

Table of Contents

Preface and Committees

Chapter 1: Biomaterials and Tissues

Grafting Biomimetic Phospholipid Zwitterionic Brushes onto Polycarbonateurethane for Improving Hemocompatibility	
H.Y. Zhao, Y.K. Feng, D.Z. Yang, J.T. Guo, Q.L. Chen and J.S. Liu	3
Dynamic Cell Patterning Technology Based on Photocleavable Molecules	
J. Nakanishi	7
Conductometric Study of the Effect of Citric Acid on Phase Evolution of Calcium Phosphate in Solutions	
C.F. Li, X.L. Ge, J.H. Bai and G.C. Li	11
SiO₂ Beads with Quantum Dots: Synthesis and Bioapplication	
P. Yang, N. Murase, A.Y. Zhang, Y.Q. Cao, Y.N. Zhu and R.X. Shi	16
Measurement of Glucose Concentration in Cancer Cell by Catalyzed-Enzyme Reaction	
F.Q. Xia and W.R. Jin	20
Preparation and the Blood Compatibility of Titanium Oxide Nanorod Arrays	
P. Luo, Z.Y. Huang and D.H. Chen	25
Advances in Biosensor Application for Environmental Monitoring	
Z.X. Yao, Y.F. Zhang, D.W. Fan, X.D. Xin, J. Zhao, G.D. Chen, B. Du and Q. Wei	31
Preparation of PVA/PEG Phase Change Composite Nanofibers by Electrospinning	
D.H. Sun, T.Y. Xu, Y.J. Liu and M. Zhang	37
Study on Preparation and Sensitive Properties of Polyethylene Glycol (PEG) / Polyvinyl Alcohol (PVA) Thermo-Sensitive Hydrogel	
M. Zhang, T.Y. Xu, Y. Cui and D.H. Sun	41
The Magnetism of DNA Molecular Materials	
Y.J. Wang, J. Cheng, X.F. Yue and D.S. Liu	46
Thermal and Thermo-Oxidative Degradations of Deproteinized Natural Rubber and Natural Rubber	
C.Z. He, Z. Peng, J.P. Zhong, S.Q. Liao, X.D. She, Y.Y. Luo and H.S. Tan	50
Fabrication of Shortened Electrospun Fibers with Concentrated Polymer Brush Toward Biomaterial Applications	
C.F. Huang, C. Yoshikawa, K. Zhang, S. Hattori, T. Honda, E. Zawadzak and H. Kobayashi	58
Biomimetic Synthesis of Fluorapatite Coating	
H.Y. Wang, K.N. Sun, T. Shan, X.Q. Yang, Y. Zhao and Y.J. Liang	63
Reinforcement of Hydroxyapatite with Multi-Walled Carbon Nanotubes	
Z.H. Lu, K.N. Sun and D.M. Zhao	72
Shape-Memory NiTi Foam Synthesized by CIP and Sintering with NaCl Space-Holders	
H.W. Hou, W.T. Wei and Z.X. Chen	76
Synthesis of Chemical Responsive Chitosan–Grafted-Polyaniline Bio-Composite	
S.K. Shukla and A. Tiwari	82
Study on the Microbial Hydrolysis of Maize Straw and the Water Reducing Properties of the Hydrolysate	
Y.X. Wang, G.X. Zhang, X.Y. Song, N.X. Sun, Y.M. Li and H.Z. Wang	87

Chapter 2: Energy Harvesting Materials and Energy-Transfer Materials

Isothermal Oxidation Behavior of the AISI430 Stainless Steel at High Temperature in Static Air	
B. Sun, S.R. Wang, Y.J. Wang and Y.Z. Pan	95
Rheological Behavior of Semisolid Al-6.5wt%Si Alloy at Transient State	
H.C. Luo, W. Wang, E.S. Xu and L.P. Ju	100

Rheological Behavior of Semisolid Al-6.5wt%Si Alloy under Cyclic Shear Deformation	104
H.C. Luo, J.M. Yang, L.Y. Sun and L.P. Ju	
Self-Assembly Proton Exchange Membranes for Direct Methanol Fuel Cell with Size-Controlled Au Nanoparticles	108
A.P. Jin, Z.H. Wan and K.C. Lei	
Preparation and Photovoltaic Properties of Flexible Dye-Sensitized Solar Cells	112
Y. Zeng, L.J. Zhao, Y. Zhen, F.X. Shi and Y. Tong	
Texture and Ductility of Ni₃Al Foils	116
M. Demura, Y. Xu and T. Hirano	
Research on Optimization Design of Shearer Sliding Shoes by Plasma Cladding Cr28MnV	120
J.L. Liu, G.F. Wu and H.T. Liu	
Fabrication of Anti-Reflective Coatings on Solar Collector Tubes	125
Y.C. Niu, G.W. Huang, Y. Chen, W.W. Dou, D.M. Sun and J. Li	
Catalytic Properties of Ni₃Al Foils for Hydrogen Production	130
T. Hirano, Y. Xu and M. Demura	
Facile Preparation of NiO/Ni Nanocomposite and its Electrochemical Capacitive Behaviors	134
W.D. Yin, G.L. Li and X.M. Liu	
Characterization of AB₅-Type Metal Hydride Modified by Electroless Plating Nickel in Forming Process	139
W.T. Wu and J.S. Do	
Combustion Characteristics of Biomass and its Cellulose	143
C.C. Zhang, H.J. Lu and Z.W. He	
The Synthesis of New Rhodanine Ramification and Application in Determine Trace Bismuth	147
F.W. Wan, M. Zhang, S.W. Wang and J.H. Yu	
Optimization for the Formation of Metal Hydride Electrode Used in Ni/MH Batteries	151
J.S. Do and R.L. Tsai	
Preparation and Electrochemical Properties of Pt/Mesoporous-C for Oxygen Reduction Reaction: Effect of Carbonation Temperature	155
C.Y. Hsieh, Y.S. Huang and J.S. Do	
Growth and Photovoltaic Performance of Single-Crystal TiO₂ Nanorod Array Directly on Transparent Conducting Substrates	159
X.Q. Gu, Y.L. Zhao and Y.H. Qiang	

Chapter 3: Optical and Electronic Materials

Synchrotron Radiation X-Ray Absorption and Optical Studies of Cubic SiC Films Grown on Si by Chemical Vapor Deposition	167
Y.L. Tu, Y.H. Huang, L.M. Kong, K.Y. Lee, L.Y. Jang, C.C. Tin, C.W. Liu and Z.C. Feng	
Luminescence in Rare Earth Activated AlPO₄ Phosphor	171
K.N. Shinde and S.J. Dhoble	
Synthesis and Photoluminescence of Cr-Doped Rod-Like ZnO Particles by Hydrothermal Method	176
L.M. Hang, Z.Y. Zhang and J.F. Yan	
Silicon Microfabrication Processes Including Anodic Bonding of Extremely Thin (60 μm –Thick) Silicon on Glass	180
T. Nara, K. Oku, H. Fukai, H. Hataguchi and Y. Nishioka	
Characteristics of Gamma-Ray Irradiated Pentacene Organic Thin Film Field Effect Transistors	185
H. Yano, L. Cai, T. Hirao, Z.F. Duan, Y. Takayanagi, H. Ohuchi, H. Ueki, T. Ohshima and Y. Nishioka	
Fabrication of Condenser Microphones on Silicon on Insulator Wafer	193
S. Hishinuma, N. Kimori, Y. Kumai, K. Oku, T. Takahashi, D. Irokawa, E. Sugizaki, N. Watanabe, T. Ikehara, R. Maeda and Y. Nishioka	
Influence of the Quality of AlN Buffer Layer on the Quality of GaN Epitaxial Layer on Silicon Substrate	201
K. Zhang, T.P. Lu and S.T. Li	

