G. Hu, Y.M. Hao, C.J. Gao, Y.Z. Wu and F.F. Liang	99
<b>Preparation and Performance of Polypropylene/Modified Carbon Fibers by Physical Blending Method</b>	
H.F. Chen, Y. Miao and S.S. Ke	105
<b>One-Step Preparation of Nanoparticulate TbFeO<sub>3</sub> by Microwave Process and its Visible-Light Photocatalytic Activity</b>	
P.S. Tang, Z.H. Wang, J.N. Ying, C.W. Tang and Q. Yang	109
<b>Nanoscale Hollow-Bubbly Polypyrrole Obtained via Interfacial Polymerization with Phase Transfer Catalyst</b>	
D.P. Dong, Q.H. Yang, L.T. Yang, Z.Z. Hou and Z.Y. Tu	114

<b>Influences of Reaction Temperature on Structure and Performances of SnO<sub>2</sub> Nanocrystals Prepared by Microwave Hydrothermal Method</b>	122
L.X. Yin, F.F. Wang, J.F. Huang, D. Wang and J.Y. Li	
<b>Chiral Resolution of Ofloxacin Using Carboxylated Multi-Walled Carbon Nanotubes Mediated Thin-Layer Chromatography</b>	128
D.S. Huang, Y.H. Long, Y. Hong, J. Wang, N. Wu and J. Wu	
<b>Lawson Cypress Leaf-Like ZnO Hierarchical Nanostructures by Self-Assembly</b>	131
X.P. Zou, C. Zhao and X.M. Lv	
<b>Research on Preparation of Barium Titanate Nano Powder by Sol-Gel</b>	136
X.C. Li and Q. Yang	
<b>Preparation of Nanoparticulate ErFeO<sub>3</sub> by Microwave Assisted Process and its Photocatalytic Activity</b>	140
C.W. Tang, J.N. Ying, D.J. Ni, Q. Yang, L.M. Wu and P.S. Tang	
<b>Multifunctionalities of Nanocarbon Materials Filled Cement-Based Composites</b>	144
L.Q. Zhang, S.F. Dong, Y.Y. Wang and B.G. Han	
<b>Effect of Nano-Magnesium on the Thermal Decomposition of PTFE</b>	155
L. Liu, H. Ren and Q.J. Jiao	
<b>Synthesis and Properties of Nano-TiO<sub>2</sub> Modified Fluorine-Containing Polyacrylate Soap-Free Emulsion</b>	161
J.H. Zhou, L.B. Wang, Y.J. Cui, J.Z. Ma and G.X. Sun	
<b>Fabrication of Highly Hydrophobic Polyurethane Foam for the Oil-Absorption Application</b>	169
J. Liu, M.J. Chang, M. Tenggeer and H.L. Du	
<b>Effects of Carboxyl Functionalized Carbon Nanotube on the Tensile Strength and Wear Resistance of Epoxy Composites</b>	175
L.H. Mao, H.Z. Geng, W.Y. Wang, L.J. Cui, C.R. Cui and W.J. Xiu	
<b>Improved Low Temperature Solution Synthesis of Silicon Nanoparticles for Lithium-Ion Batteries</b>	180
Y.C. Chen, G. Yang, R. Zhao and W.D. Xue	
<b>Synthesis of Highly-Ordered V<sub>2</sub>O<sub>5</sub> Nanowires by AAO Template and its Electrocatalytic Activity for Dopamine Electro-Oxidation</b>	187
K.F. Zhang, H. Zhou, H.L. Li, R.P. Sang, L.X. Huo and Y.G. Zheng	
<b>Preparation and Characterization of Mg-Doped GaN Nanowires by Au-Catalyzed Magnetron Sputtering Deposition</b>	193
R.G. Liang, R. Liang, G. Cao and F. Shi	

## Chapter 2: Microscale Materials and Thick Films

<b>Preparation of Dry Waters and their Fire Extinguishing Performance</b>	203
Y.J. He and G.D. Mu	
<b>Synthesis of Mesoporous Silica Microspheres by PICA and Pseudomorphic Transformation Using Silica Fume as Silica Source</b>	207
J.L. He, X.H. Chen, W.J. Zhu, W.H. Ma, Y.Y. Xiao, J. Li and H. Zhang	
<b>Effect of Tetramethyl Ammonium Hydroxide on Dispersion of the Silicon Carbide Submicron Powders</b>	213
N. Wang, L.R. Deng, X.G. Wang and S.H. Lu	
<b>Synthesis of a Novel Lanthanide Oxide Nitrate Compound with 3D Structure</b>	218
H. Li, Y.M. Yu, Z.Y. Gong, H.Y. Chen and W.Z. Wang	
<b>Hollow Polymer Nano-Latex Microspheres Prepared by <i>In Situ</i> Polymerization with the Method of Encapsulation Non-Solvent</b>	222
Q.H. Shao, T. Yuan, Z. Chen, J.Q. Hu, W.P. Tu and F. Wang	
<b>Fabrication of Highly Ordered Two-Dimensional Graphene Arrays on Patterned Substrate</b>	231
M.J. Chang, J. Liu and Y. Li	
<b>Preparation and Characteristic of Different Hollow Microspheres Filled Syntactic Foams</b>	237
X. Jin, H.Y. Ge, P. Wang, Z.Y. Pan and J. Chen	
<b>Enhancement of Hydrophobility and Thermal Property of Graphene Oxide by Paratoluidine Chemical Functionalization</b>	243
Z.J. Luo, H.Z. Geng, S.T. Zhang, B.T. Du, X. Zhang, J. Wang, Z.G. Lu, S.J. Ma, J.Q. Zhang, H.J. Yang and J. Wang	

<b>Influence of FRP Residue on the Properties of Epoxy Based Artificial Granite</b>	248
J.J. Wu, N. Liu, F.G. Liu, H.Y. Ge and L.Y. Lv	
<b>Preparation of Zinc Phthalocyanine-Calcium Alginate Gel Beads and its Use for Photocatalytic Oxidation Decolorization of Methyl Orange</b>	252
M.H. Xu, H.F. Chen, G.X. Pan and P.S. Tang	
<b>Variation Law of Temperature Field and Pressure Field in Synthesis of SiC by Carbothermal Reduction Method</b>	258
Y. Li and J. Chen	
<b>Influence of FRP Waste on the Properties of Unsaturated Polyester Resin Based Artificial Marble</b>	264
N. Liu, F.G. Liu, G.J. Li, M. Zhang, H.Y. Ge and J.J. Wu	
<b>Effects of Different Ligands Value on the Synthesis of FePO<sub>4</sub> Precursor</b>	267
L.F. Mu, S. Li and Y.L. Cui	
<b>Review on Classification and Application Prospect of Ultrafine Powder Material</b>	272
D. Wang, Z.M. Fan, L.R. Deng and X.G. Wang	
<b>Research on Process of Drawing Flexible Glass</b>	278
J.S. Cheng, X.P. Shu, X.C. Lou, J. Wang, G.L. Zhi and M. Li	
<b>Langmuir-Blodgett Films of a New Diels-Alder Adduct of C<sub>60</sub> with 1,1'-Biindene</b>	283
Y.Q. Zhang, W.J. Wang, S.H. Li, X.X. Gao, B.Y. Zhang, Y.L. Liu, Q.R. Wang and Q. Shi	
<b>Preparation of Co<sub>4</sub>W<sub>6</sub>O<sub>21</sub>(OH)<sub>2</sub>·4H<sub>2</sub>O via Microwave Hydrothermal Method and its Reaction Process</b>	288
X.J. He, L.Y. Cao, X.G. Kong, J.F. Huang and J.P. Wu	

### Chapter 3: Polymer Materials

<b>Luteolin Imprinted Polymer with Selective Recognition and Adsorption Performance</b>	297
P.R. Meng and L.B. Li	
<b>Study on the Preparation of Starch-Based Polyampholyte and Slow Release Performance</b>	302
P.R. Meng and L.B. Li	
<b>Cholesteric Cyclohexane-Containing Side-Chain Liquid-Crystalline Polysiloxanes</b>	308
Y. Li, L. Zhang and M.J. Chang	
<b>Preparation and Characterization of Fibri-Form Silica from Short Chrysotile Fibers by Mix-Roasting</b>	313
P.C. Song, T.J. Peng, H.J. Sun and Y.C. Yu	
<b>Porous Poly(1-naphthylamine) Synthesized by Interfacial Polymerization</b>	319
Z.Z. Hou and Q.H. Yang	
<b>Chemical Structure Changes and Correlation Analysis of High Density Polyethylene after Natural and Xenon Aging</b>	323
J.J. Guo, H. Yan, Z.D. Hu and J.J. Yang	