Two Novel Tetrahedrally Silicon-Based Benzimidazole Derivatives: Potentials as Blue Emitters for OLEDs	206
Q.Y. Ma, R.F. Guan and G.Z. Li	
Study on Hydrothermal Synthesis of LaPO₄:Eu³⁺ Materials	211
J.S. Zhu, X. Wang, F.F. Zhang, R. Kang and Q. Liu	
Synthesis of Main-Chain Polyimides Containing Azoaryl and their Third-Order NLO Properties	215
J.P. Shi, L. Wei, H.W. Hu, T.C. He, X.Q. Zhang, C.S. Wang and G.Y. Lu	
Preparation and Properties of Oxidized Coal/Polyaniline Composite Material	220
X.P. Fan and A.N. Zhou	
Synthesis, Crystal Structure and Photoluminescence of Eu(Phen)(DMF)₂(NO₃)₃ (Phen = Phenanthroline and DMF = N,N-Dimethylformamide)	224
J.L. Miao, D.Q. Bian, Y. Nie, M.L. Xu, B. Peng, D.D. Li, Z.W. Zhang and C.H. Hu	
Synthesis, Characterization and Luminescence of Europium, Terbium Complexes of 1,1'-(Pyridin-2,6-DiyI) Bis-3-P-Tolylpropane-1,3-Dione	228
J.L. Zhu, S.L. Liu, L.C. Yu and T. Ouyang	
Comparison between Vanadium Dioxides Produced by Ammonium Metavanadate and Vanadium Pentoxide	234
J. Qi, C. Niu, Y.M. Xu, H. Hai and L. Zou	
Electron Stimulated Surface Chemical Reaction Mechanism for Phosphor Degradation	238
H.C. Swart, J.J. Terblans, I.M. Nagpure, S.S. Pitale and O.M. Ntwaeborwa	
Synthesis and Liquid Crystal Properties of a New Organometallic Palladium Complex	242
J.Q. Liu, X.Q. Fu, J.Y. Song, Y.X. Fu, X.C. Zhang and W.G. Hou	
Growth of <i>p</i>-Type AlN Crystals by C and Si Codoping	246
H.L. Wu, R.S. Zheng, W. Zheng and Z. Yan	
Promising Zn₃Ta₂O₈:Pr³⁺ Red Phosphor for Low Voltage Cathodoluminescence Applications	251
S.S. Pitale, L.L. Noto, I.M. Nagpure, O.M. Ntwaeborwa, J.J. Terblans and H.C. Swart	
Optical Properties of the 3-D Composite Photonic Crystals Prepared by Modified Dip-Coating and Coating First Method	255
G.Y. Yan, X. Zhang, Y.Z. Sheng, P. Huang and B.X. Feng	
Synthesis and Properties of Poly(3,4-Ethylenedioxythiophene) via Solid-State Polymerization	261
S.A. Chen, J.K. Xu, D.H. Zhu and X.M. Duan	
Structural and Optical Properties of CdS Thin Films Grown by Sputtering	265
X.Y. Zhang, X.Y. Liu, H.B. Wang, X.J. Zhang, Q.P. Wang and H.L. Ma	
Theoretical Studies on P-Type Conduction in (S,Cu) Co-Doped ZnO	269
Z.H. Xiong, L.L. Chen and C.D. Zheng	
Study on Arc Ion Plating Nitride Films of Microscopic Morphology and Micro-Hardness	274
Q. Tao, Y.W. Sui, S. Zhi and W. Song	
Studies on Donor-Acceptor Substituted with Triphenylamine-Core Fluorescent Derivatives	280
C.Q. Zhou, B. Hu, C.H. Li, Q.P. Lou, Q.B. Song and C. Zhang	
Study on Novel Method to Measure Luminescence Time Interval Between the Initial and Terminal of Light Emission in Frequency Domain	289
J.Z. Huang, Q.L. Ma, R.X. Liu and P.J. Wang	
A Cement Based Piezoelectric Composite Sensorfor Health Monitoring of Civil Engineering Structure	293
S.F. Huang, J. Chang, L. Qin, X.M. Yang, Z. Li and X. Cheng	
Electrochemical Polymerization of N-(9-Fluorenylmethoxycarbonyl)-Glycine and Characterization of its Polymers	297
Y. He, W.J. Guo, G.Y. Zhang, M.S. Pei and Q.W. Pan	
Effect of Shape Parameter on the Performance of 1-3 Piezoelectric Composites	301
M. Sun, H. Wang, S.F. Huang and X. Cheng	
Fabrication and Properties of 1-3 Polymer Modified Cement Based Piezoelectric Composites	305
L.L. Guo, M.M. Li, M. Sun, D.Y. Xu and S.F. Huang	
High Quantum Efficiency Dependence on Structure Optimizatin for Gallium Nitride Photocathode	309
X.Q. Fu, X.H. Wang, Y.F. Yang and B.K. Chang	

The Range Distribution of Nd Ions Implanted in Silicon-on-Insulator	315
Y. Liang, H.Z. Li, S. Li, F.X. Wang and X.F. Qin	
Poly[N-(9-Fluorenylmethoxycarbonyl)-L-Phenylalanine] with Good Solubility and Good Blue Light-Emitting Properties via Electropolymerization	319
C.Y. Lai, W.J. Guo, X.D. Tang, G.Y. Zhang, Q.W. Pan and M.S. Pei	
Electrocatalysis Property of DNA-Hydroxyapatite Modified Electrode on Chloramphenicol	323
N. Zhang, Y.F. Zhao, Y.X. Dai, D. Wu, B. Du and Q. Wei	
Synthesis and Character of Fluorescence Reagent 3-P-Nitrylphenyl-5-(2'-Sulfonophenylazo) Rhodanine	327
S.M. Wang, S.G. Ge, M. Yan and J.H. Yu	
Synthesis of Large-Area and Monolayer of Graphene: Role of Transition Metal Support and Growth Time by CVD Method	331
H. Gao, Y.F. Wang, Y.X. Liu, E.Q. Xie and P.M. Ajayan	
Influence of Electroless Copper Deposition on the Electrochemical Performance of Si/MCMB	336
M. Yan, W.Q. Gao, R.S. Xue and J.H. Yu	
Mechanical and Thermal Behaviors of the Acrylic Based Core-Shell Rubber Modified Poly(Lactic Acid)	340
N. Petchwattana, S. Covavisaruch and N. Euapanthasate	
Preparation of N-Doped TiO₂/NiO Composite Electrode and its Photoelectrochemical Characteristics	344
C.T. Wang, W.K. Zhang, H. Huang and X.Y. Tao	
Synthesis and Fluorescence Properties of Hyperbranched Poly(Amido Amine) with New Fluorescence-Emitting Moieties	348
S.F. Wang, D.D. Jia, C. Liu and D.J. Wang	
Growth and Properties of Cubic Potassium Tantalate Niobate Crystals	352
X.P. Wang, J.Y. Wang and B. Liu	
Synthesis, Electronic States, and Electroluminescent Properties of Aluminum Complex Based on Mixed Ligands with 8-Hydroxyquinolinate and Acetylacetone	358
L.Q. Chen, C.Y. Sun, X.G. Liu and B.S. Xu	
Properties of Al Doped ZnO Thin films by DC Reaction Magnetron Sputtering	362
F. Lu, Y. Sun and C.H. Xu	
Process Research of Amorphous SiO₂ for Optical Fiber Preform by Sol-Gel	368
H. Tang, Y. Zhao, J.Z. Zhang, Y. Sha and L.G. Jin	
Influence of Annealing Temperature on the Structure and Electrochromic Properties of NiO_x Thin Films	372
G.Y. Yan, X. Zhang, P. Huang, H.R. Liu and B.X. Feng	