### Chapter 4: Metallic Materials and Alloys

<b>First-Principle Studies Al-Fe-Ti-Cr-Zn-Cu High Entropy Solid Solutions with Pressure-Induced</b>	333
L.X. Wang, S. Yao and B. Wen	
<b>Ultrasonic Welding of Fe<sub>78</sub>Si<sub>9</sub>B<sub>13</sub> Metallic Glass</b>	348
X.C. Song, Z.Q. Zhu and Y.F. Chen	
<b>Effect of Temperature on the Stress Corrosion Cracking of 304L Austenitic Stainless Steels in Alkaline Solution</b>	354
L.Y. Huang, H.Q. Zhu, F.F. Zhang and X.W. Wang	
<b>Study on the Mechanical Properties of Single Crystal Aluminum by Ohno Continuous Casting</b>	358
Y.P. Guo, X.H. Guo and J. Deng	
<b>Experimental Study on the Segregation of Primary Silicon from the Hypereutectic Al-Si Melts in the Electromagnetic Directional Solidification</b>	363
H.Y. Xue, G.Q. Lv, W.H. Ma, X. Yang, D.T. Chen and S.Y. Li	

<b>Microstructure Morphology and Mechanical Properties of Steel 30CrMnSiNi2A Irradiated by Continuous Wave Laser</b>	369
T.T. Wu, L.J. Wang, C.H. Wei, C.X. Pan, L.Z. Chen and Z.L. Ma	
<b>Phase Transition of Ball-Milled Ni<sub>50-x</sub>Mn<sub>37</sub>In<sub>13</sub>Co<sub>x</sub> (x=0,5) Alloy Powders</b>	377
X.P. Fei, W. Li, J. Liu, F. Xu, G.D. Tang, W.S. Tan and S.D. Li	
<b>Studying on High Temperature Thermoplastic of High Carbon Steel</b>	384
L. He and Y. Tang	
<b>Research on Intergranular Corrosion Behavior of Welded Joints of Nuclear Grade Stainless Steel</b>	
M.Y. Chai, C. Liang, D.D. Wang, Q. Duan and Z.X. Zhang	390
<b>Corrosion and Protection of 0Cr18Ni9 Stainless Steel Cooling Water Pipe in Power Plant</b>	395
A.J. Yan, W.J. Hu, Y. Cao, M. Cao, Z.Q. Yang and L.J. Feng	
<b>Acoustic Emission Response of 316LN Welded Joint during Intergranular Corrosion</b>	401
M.Y. Chai, Q. Duan and Z.X. Zhang	
<b>BPW91 Method Used in Analyzing Electronic Structures and Magnetic Properties of Ni<sub>n</sub> (2-13) Clusters</b>	
M.Y. Yu, W.X. Wang and S.G. Chen	406
<b>Study on the Development of Pretreatment Processes of Electroless Nickel Plating on Al Alloy Surface</b>	
X.C. Wei, J.B. Wang, X.M. Zhang and X.G. Wang	412
<b>First-Principle Studies of a High Entropy Solid Solution of AlCoCrCuFeNi<sub>x</sub> with Different Mole Fractions of Ni</b>	
L.X. Wang, S. Yao and B. Wen	419
<b>Electroless Fabrication of Nd-Fe-B/α-Fe Heterostructured Composite Magnets and their Magnetic Properties</b>	
X.D. Fan, N. Tian and C.Y. You	426
<b>Preparation and Research of α-Fe/Montmorillonite Magnetic Material</b>	
C.C. Shi, L.G. Peng and Z. Wang	433
<b>Effects of Ni/Co Metal Binder Phase on Mechanical Properties of Ti(C,N)-Based Cermets</b>	
P. Zhang, W.C. Sun, Q.H. Yang, P. Li and X.L. She	438
<b>Electrolytic Hydriding of La(Fe, Si)<sub>13</sub> Based Materials and its Magnetocaloric Effect</b>	
K. Yang, N. Tian and C.Y. You	443

## Chapter 5: Composites

<b>Effects of Duration on Wear Rate of a PTFE Composite</b>	451
H.J. Hu, H. Zhou, Y.G. Zheng, K.F. Zhang, Z.H. Wan, S.N. Gou and J.L. Wu	
<b>Microstructural Control of Al/Si Composites by Area-Selectively Liquid-Phase-Sintering Method</b>	
H. Cai, W.C. Sun, J. Zhang and P.H. Cai	459
<b>Low-Temperature Co-Fired Behavior of ZMT Dielectric Ceramic and NZC Ferrite Composites</b>	
K.X. Zhou, X. Liu, X.L. Feng, Y. Yang and C.G. Zuo	464
<b>The Preparation and Properties of SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> Composite Fluoride Removal Agent</b>	
D.G. Li, F.S. Gan, M. Qin, S.H. Liu, H.X. Ouyang and B. He	471
<b>The Effect of Phosphatic Composite on Magnesium Phosphate Cement Performance</b>	
Z.Q. Qi, H.T. Wang, J.L. Dang, S.H. Zhang and J.H. Ding	477
<b>Graphene Oxide/Cement Composites for Electromagnetic Interference Shielding</b>	
D. Zhao, J. Chen, Q. Gao and H.Y. Ge	485

## Chapter 6: Biomaterials

<b>The Research for Microwave Modified Vermiculite Adsorption of Zn<sup>2+</sup></b>	
L.F. Bao, C.L. Wang, J.C. Gu, S. Zhong and R. Wang	493
<b>Micro Patterning, Tension Force and the Growth of Osteoblasts</b>	
W.F. Xu, X. Liu, X.L. Liao, C.M. Chuong, X.L. Long and W.Y. Xie	500

<b>Synthesis and Characterization of Isobutyl-Chitosan-Ca(II) Complexes</b>	503
S.N. Zhao, C.P. Wei, L.D. Dong, X. Liu, J. Li and F.M. Wang	
<b>Study on the Microstructure and Biocompatibility of Inositol Hexakisphosphate-Modified Titanium Surface</b>	507
D.Q. Xiao, Z. Tan, C.D. Zhang, T.L. Guo, K. Duan and J. Weng	
<b>Novel Efficient Synthesis of Glycol Monoethers over Highly Active Tungsten-Containing Mesoporous Molecular Sieve SBA-15</b>	514
Y.X. Yao, S.X. Tuo, J.Y. Liu, X.L. Tan, Z.G. Peng and J.G. Yu	
<b>Synthesis and Characterization of Biomedical Aliphatic Polyurethane Material</b>	520
R. Zhu, Z.R. Zhang, M.B. Zhu and X.Y. Wang	
<b>Heparin Modified Temperature-Sensitive Hydrogels and Biocompatibility Research</b>	527
N. Yang, L. Shi, Y.B. Guo, H. Zhang and L. Chen	