Chapter 4: Superconductive and Magnetic Materials

Effect of Finishing Temperature on Texture Evolution and Magnetic Properties in Heavy Cold Rolled High Silicon Steel Thin Sheets	381
J.L. Liu, Y.H. Sha, F. Zhang, Y.C. Yao, J.C. Li and L. Zuo	
ABS Fabrics Chemically Plated by Cu/Ni-P as Electromagnetic Shielding Material	385
C.D. Yu, Q.B. Deng, P. Li, M.C. Wang and Y.F. Wang	
Transmission Properties of Thue-Morse Quasi-Periodic 1D Superconducting Photonic Crystals	389
J.J. Wu and J.X. Gao	
Magneticbead-Based Enzyme-Linked Immunoassay for Detection Carcinoembryonic Antigen in Gastric Cancer Cells	393
F.Q. Xia and Y.N. Yuan	
Ground State and Transport Property in Superconductors with Artificial Pinning Arrays	398
Q.B. Ren, Z.C. Zhou, J. Zheng and M.B. Luo	
Synthesis and Characterization of Nano-Hexaferrites SrFe₁₂O₁₉ by Aqueous Solution Method	404
J.A. Liu, M.M. Zhang, Y.F. Zhang and S.J. Liu	
Monodisperse Fe₃O₄/Fe Core/Shell Nanoparticles with Enhanced Magnetic Property	410
L. Sun, F.T. Liu, Q.H. Jiang, X.X. Chen and P. Yang	

Chapter 5: Structural Materials

Dry Sliding Wear Behavior of Hot Pressed Fe-28Al and Fe-28Al-10Ti Alloys J. Li, X.H. Fan and D.M. Sun	425
Grain Refinement of AZ91D Magnesium Alloy by <i>In Situ</i> Al₄C₃ Particles H. Han, H.M. Miao, S.F. Liu and Y. Chen	429
Dislocation Configurations in Single-Crystal Superalloys during High-Temperature Low-Stress Creep J.X. Zhang and H. Harada	433
Study on the Stability and Phase Transition of Precipitated Phases Al₆Fe and Al₃Fe in Al-Fe Alloy H. Qu and W.D. Liu	438
High Energy Micro-Arc Alloying of Mg-RE on AZ31 Mg Alloy C.J. Chen, Y.Z. Su, X. Xu and M. Zhang	443
Surface Oxygen Diffusion Hardened Titanium Material TC4 C.J. Chen, Q. Cao, X. Xu and H.Y. Ma	447
Anomalous Change of the Electrical Resistivity and the Structure of Sn Melt with Temperature Z.X. Yang, H.R. Geng and N. Zhang	451
Improvement of Concrete Materials by Bacterial-Mediated Precipitation P.H. Li and W.J. Qu	455
Die Optimal Design for a Large Diameter Thin-Walled Aluminum Profile Extrusion by ALE Algorithm P. Liu, S.S. Xie and L. Cheng	459
High Temperature Electrochemical Synthesis of Tungsten Boride from Molten Salt X.Z. Cao, H.Y. Wang, X. Meng, C. Wang, H. Yang and X.X. Xue	463
A Fast Method for Determining Physical Properties of Slags with Contact Angle S.S. Lian, Y.Y. Lin, G.L. Zhang and M.R. Lu	467
Microstructure and Mechanical Behaviors of AZ91 Magnesium Alloy with Thermal Rate Treatment Technique Y.Z. Zhou, H.R. Geng, Y.J. Sun and M. Li	471
Temperature Effect of Refining Performance by Al-Ti-B (C) Master Alloys C.J. Gao, H.M. Ding and X. Liu	475
Densification Behavior and Pores Evolution of Selective Laser Sintering Parts during Post Microwave Sintering Process S.J. Lin and S.Y. Wang	481
Dynamic Crushing Behavior of the High-Density Closed-Cell Foams W. Chen and Z.X. Lu	485
Fatigue Characteristic and Dislocation Substructure of A356 Casting Alloy under Multi-Axial Cyclic Loadings D.F. Mo, G.Q. He, D.F. Liu and Z.Y. Zhu	489
Influence of the Parameters on the Laser Deposited TiAl Layer Y.B. Zhang, B.Y. Huang and H.X. Li	496
Effect of Heat Treatment on Thixoformed AM60B Alloy H.J. Huang, T.J. Chen, Y. Ma, Y.D. Li and Y. Hao	500
Microstructure Analysis of Mechanical Energy Aided Aluminized Layer on Stainless Steel X.C. Wang, M.S. Li, Q.G. Li, J. Zhang and J. Ma	505
Effects of Sintering Temperature on Properties of W-9.8Ni-4.2Fe Alloys Fabricated by Spark Plasma Sintering X. Li, K. Hu, Z.C. Chen and H.W. Xin	509
Analysis of Cement Hydration Monitoring Using Embedded and External Ultrasonic Transducers Q.Q. Zhong, L. Qin, S.F. Huang and X. Cheng	514
Fracture Energy of Reactive Powder Concrete Based on Uniaxial Tensile Test H.Y. Yuan, M.Z. An, F.F. Jia and Z.G. Yan	519

Investigation of Cleavage Fracture Behavior in Notched Specimens of a Low Alloy Hot Rolled Steel 16MnR	
Y.G. Liu	523
Effect of MgO on Structure and Properties of CaO-Al₂O₃-SiO₂ Glass System	
X.J. Xu, Y.L. Yue, H.T. Zhang and Z. Du	531
Study on Direct Annealing Process of Hot-Rolled Plate	
S.L. Li, X.D. Peng and Y. Chen	535
Semisolid Die-Casting Process of Mg-20Al-0.8Zn Magnesium Alloy	
F.Y. Yan, X.F. Huang, B. Li and Y. Ma	539
Coating of Electrode by Myristic Acid via Microwave Reaction	
W.J. Chen, C.B. Gui and J. Sun	544
Effect of Solution Treatment on Microstructures and Mechanical Properties of Centrifugal Casting Al-Cu Alloy	
J. Li, Y.W. Sui, A.H. Liu, X. Zhao and Z. Sun	548
TiN Modified Layer on the 20CrNiMo Steel Surface by Needle-Shape Cathode Glow Plasma Discharging	
C. Fei, J.Q. Chen and H. Zhou	553
Effect of Al Content on the Microstructure and Property of TiC/Al Ceramic Matrix Coating Deposited by Laser Cladding on Ti-6Al-4V Alloy	
J.H. Wang, J. Cheng, P.K. Bai and Y.X. Li	557
Influence of Ru on the Microstructure of Ni-Base Single Crystal Superalloys	
F. Sun and J.X. Zhang	562
Thermal Analysis of Functionally Graded Plates by Wavelet Method	
K.L. Ren, Y. Dong and Y.C. Wang	572
Durability of Mechanically Loaded Strain-Hardening Cement-Based Composites (SHCC)	
W.Q. Cao, L. Tian and T.J. Zhao	577
Effect of Mg-Zn-Y Quasicrystal Master Alloy on Microstructure and Mechanical Properties of AZ91 Alloys	
X.Y. Teng, T. Liu, G.R. Zhou and L.Y. Liu	582
Application of Styrene-Butadiene Rubber in Cement-Based Materials	
R. Wang and P.M. Wang	588
The Effect of B on the Microstructure and Property of Ultra-Thick Abrasion Resistant Flux-Cored Wire Deposited Metal	
J.S. Sun, L.F. Zhang and F.B. Li	594
Effect of TaC on W-Ti-Co Ultrafine Cemented Carbides	
C.C. Zhang, Q.Q. Yuan, Q. Wang, Z.Y. Sheng and L. Wang	598
Study on Microstructure and Properties of New Aluminum-Based Sliding Bearing Alloy	
C.C. Zhang, W.X. Wu, Q. Wang and L. Wang	603
Microstructure Evolution of Mg-6Zn-6Al Magnesium Alloy during Semi-Solid Partial Remelting	
X.F. Huang, K. Feng, Y. Ma, F.Y. Yan and T.J. Chen	608
Series of Al-P Master Alloy and Excellent Refining Performance on Hypereutectic A390 Alloys	
M. Zuo and X. Liu	613

Chapter 6: Polymer Materials

The Thickness Thinning Criterion of Vacuum Forming Refrigerator Inner Liner for HIPS	
W.B. Su, T. Li, X.B. Sun and B.J. Liu	619
Study on the Development of Reinforced Polypropylene Chopped Glass Fiber Sizing Agent	
Abrasion Behavior of Superhydrophobic Films Comprised of Polyurethane Elstomer	624
C.H. Su, Y.Q. Xu, C.F. Li, R.M. Cong and H.S. Tan	628
The Synthesis of P-Sulfonatephenylazocalix[8]Arene and its Analytical Application	
L.L. Fan, C.N. Luo, H.M. Qiu, Z. Lv and F.G. Lu	634
Molecularly Imprinted Polymer for Preparation and Adsorption of Phenylalanine	
F.G. Lu, Y.L. Xi, Z. Lv, L.L. Fan, H.M. Qiu and C.N. Luo	638
Study on Synthesis and Adsorption Properties of Chitosan Modified by DMF Grafted β-CD	
Z. Lv, F.G. Lu, L.L. Fan, H.M. Qiu and C.N. Luo	642

Molecularly Imprinted Polymer Prepared by Precipitation Polymerization for Quercetin	646
H.M. Qiu, C.N. Luo, L.L. Fan, Z. Lv and F.G. Lu	
Kinetic Modelling and Finite Element Simulation of Natural Rubber Non-Isothermal Vulcanization	649
W.G. Yao, Y.X. Jia and X.X. Wang	
A Novel Thermoviscosifying Water-Soluble Polymer for Enhancing Oil Recovery from High-Temperature and High-Salinity Oil Reservoirs	654
Y. Wang, Z.Y. Lu, Y.G. Han, Y.J. Feng and C.L. Tang	
Study on the Curing Kinetics of Epoxy Resin in Self-Healing Microcapsules with Different Shell Material	658
X.M. Tong, M. Zhang and M.Z. Yang	
A High Throughput and High Selective Chemiluminescence Method for Quantification of Bifenthrin Based on Molecularly Imprinted Film	663
D.J. Zang, L. Ge, P.N. Zhao, J.H. Yu and J.D. Huang	
Study on Synthesis of Superabsorbent and Water Absorbency	667
Y.B. Feng, H. Ren and J. Wang	
Synthesis and Properties of a Novel Conjugated Polyfluorene Derivative	671
M. Yan, W.Q. Gao, S.G. Ge, J.D. Huang and J.H. Yu	
Preparation of a Thermo-Sensitive Poly(N-Acryloyl Alanine Methyl Ester) for Controlled Drug Release	675
K.L. Deng, H.B. Zhong, Y. Shi, J. Zuo, C.Y. Jiang, N. Li, X.J. Ji, P.F. Zhang and X.B. Ren	
Preparation of Straight and Orderly Polypyrrole Microrods through Soft Template Methods	679
L.B. Sun, Y.C. Shi, L.Y. Chu, B.C. Zhang and J.R. Liu	
Influence of Test Conditions and Couple Materials on Frictional Characteristic of Polymeric Materials	684
L.X. Jia, Y.Z. Zhang, Y.P. Niu, S.M. Du and J. Li	
Synthesis, Characterization and Selective Recognition of Lead Using a New Ion Imprinted Polymer Material	688
H.Y. Zhuang, H.Z. Li and Y. Xue	
Modified Hydroxyl Value Assay and Application in Analysis of Molecular Ingredient of Polylactic Acid Oligomers	692
Z.P. Qiu, J.D. Chen, J. Bu and R.D. Shu	
The Electrochemical Polymerization of Polypyrrole Microstructures in an Aqueous Solution of Dodecylbenzenesulfonic Acid	696
W.Q. Wang, R.F. Zhang and L.C. Lu	
Application of Interpenetrating Silicone Waterproofing Material in the Protection of the Concrete	701
J.S. Liu and J.S. Liu	
Synthesis of a New Ion Imprinted Polymer Material for Separation and Preconcentration of Traces of Neodymium Ions	705
Q.P. Liu, H.Z. Li, H.Y. Zhuang and M.S. Pei	
Synthesis and Properties of a Novel Conjugated Polyfluorene Derivative	709
M. Yan, W.Q. Gao, S.G. Ge, J.D. Huang and J.H. Yu	
Ammonium Polyphosphate with Crystal Form V by DAP+P₂O₅	713
G.X. Zhao and G.S. Liu	
Preparation of Conducting Polypyrrole in Gelatin Solution	717
H.R. Ma, M. Li, C.D. Qiao and J.S. Yao	
Plugging Performance Optimization Tests of Grouting Material for Sudden Water Inflow of Underground Engineering Construction	722
L.P. Li, S.C. Li, J.S. Cui and Z. Li	
Effect of Emulsifier of Sizing Agent on Properties of Sizing Agent and Carbon Fibers	727
J. Chen, J.Y. Liu and H.Y. Ge	

Chapter 7: Composite Materials

Finite Element Analysis of X-Cor Sandwich's Compressive Strength	
X.D. Dang, X.L. Wang, H.S. Zhang and J. Xiao	733