## Chapter 7: Thin Film and Coating Materials

<b>Study on Antioxidant Properties of the Carbon Fibers Coated with Oxide-Alumina-Silica Film</b>	535
J.L. Liu, W.X. Zhang, J.X. Han, B.Y. Liang and G.R. Ma	
<b>Studies on Mechanical and Optical Characteristics of TiN Films Deposited on Al, Ti Buffer Layers</b>	540
M.J. Zhang, J. Wang, G.R. Gu, B.J. Wu and H.W. Tian	
<b>Microstructure and Properties of Thermal Sprayed ZrO<sub>2</sub>-NiCr Coatings</b>	546
G. Liu, L.Y. Wang, W. Wang and Y.F. Wu	
<b>Improved Photoluminescence and Vacuum Ultraviolet Irradiation Stability of Zn<sub>2</sub>SiO<sub>4</sub>:Mn<sup>2+</sup> with MgF<sub>2</sub> Nano-Coating</b>	550
F. Li, G.Y. Zhao, Y. Yang, N. Zhou, Y. Song and S.X. Zhang	
<b>Preparation and Properties of Triazine Dithiol-Silane Composite Self-Assembled Hydrophobicity Films on Stainless Steel Surfaces</b>	554
M.M. Hu and D.M. Zhang	
<b>Thermodynamic Analysis of Chemical Vapor Deposition of the VN Coating</b>	563
X.F. Xu and H. Li	
<b>Study on the (Fe,Cr)<sub>7</sub>C<sub>3</sub> Particles Reinforced Iron-Based Composite Coating</b>	569
L.B. Niu, Z. Xu and J.H. Peng	
<b>Preparation and Properties Characterization of N-Doped TiO<sub>2</sub> Film</b>	573
J.S. Zuo, C.P. Wei, C.J. Peng, R.Y. He and G.D. Wang	
<b>Solution-Temperature-Controlled Growth of Microarc Oxidation Coatings on Aluminum Substrates</b>	578
J. Zhang, H. Cai, W.C. Sun and P.H. Cai	
<b>Research on HfSiN Diffusion Barrier Thin Film for Micro-Nanoscale ULSI-Cu Metallization</b>	583
X.M. Liu, X.H. Chen, Y.Q. Han, W.H. Ma, J.L. He, Y.Y. Xiao and J. Li	
<b>Corrosion Behaviors of Thermal Diffusion Coating on the Surface of Inconel625 Alloy in Chloride Molten Salts</b>	589
H.F. Ma, M. Zhu, Q. Zhu and Y. Li	
<b>Preparation and Research of the Anticorrosive Coatings with Copper Ions-Polyaniline Loaded Montmorillonite</b>	596
L.Y. Qiu, L.G. Peng, G.Q. Duan and C. Wang	
<b>Effects of NaBH<sub>4</sub> and Heat-Treat on Corrosion Resistance of Electroless Plating Ni-B Coating</b>	604
C.X. Dong, W.C. Sun, J. Zhang, H. Cai and L.B. Niu	
<b>Influence of CNTs Concentration on the Microstructure and Electrochemical Properties of Ni-P-MWNTs Composite Coating</b>	610
M.M. Tian, W.C. Sun, Q. Shi, Y. Wang and Q.H. Yang	
<b>Preparation and Tribological Behavior of Ni-P-B<sub>4</sub>C Electroless Coatings</b>	615
Y. Wang, W.C. Sun, H. Cai, Q.H. Yang and J. Zhang	
<b>Preparation and Properties of Electroless Ni-P-<math>\beta</math>-SiC Composition Coating</b>	621
X.M. Zhang, L.B. Niu, X.C. Wei, X.G. Wang and X.H. Hua	

<b>A Facile Method for Improving the Process of Porous Anodic Aluminum Oxide Film Preparation</b>	
K.F. Zhang, H. Zhou, H.L. Li, R.P. Sang, Z.H. Wan and H.J. Hu	627
<b>Preparation of YBCO Thin Films by Metal Organic Deposition Method</b>	
Q.W. Luo	631
<b>Influence of Pulse Frequency on Mullite Coatings Prepared by Pulse Arc Discharge Deposition Process and Activation Energy</b>	
B. Zhang, J.F. Huang, C.Y. Li, L.Y. Cao, H.B. Ouyang, L. Zhou and Z. Bai	635
<b>Microstructure Analysis and Preparation of <math>B_2O_3</math>-Modified <math>ZrSiO_4/SiC</math> Oxidation Resistant Coatings</b>	
W.H. Kong, J.F. Huang, C.Y. Li, L.Y. Cao, H.B. Ouyang and Z. Bai	642
<b>Preparation and Characterization of Tourmaline/ZnO Composite Thin Films by a Facile Wet-Chemical Route</b>	
Y. Guo, Q.H. Zhang, L.R. Wang, W.Z. Lu and L.J. Wang	649
<b>Influences of Reaction Conditions on the Morphology and Properties of <math>CaWO_4</math> Films Prepared by Anodization</b>	
J.L. Zhao, Y. Liao, L.Y. Zhao, X.J. Yang, W. Yu and X.X. Wang	654
<b>Three-Dimensionally Porous Polystyrene Films Fabricated via an Ultrasound Assisted Template Method</b>	
J.C. Zhang, G.F. Li, M.M. Xue and H.Z. Geng	660
<b>ZnO Thin Film Prepared by Two-Step Electrodeposition Method for Dye-Sensitized Solar Cell</b>	
X.P. Zou, C. Zhao and C.L. Wei	665
<b>Study of Xonotlite Architectural Coatings for Exterior Wall Insulation Mechanism</b>	
L. Liu, Y. Yue and J.X. Cao	672
<b>Study of Friction and Wear Behavior of Ni-P-<math>\beta</math>-SiC Composition Coating on Aluminum Alloy</b>	
D.W. Yi	676
<b>The Preparation and Characterization of Zeolite LTA Membrane with Microwave-Assisted Method</b>	
L.X. Long, H.L. Du, Q.L. An, X. Shi and J. Liu	682
<b>Anti-Corrosion Property of Atomic Layer Deposition Films for Anodized Aluminum</b>	
Y. Jia, M. Yang, W.E. Lu, F. Ji, C.B. Li, Y.T. Fang and Y. Xia	689

## Chapter 8: Optical, Electrical and Sensing Material Properties

<b>Up-Conversion White Emission of <math>\beta</math>-NaYbF<sub>4</sub>:0.1%Tm<sup>3+</sup>,0.1%Er<sup>3+</sup> under 980 nm Excitation</b>	
T. Pang, J.J. Chen, Y.X. Lin, Y.T. Shen, M.E. Zhao and J.G. Gu	697
<b>Synthesis of Sr<sub>4</sub>Al<sub>14</sub>O<sub>25</sub>:Eu<sup>2+</sup>, Dy<sup>3+</sup> via Using Cyclodextrin as Chelating Agent by Sol-Gel Method</b>	
W.F. Xu, C.L. Liao, F.H. Xiong, K. Li and X.L. Liao	702
<b>Study on the Electric Properties of Carbon Fibers and its Application for the Preparation of Carbon/Carbon Composites</b>	
X.F. Xu, L.Z. Chai, H. Li and L.S. Zeng	707
<b>Facile Synthesis of CaCo<sub>3</sub> and CaCo<sub>3</sub>:Eu<sup>3+</sup> Phosphors by Solid State Reaction at Room Temperature and the Luminescence Properties</b>	
H.Y. Wang, F.Z. Gong, L.Y. Zhou and L. Sun	711
<b>Factors Affecting Optical Anisotropy Performance of Liquid Crystal Polymer with Photosensitive Group</b>	
J. Yang, W.M. Zhang, J. Cao and J.L. Pu	719
<b>Synthesis of Al Doped ZnO with a Novel Rice Microstructure by Hydrothermal Process and Analysis of their Gas Sensing Properties</b>	
Z. Li, W. Qin and X.H. Wu	724
<b>High Response and Selectivity Methanol Gas Sensor Using Molecular Imprinting Technique</b>	
Q. Zhu, Y.M. Zhang, J. Zhang, Z.Q. Zhu and Q.J. Liu	731
<b>Stimuli Responsive Electrospun Fibres: Functions and Applications</b>	
Y.X. Zhou, G. Wang, X.D. Fan, X. Wang and J. Kong	737
<b>Development of W/Cu Plasma Facing Component for Fusion Device</b>	
F.L. Chong	750

<b>Influence of the Particle Size on the Rheology of Magnetorheological Elastomer</b>	757
Q. Jin, Y.G. Xu, Y. Di and H. Fan	
<b>Dielectric Performance of (1-x)Na<sub>0.5</sub>Bi<sub>0.5</sub>TiO<sub>3</sub>-xBaTiO<sub>3</sub> Lead-Free Piezoelectric Ceramics Synthesized by Sol-Gel Combustion Method</b>	764
M. Yao, H.L. Du, X. Du, J. Liu and L.X. Long	
<b>Structure Refinement and Dielectric Properties of Bismuth-Based Pyrochlores Containing Titanium</b>	770
B.J. Zhang, H.L. Du and C. Zhao	