Vacuum-Free Stirring Brazing of SiC_p/A356 Composites and Aluminum Alloy Using Semisolid Filler Metal with Low Solid Fraction	738
H.B. Xu, Q.X. Luo, L. Xing, B.F. Zhou, Y.L. Zeng and C.H. Du	
Corrosion Resistance of the Eletrodeposition Nano-TiO₂/Ni Composite Coating on AZ91HP Mg Alloy	742
S.R. Yu, Y. Liu, J.A. Liu and D.S. Yuan	
Preparing of Army-Green Ceramic Coating on LY12 Alloy and the Study of Fastness to Ultraviolet Light	746
J.M. Hao, D.X. Li, H. Chen and L.P. Li	
Preparation of Sizing Agents for Carbon Fiber Adapt to Various Polymer Matrix	750
J. Chen, J.Y. Liu, D.Z. Wang and X.R. Zhou	
Thermal Shock Resistance of ZrO₂ Fiber/Al₂O₃ Ceramics	754
X.Q. Hou, J.Y. Liu and H.Y. Ge	
Effect of the Chemical Treated Kevlar Fiber on the Behaviors of Cement Mortars	758
S. Zhang, G.Z. Li and H.Y. Yuan	
Study on Properties of Crops Fiber/Gypsum Composites	762
H.Y. Yuan, M.R. Liu and G.Z. Li	
Surface Modification of Cornstalk Fiber and Properties of Cornstalk Fiber/Gypsum Composites	766
Y.Y. Wang and G.Z. Li	
Structure and Properties of Organic-Vermiculite/Polyimide Composite Films	770
X. Feng, F.Z. Lv, Y.H. Zhang and Y.Y. Wu	
Grinding Characteristics and Removal Mechanisms of LaPO₄/Al₂O₃ Micro-Nano Composite Ceramics	774
W.L. Zhang, X. Wang, C.H. Liu, G.J. Jiang and Q.J. Zheng	
Effect of Coupling Agent Modify Filler on the Electrical Properties of Sheet Molding Compounds	778
D.L. Jin, Z.X. Huang and Y. Zhou	
A Novel Model of Steady-State Sliding Wear with Electrical Current	782
Z.H. Yang, Y.Z. Zhang, F.X. Chen and B. Shangguan	
Study on the Preparation and Properties of α-PbO₂-CeO₂-TiO₂ Composite Material on Aluminum-Matrix	787
B.M. Chen, Z.C. Guo and H. Huang	
Improve the Optical Properties of Rhodamine B by Encapsulating in Al-MCM-41	792
D.M. Li, Z.Z. Tian and P.F. Wei	
Preparation and Properties of Expanded Vermiculite Modified Bitumens	796
H.L. Zhang, J.Y. Yu and Z.G. Feng	
Fabrication and Tribological Properties of High Temperature Self-Lubrication Composites Prepared by Gas-Pressure Infiltration Technique	802
Y.J. Wang, B. Wang, L.Y. Yang and S.R. Wang	
The Isothermal Oxidation Behavior of Ti₂AlN and Ti₂AlN/TiN in Air	808
M. Yan, Y.L. Chen, Y. Chang, J.X. Jiang and B.C. Mei	
Influences of Polymer Fiber and Polymer Latex on Physical Properties of Cement Mortar	814
S.H. Song and F.T. Liu	
Effect of Dissolving of WC/W₂C on the Interface Microstructure of Iron Matrix Hardfacing Alloys	819
L.J. Li and C.B. Gui	
Prediction of Heating Processing-Properties of Ti₂AlC/TiAl Compound Materials Based on BP Neural Network	823
M. Wen, Y.L. Yue, H.T. Zhang and Y. Li	
Fractural Research on Ti2AlC/TiAl Compound Materials	827
Y. Li, Y.L. Yue, H.T. Zhang and M. Wen	
Process Optimization of Cefradine/ Montmorillonite in Solution Intercalation	831
Y.Z. Zhao, W.J. Guo and L. Wang	
Influence of Base Thickness on Properties of 1-3-2 Connectivity Cement Based Piezoelectric Composite	835
X. Cheng, D.Y. Xu, S.S. Liao and S.F. Huang	

An Exploration of 1-3 Cement/Epoxy Resin Based Piezoelectric Composite in Cement Hydration Reaction Process Monitoring	839
D.Y. Xu, L. Qin, S.F. Huang and X. Cheng	
Preparation and Properties of a Novel Water Soluble Core Material for the Resin Transfer Molding Process	844
Q.Z. Li and X.Q. Wu	
Study on Mechanical and Electromagnetic Shielding Properties of Carbon Fibers/Butyl Rubber Composite Films	848
R.C. Yan, Z.H. Zhu, H. Song, X.J. Xu and X.M. Li	
Study on Epoxy Based Magnetorheological Elastomers	852
X. Wang, H.Y. Ge and H.S. Liu	
Formation of SiC-Al Interface in SiC Whisker Reinforced Al Composite	857
H.M. Wei, H.Y. Xu, L. Geng and Y.D. Huang	
Preparation of Low-Heat Portland Cement Clinker with Coal Gangue	861
G.L. Chen, X.H. Fu and W.H. Tao	
Study on Properties of Organic Modified SiO₂ Glass Prepared by Sol-Gel Method	865
Y.L. Deng, Y.H. Sun and D.X. Cao	
Influences of Modified Chemical Blowing Agents on Foaming of Wood Plastic Composites Prepared from Poly(Vinyl Chloride) and Rice Hull	869
N. Petchwattana and S. Covavisaruch	
Absorbing Properties of Fe-Based Amorphous Powder/S-Glass Fiber Reinforced Epoxy Composite Panels with Gradient Layer Structure	874
X.M. Li, Z.H. Zhu, H. Song, Z.B. Liu and X.J. Xu	
Study on Processes and Properties of Continuous Woven Roving Reinforced Polyurethane Composites	879
X.L. Dai, X. Wang and J. Wang	
The Effect of Different Optical Fibers on the Tensile Property of CFRPs	884
H. Tian, J.H. Wang, Y.D. Ji, X.F. Hao, Y.Z. Yin and J.X. Sun	
Determination of Creep Parameters of Conductive Asphalt Concrete	888
S.L. Yan, W.T. Li, S.P. Wu and L. Pang	
Natural Rubber/Bombyx Mori Silk Fibroin Composites: Preparation and Properties	894
Q.H. Wang, Y.Y. Luo, Z.F. Yi, C.F. Feng, Y.Q. Wang and Z. Peng	
Synthesis and Properties of Electroless Ni-P-W/Nano-Al₂O₃ Composite Coatings Deposited on Sintered NdFeB Permanent Magnet	901
H.M. Chen, Y.H. Gao, Q. Lv, D. Yang and X.X. Lin	

Chapter 8: Constructional Materials

Research on Hydration of Waterproof-Typed Semi-Hydrated Gypsum	909
J.Q. Li, M.Z. Gong and G.Z. Li	
Preparation and Properties of Cement Mortar Modified by VAE Latex	913
J. Chen, S. Zhang, J.Y. Liu and X.R. Zhou	
Experimental Study on Influential Factors of Adiabatic Temperature Rise for Mass Concrete	917
D.D. Wang, W.L. Tian and C.Q. Wang	
Influence and Mechanism of Polymer Coating on Shrinkage of Cement-Based Materials	923
L. Shi, J.Z. Liu and J.P. Liu	
The Failure Mode and Anti-Crack Performance of the Steel Fiber Reinforced High Strength Concrete Four-Pile Cap	927
D.Y. Gao, H. Fan and J. Lei	
Preparation and Application of the Vesicant in Gypsum	934
W.H. Zhang and G.Z. Li	
Effects of LaCrO₃ Composite Additive for the Hydration Resistance of MgO-CaO Refractory	938
J.J. Sun, C.N. Yin, Y.J. Liu and S.Q. Liu	
Application of New Concrete Materials in Channel Lining of the South-to-North Water Diversion Project	942
W.L. Li, Y.T. Li and J.Y. Yu	

Effects of Viscosity Modifying Admixtures on the Workability of Self-Compacting Concrete	946
B.G. Ma, H.X. Wang, J. Xiao, L.X. Li and Z.B. Cheng	
Study on Anti-Ultraviolet Radiation Aging Property of TiO₂ Modified Asphalt	951
S.S. Sun, Y.M. Wang and A.Q. Zhang	
Research on High Performance Sulfoaluminate Cement Underwater Non-Dispersed Concrete	956
D.C. Zhang, D.Y. Xu and X. Cheng	
Effect of P₂O₅ on the Properties of Alite-Calcium Strontium Sulphoaluminate Cement	961
C.N. Yin, L.C. Lu and S.D. Wang	
Effects of CaF₂ on the Formation Kinetics of Portland Cement Clinker	966
C.F. Wang, Z.H. Zhou, C.X. Liu and X. Cheng	
Study on Sintering Technology and Performance of Alite-Rich Cement Modified by C_{1.5}Sr_{2.5}A₃S Mineral	970
G.Q. Li, S.D. Wang, C.N. Yin and L.C. Lu	
Study on the Adaptability Between the Amount of C₃S Mineral in Alite-Sulphoaluminate Cement Clinker and the Fly Ash	975
Y.C. Wu, X.C. Liu, B.L. Li, T. Liu, W.S. Wang and Y.J. Li	
Influence of Species of Manufactured Sand on Basic Performances of Mortar	980
Y.L. Wang, S.X. Liu, W.D. Wang and Y.J. Zhao	
Study on Integral Utilization of Alkaline Slag and Fly Ash	984
S.X. Wang and N. Li	
Spectrophotometric Determination of the Ca Ion Content in Steel Slag by Using Chlorophosphonazo as the Spectral Chromogenic Reagent	989
H.L. Zhao, X. Cheng and J. Chang	
Study on Preparation and Properties of Cement-Based Foamed Lightweight Thermal Insulation Material	994
C.C. Jiang, G.Z. Li and S. Zhang	
Effect of Doped with BaO on the Formation Dynamics of Alite in Alite-Rich Cement Clinker	998
S.D. Wang, X.Y. Guo, L.C. Lu and X. Cheng	
Effect of Slag on Expansion of Alite-Calcium Barium Sulphoaluminate Cement	1003
S.D. Wang, L.C. Lu and X. Cheng	
Experimental Investigation on Related Properties of Asphalt Mastic Containing Recycled Cement Mortar Powder	1007
J.Q. Zhu, S.P. Wu, J.J. Zhong and D.M. Wang	
Thermally and Chemically Added-Calcium Composite Activation of Coal Gangue and its Application in Cement	1016
X.Y. Song, J.Y. Han and Z.H. Gao	
Influence of Slag and Fly Ash on the Self-Healing Ability of Concrete	1020
Z.H. Zhou, Z.Q. Li, D.Y. Xu and J.H. Yu	
Effect of Gypsum on Hydration Degree and Structure of Hardened Paste of Alite-Strontium Calcium Sulphoaluminate Cement	1024
Q.Y. Li, L.C. Lu and S.D. Wang	
Relationships of Strengths and Dimensional Effect of Plastic Concrete	1029
D.Y. Gao, S.Q. Song and L.M. Hu	
Application of Second Law of Fick in NaCl Attack of Sulphoaluminate Cement	1038
Z.M. Ye, L.C. Zheng, L.H. Wan and X. Cheng	
Study of Adsorptive Behaviors of Aminosulfonic Acid-Based Superplasticizer on the Calcium Sulphoaluminate Mineral	1042
T. Liu, Y.J. Li, B.L. Li, Y.C. Wu, W.S. Wang and X.C. Liu	
Design and Choose Assessment Parameter for Concrete Performance of Anti-Sulfate Erosion	1047
H.X. Qiao, H. Yu and Z.M. He	
Preparation of Nano Rice-Husk Ash and Effect on the Water-Resistance of Magnesium Oxychloride Composites	1051
K.J. Xu, J.T. Xi and Y.Q. Guo	
Effect of MoO₃ on the Clinkers Formation of Portland Cement	1055
L.B. Yu, Z.P. Xu, G.W. Dong and Y.N. Zhu	

Microwave Synthesis of Dicalcium Silicate: — Comparison with Conventional Synthesis	1060
H.Z. Jiang, Q. Hao, J. Zhou and J.J. Li	
Performance of Belite-Barium Calcium Sulphoaluminate Cement Prepared by Substituting Fly Ash for Clay	1066
P.Q. Zhao, W. Zong, S.D. Wang, G.Y. Wang and L.C. Lu	
Pond Ash: An Alternative Material as Fine Aggregate in Concrete for Sustainable Construction	1071
B. Ganesh, H. Sharada Bai, R. Nagendra and S. Bagade	
Research on the Performance of Ba-Bearing Aluminoferrite Cement	1076
W.J. Tan, J. Chang and Z.M. Ye	
Research on Enzymatic Hydrolysis Lignin Modified Petroleum Asphalt	1080
Z.D. Zhao, Y. Xie, X.S. Cheng, Y.Q. Jin and M.Y. Xu	
Experimental Research on Compressive Strength of Self-Compacting Concrete with Recycled Coarse Aggregates	1084
J. Li, X.F. Qu, L.F. Wang, C.Q. Zhu and J. Li	
Influence of Compounding Malic Acid with Plasticizers on Hydration Heat of α-Calcium Sulphate Hemihydrate	1088
P.M. Wang and W. Pan	
Influence of Limestone Powder on Performance of the Pre-Mixed Cement Mortar	1096
X.Z. Zhang, C.S. Han and X. Yin	
Effect of Mixed Material on Sulphoaluminate Cement Sulfate Attack Resistance	1101
G.Y. Wang, L.C. Lu, S.D. Wang and P.Q. Zhao	
Study on Using Low Quality Fly Ash to Produce Baking-Free Bricks	1106
W.H. Tao, X.H. Fu and Z.X. Yang	
Corrosion Behavior of Super-Hydrophobic Surface on Fe_3Al in Seawater	1110
P. Wang, Y.S. Yin and T. Liu	
The Study on Accelerated Life Mechanism of Glass Fiber Reinforced Magnesium Oxychloride Cement	1118
J.M. Dong, H. Yu and Q.Q. Liu	
Pore Structural Changes and Carbonated Depth of Carbonated Steel Slag	1122
H.Z. Wu, J. Chang and H. Wang	
Influence of Mechanical Behavior of Adhesives on Shear Stress Distributions in the Single-Lap Adhesive Joints	1126
X.C. He	

Chapter 9: Nano Materials

Photoluminescence Properties of InGaN/GaN Multiple Quantum Well Light Emitting Diodes by Metalorganic Chemical Vapor Deposition	1133
T.W. Kuo, L.M. Kong, Z.C. Feng, W. Liu, S.J. Chua and Y.S. Huang	
Heat Transfer Analysis of the Micron-Scale Agglomerates of TiO_2 Precursor during the Detonation Process	1138
Y.D. Qu, X.J. Li and H.H. Yan	
$Y_3Al_5O_{12}$ Nanocrystallites Prepared from a Novel Crystalline Precursor	1142
R.J. Han, D. Gao and K.Z. Chen	
Facile Synthesis of Cobalt Oxide Uniformly Coated on Multi-Wall Carbon Nanotubes for Supercapacitors	1148
L.Y. Gong and L.H. Su	
Effects of Conductive Supports on the Growth and Capacitive Performance of Nanostructured Manganese Oxides	1153
N. Guo and Z.Y. Qin	
Large-Sized TiO_2/SiO_2 Macroporous Materials for Photo-Degradation of Organic Compounds in Water and Air	1157
R.F. Zhang, J. Ye and N.B. Long	
Synthesis and Characterization of Sol-Gel Derived Magnesium Tantalate Nanopowder	1162
Y.S. Jiang, J.H. Luo, Z. Li and L.N. Chen	