## Chapter 9: Energy Materials

<b>Si/SiO<sub>2</sub> Composite Negative Electrode Material for Lithium Ion Batteries</b>	781
M. Liu, N. Zhang, F.H. Zhao, X.Q. Zhao, K. Chen, N. Yang, D. Liu and Y. Chen	
<b>Research on the Molten Nitrate Salt Thermal Properties Based on Solar Thermal Utilization</b>	787
Y. Yang, X. Liu, X.L. Feng, K.X. Zhou and C.G. Zuo	
<b>Recent Progress of Zn<sub>2</sub>SnO<sub>4</sub>-Based Dye Sensitized Solar Cells</b>	793
D.T. Wang, G.S. Zhou, J.W. Li, Y.C. Dua and X.X. Zhang	
<b>Photocatalytic Activity of Solar-Light-Active N-Doped TiO<sub>2</sub> by Sol-Gel Combustion Method</b>	800
X. Du, H.L. Du, X. Shi, J. Wang and J.J. He	
<b>The Study of Carbon Materials Prepared by Zhaotong Anthracite under Ultra-High Temperature</b>	807
J.Q. Yang, S.H. Lu, X.H. Hua, X.G. Wang, L.B. Niu, Z.M. Fan and J.B. Wang	
<b>Phase Transformation of Coal at High Temperature</b>	815
X.H. Hua, X.G. Wang, J.Q. Yang, S.H. Lu, L.R. Deng, L.B. Niu, Z.M. Fan and J.B. Wang	
<b>Electrochemical Properties Test of Vanadium Electrolyte Containing V (III) and V (IV) Ion</b>	822
W.Z. Liu, D.M. Luo, D. Li, X.L. Meng and F.B. Zeng	
<b>Synthesis and Properties of Carbon and Yttrium Co-Doped TiO<sub>2</sub> Photocatalyst</b>	831
J.M. Liu, X.H. Zhou, Z.Q. Zhu, J. Zhang and Q.J. Liu	
<b>High-Rate Capability and Excellent Cycling Stability of Li<sub>3</sub>V<sub>2</sub>(PO<sub>4</sub>)<sub>3</sub>/C Cathode Material Prepared via Sol-Gel Combined with Ball Milling Method</b>	837
Y.F. Long, Q.H. Xiao, J. Su, Y.J. Lv, X.Y. Lv and Y.X. Wen	
<b>Recent Development and Performance of LiFePO<sub>4</sub> Material</b>	842
Y.G. Wang, G.D. Liu, J.L. Zhuo and X.Q. Dai	
<b>Effects of Cu Contamination on the Electrical Properties of Multicrystalline Silicon Purified by Directional Solidification Route</b>	846
J. Li, X.H. Chen, W.H. Ma, C. Zhang and K.X. Wei	

## Chapter 10: Natural and Environmental Materials

<b>Application of Natural Minerals in the Catalytic Wet Air Oxidation (CWAO)</b>	855
R. Wang, J.C. Gu, C.L. Wang, S. Zhong and L.F. Bao	
<b>Preparation of TiO<sub>2</sub> Photocatalyst Loaded Bentonite Material and Study of Catalytic Degradation</b>	860
C. Wang, L.G. Peng, Q.Q. Zhang, L.Y. Qiu and Z.Y. Zhang	
<b>Preparation and Catalytic Properties of BaSb<sub>2</sub>O<sub>6</sub> Photocatalyst</b>	867
X.P. Han, B.H. Yao, Q.K. Zhang and C.L. Zhang	
<b>Highly Photocatalytic Properties Observed in 4ZnO·B<sub>2</sub>O<sub>3</sub>·H<sub>2</sub>O under UV-Light for MB, RhB and MO Degradation</b>	872
L.Q. Yang, J.F. Huang, X.G. Kong, L.Y. Cao, J.Y. Li, J. Fei, C.Y. Li and H.B. Ouyang	
<b>Preparation and Properties of La and Fe Co-Doping TiO<sub>2</sub> Photocatalyst</b>	878
J.J. He, H.L. Du, J. Liu, X. Shi and M. Yao	
<b>Modification of Hydrogen Zeolite with CeO<sub>2</sub> and its Catalysis Application for Preparing Aspirin</b>	884
Z. Tan, H.Y. Chen, B.H. Lan, X.W. Tong and X.M. Ba	
<b>Visible-Light-Induced Photocatalytic Activity of Boron-Doped BiVO<sub>4</sub></b>	890
D. Li, L.W. Shan, G.L. Wang, L.M. Dong, W. Li and Z.D. Han	

<b>Thermodynamic Analysis in Sintering Reaction of Coal Fly Ash with Alkali</b>	895
S.Q. Li and J. Chen	
<b>Research of Citric Acid Modified Adsorption of Cr (VI) Properties of Activated Carbons</b>	901
C.L. Wang, J.C. Gu, C.M. Wei, L.F. Bao, R. Wang and S. Zhong	
<b>Study on the Formaldehyde Adsorption Kinetics of Dry Waters</b>	907
J.L. Wang, J. Hou, T. Jiang, Y.J. He and Y.D. Liang	
<b>RGO/BiVO<sub>4</sub> with Photocatalytic Activity by a Hydrothermal Method</b>	912
D. Li, L.W. Shan, L.M. Dong, G.L. Wang, Z. Wu and Z.D. Han	
<b>Effect on Catalytic Ability of Solid Super Acid SO<sub>4</sub><sup>2-</sup>/ZrO<sub>2</sub>-TiO<sub>2</sub>-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> Modified by Y, La and Chitosan</b>	916
X. Xing, G.L. Bahati, H.Y. Chen and H. Li	