Density Functional Theory Study of Influence of Hydrogen Absorption on the Field Emission Properties of Carbon Nanotubes	
K. Sun, Z.Q. Fan and X.Y. Liu	1166
Influence of Treatment of Hydrogen Plasma on Field Emission Properties of Carbon Nanotubes Films	
Z.Q. Fan, H.F. Ou, R. Li, G.W. Cai and J.D. Zhang	1170
Synthesis, Photophysical Properties and Aggregates of a New Pyridinium Dye	
Y.H. Sun, Y.L. Deng, D.X. Cao and Z.Q. Liu	1174
Effect of Volume Fraction and Temperature on Thermal Conductivity of SiO₂ Nanofluids	
B.J. Zhu, W.L. Zhao, D.D. Li and J.K. Li	1178
Conducting Polymer Functionalized Single-Walled Carbon Nanotubes: Synthesis, Morphological Characteristics and Thermal Stability	
H.M. Niu	1182
Synthesis and Characterization of Nanocrystalline Mg₄Nb₂O₉ by the Modified Sol-Gel Method	
Y.N. Zhu, X.J. Liu, Y.S. Jiang, Z.M. Ye, L.B. Yu and Y.L. Ding	1186
Facile Synthesis and Properties of Cd_xZn_{1-x}Se Alloy Nanocrystals	
R.L. Zhang, N. Liu, Z.M. Yuan, J. Yang, Y.L. Zhang, A.Y. Zhang, Y.Q. Cao, Y.N. Zhu and P. Yang	1190
Preparation and Photoluminescence of Hybrid SiO₂-Coated CdTe Nanocrystals	
N. Liu, Z.M. Yuan, J. Yang, Y.L. Zhang, R.L. Zhang, Y.Q. Cao, A.Y. Zhang, Y.N. Zhu and P. Yang	1194
Anatase Nano Titanium Oxide Synthesized Using the Hydrothermal Method and its Optical Absorption Properties	
X.M. Fu and Z.W. Liu	1198
Synthesis and Properties of CdSe/Cd_xZn_{1-x}S Quantum Dots	
J. Yang, Y.L. Zhang, R.L. Zhang, N. Liu, Z.M. Yuan, A.Y. Zhang, Y.Q. Cao, Y.N. Zhu and P. Yang	1203
Synthesis of α-Ni(OH)₂ Peonies Assembled from Nanosheet Building Blocks and Corresponding NiO Porous Peonies	
Y. Yan, W.J. Kang, J.F. Li and Y.T. Qian	1207
Synthesis of Carbon/Carbon Core/Shell Nanofibers by Co-Pyrolysis of Tetrahydrofuran and Ferrocene	
W.J. Kang, H.B. Li, Y. Yan and Y.T. Qian	1211
Carbon Nanotubes-Doped Glassy Carbon Ceramic Composite Electrode and its Electrocatalytic Reduction of Nitrite	
D.Z. Sun	1215
Electrocatalytic Reduction of Nitrite at Carbon-Nanotube-Modified Glassy Carbon Electrodes	
D.Z. Sun	1221
The Effect of Alcoholic Reducing Agent on Morphology and Structure of VO₂ (B) Nano-Particles	
J. Qi and C. Niu	1225
Characterization and Properties of Sol-Gel-Derived Polyurethane Acrylate/Silica Hybrid Materials	
Z.H. Yang, J.H. Wang, Y.D. Ji and Y.Z. Yin	1229
Preparation and Characterizations of Na₂Ti₃O₇, H₂Ti₃O₇ and TiO₂ Nanobelts	
Y.M. Wang and H. Liu	1233
The Microstructure of Zinc Oxide Films Prepared by Hydrothermal Method	
Z.L. Xia, Q. Xu and L.X. Zhao	1238
Temperature Dependent Photoluminescence of ZnO Nanorods Synthesized by Hydrothermal Method	
P. Wang, L.B. Fan, L.X. Shi and B. Fang	1242
Effect of Reaction Temperature on the Morphology of Carbon Nanofibers	
L.Y. Yu, L.N. Sui, H.Z. Dong and L.F. Dong	1247
Preparation and Characterization of Poly(Acrylamide)/Silica Nanocomposite Gels	
L.L. Wu, L.Z. Zeng, H.B. Chen and C.C. Zhang	1252

Characterization and their Fluorescence of Fe³⁺-Doped La₂Zr₂O₇ Nanocrystals by a Salt-Assistant Combustion Method	1257
Y.S. Bai, L.D. Lu and J.C. Bao	
Photoluminescent Properties of TGA-Capped CdTe Quantum Dots	1262
Z.M. Yuan, J. Yang, Y.L. Zhang, R.L. Zhang, N. Liu, Y.Q. Cao, A.Y. Zhang, Y.N. Zhu and P. Yang	
Facile Fabrication of Free-Standing Titanium Dioxide Nanorods Array with Highly Efficient Ultraviolet Light Induced Photocatalytic Activity	1266
T. Zeng, H. Xie, X.T. Sui and X.J. Zhao	
The Preparation of Nano-Sized Lead Sulfide in High Power Pulse Ultrasonic Reactor	1271
M. Shui, J. Shu, Y.L. Ren and R.F. Zhang	
Synthesis and Characterization of Mesoporous Silica Nanoparticles Embedded Gadolinium Oxide	1275
N.Q. Luo, Z.Y. Huang, P. Luo, Y.Z. Shao and D.H. Chen	
A Solid-State Reaction Route to Synthesize Crystallinic FeB Nanoflowers and their Magnetic Properties	1280
J.F. Li, Y. Yan and Y.T. Qian	
A Novel Method for Preparing High Efficient Fluorescence-Encoded Microspheres with Semiconductor Nanocrystals	1284
H. Yu and L. Tao	
Influence of Doping Methods on the Gas-Sensing Properties of CuO-SnO₂ Sensors	1289
Z.D. Lin, W.L. Song, H.M. Yang and J.C. Zheng	
Water-Based Polyurethanepolyaniline Conductive Core-Shell Latex Nanoparticles	1296
T.L. Zhang and Z.Y. Qin	
Correlation of Structural and Optical Properties of nc-Ge/a-Si Multilayers Grown by Ion Beam Sputtering	1300
C. Song, R. Huang, X. Wang, J. Song and Y.Q. Guo	
Influence of Different Processing Parameters on the Structure of Anodic Aluminum Oxide Membrane	1304
X.L. Sun, A.M. Li, W.F. Dong, K.N. Sun, M. Du and W.L. Wang	
Preparation and Characterization of Mg(OH)₂ Flame-Retardant with Particular Morphology via Hydrothermal Process	1311
L.M. Ji, L.J. Li, Z.Q. Liu, B. Zhang, F. Nie, Z.M. Zeng, F.G. Song, Y.H. Zhang and X.H. Jia	
Finite Element Analysis of High Pressure Torsion Processing	1317
Q. Guan, C.D. Zhu and T.L. Dai	
Phase Diagram of the LiCl-MgCl₂-Na₂SiO₃-H₂O System at 150°C and Synthesis of Hectorite	1321
J. Wang, Y.Z. Jia, Y. Yao, J.H. Sun, J. Ma, X.J. Yin, Q. Luo and Y. Jing	
Synthesis of Carbon Nanotubes, Carbon Spheres and Slices of Vertically Aligned Multi-Walled Carbon Nanotubes	1325
S.S. Yao	
Characterizations and Crystal Structure of Metallic Ion Doped Titania Nanofiber by Sol-Gel Method	1330
Y. Lu, C.L. Shao, P. Zhang, M.Y. Zhang, Z.Y. Zhang, X. Zhang, M.Y. Li and W.W. Sun	
Synthesis of CdS Quantum Dots for Detection of Copper (II) Using Fluorescence Spectroscopy	1334
M. Zhang, F.W. Wan, S.G. Ge and J.H. Yu	
CdSe Quantum Dots Decorated by 3-Aminobenzeneboronic Acid as Fluorescence Probe for Glucose	1338
S.W. Wang, X.O. Zhang and J.H. Yu	
Hard-Templating Synthesis of Mesoporous La_{1-x}Sr_xMnO_{3+σ} Perovskite and Catalysis Activity in CO Oxidation	1342
X.H. Huang and M. Li	
Synthesis of CdTe and CdTe/CdS Core-Shell Quantum Dots and their Optical Properties	1350
J.J. Lu, S.G. Ge, F.W. Wan and J.H. Yu	
Determination of Interdiffusion Coefficient in Nanolayered Structures by Auger Electron Spectroscopical Sputter Depth Profiling	1354
J.Y. Wang	

Preparation and Dispersion of Polyacrylamide-Grafting Graphene	1360
L.L. Wu, X. Lv and C.C. Zhang	
Electron Microscopy Study of Y-Shaped Carbon Fibers with Different Morphologies	1364
Q. Zhang and L.F. Dong	
Complexional Ultrafine Zinc Oxide Powders Prepared by Controlled-Release Precipitation	1369
Z.F. Tong, Y.J. Li and L.X. Lian	
Preparation and Characterization of BCN-TiO₂ Nanoparticles	1375
L. Zhang, L. Li, Z.G. Mou and X.F. Li	
Study on Amorphization of Mechanical Alloyed Cu₅₀Zr₄₀Ag₁₀ Alloy	1379
L.Y. Xia and Y. Wang	
Effect of Reaction Temperature on Carbon Nanotubes	1383
Y.C. Yue, W. Ren, M.L. Zhao, M.X. Guo, Y.T. Zhang, J. Xia and D.J. Li	
Numerical Simulation of Dense Phase Pneumatic Conveying Gypsum in Stepped Pipeline	1387
W.X. Wu, Z.M. Liu and G.B. Duan	
Preparation and Characterization of Hydrophobic Mesoporous SiO₂ Aerogel	1393
H.X. Liu, S. Chen, R. Shao, R. Dong and M.L. Jia	
Nanocrystalline ZrO₂ Porous Ceramics Fabricated by SPS	1398
D. Zhang, M.G. Wang and Z.K. Zhao	
The Electrical and Optical Properties of Al-Doped ZnO Thin Films Prepared by Atomic Layer Deposition	1402
J. Song, H.C. Mu, L.X. Jiang, G.L. Yin, Z. Yu and D.N. He	
Electrodeposition of Au/Brush-Zn Heterojunction Nanowires	1406
X. Zhao, Y.Z. Wu and X.P. Hao	
Comparison on Optical Properties of Cu-Al₂O₃ and Co-Al₂O₃ Nano-Array Composite Structure	1412
M.M. Zheng, F.Q. Wu, H. Wu and B.Q. Cao	
Visible-Light Photocatalytic Activity of the Bi₂Ti₄O₁₁ Nanorods	1416
W.W. Zhao, C.Y. Zhang, Y.W. Liu, X.P. Huang and F. Mao	
Repeated Synthesis of MCM-48 Microspheres with a Fixed Ethanol-to-Water Ratio	1420
L.L. Qin, H. Zhao, H.X. Wang and S.Q. Liu	
The Influence of the Temperature on the Light-Sensitive Character of WO₃ Nanorods Synthesized by the Hydrothermal Method	1425
β-Ni(OH)₂ Flower-Like Spheres and Nanoflakes Synthesized Using the Hydrothermal Method and its Formation Mechanism	1430
X.M. Fu, Z.W. Liu, L.Y. Zhou and C.C. Xie	
A Strategy to Produce Single and Double Layer Graphene Sheets	1435
S.R. Dhakate, N. Chauhan, S. Sharma and R.B. Mathur	
Ultrasensitive Chemiluminescence Detection of Indoleacetic Acid Catalyzed by Silver Nanoparticles	1440
W.W. Liu, W.H. Liu, X.M. Mu, P.X. Gong and W. Cao	
A Study on Mechanism of Tribological Behavior of Carbon Nanotubes	1444
R. Li, Y.Z. Hu and H. Wang	
Preparation and Characterization of Cerium-Doped Tin Oxide Gas Sensors	1450
H.Y. Xu, X.Q. Chen, L.Z. Fang and B.Q. Cao	

Chapter 10: Environmental and Green Materials

Photocatalytic Properties of F-TiO₂/Ti Photoelectrodes Prepared by Microarc Oxidation Method under Visible Light Illumination	1459
Y.J. Xin and D.J. Cui	
Mechanical Properties Simulation of Squeeze Cast Magnesium Alloy	1464
Z.H. Guo, H. Hou and S.W. Qu	
Iron Doped Lanthanum Stannate Pyrochlores (La₂Sn_{2-x}Fe_xO₇) for the Simultaneous Catalytic Removal NO_x and Soot	1468
Z.P. Wang, Z.Z. Wang, X. Wang, Q. Li, Z.G. Mu and Z.L. Zhang	
Experimental Research on Mechanical Properties of Coal Paste Filling Material	1473
C.Z. Zhao and H.Q. Zhou	

Study on the Kinetics of Phosphor-Gypsum Pyrolysis	1477
M.K. Zhou, G.L. Ying, B.X. Li and T. Xie	
Ecological Barium-Crystal Glass Based on Thailand Quartz Sands Doped with Zirconium Dioxide	
K. Won-In, S. Pongkrapan and P. Dararutana	1484
The Phosphorus Removal Characteristics of Grain-Slag as Filter Media	
Y. Feng, Y.Z. Yu, M.T. Li and L. Cheng	1488
Electrochemistry Characterization of Ionic Liquid-Type Phosphomolybdic Salt with Modified Electrode	
Z.Y. Li, X.M. Xu, C.L. Zhou and D.Z. Sun	1492
Preparation of a Novel Poly-Silicic-Ferric Coagulant from Fly Ash Extract	
J. Tan, Y.Z. Yu and Y. Sun	1496
The Research of Fired Grain Slag Brick	
Y.Z. Yu, J. Tan and L.L. Gao	1500
Multiple Objective Preform Die Shape Optimization Design for Controlling Forging's Shape and Deforming Force during Forging Process	
X.H. Zhao, G.Q. Zhao, X.H. Huang and Y.G. Luan	1504
Synthesis and Application of an Efficient and Stable Solid Acid Catalyst St-c-AS	
S.H. Liu, P.R. Meng, L.J. Yu, Y.M. Zhang and X.H. Wang	1508
Suppressing the Powdering of Zirconia Fibers after High-Temperature Application by Large Additions of Yttria	
X.Q. Hou	1512
A New Treatment Method of Pineapple Leaf Fiber for Textile Use	
Z.F. Li, G.L. Liu and C.W. Yu	1516
Preparation and Oxygen Intake/Release Characteristics of $\text{YBaCo}_2\text{Fe}_2\text{O}_7$	
S.M. Zhang, H.Z. Song, X.H. Su, J.F. Jia, D.L. Yang, H.W. Sun and X. Hu	1520
Extraction Behavior of Scandium Cation in Ion Liquid Extraction System Using 1-Butyl-3-Methyl-Imidazolium Hexafluorophosphate and 2-Ethylhexyl Phosphonic Acid-2-Ethylhexyl Ester	
Z.W. Pan, G.Q. Li and L.B. Lin	1524
Anaerobic Biohydrogen Production by the Mixed Culture with Mesoporous Fe_3O_4 Nanoparticles Activation	
W. Zhao, J. Zhao, G.D. Chen, R. Feng, J. Yang, Y.F. Zhao, Q. Wei, B. Du and Y.F. Zhang	1528
Study on Solvent Extraction of Fast Pyrolysis Bio-Oil	
Q.K. Tian, L. He, H. Zhang, Z.L. Lv and R. Li	1532
Research Progress in Protective Organic Silane Films	
X.L. Ran and T.Y. Li	1537
Study on the Treatment of Domestic Sewage with Water Quenched Slag Biological Aerated Filter	
Y.Z. Yu, Y. Feng and L. Cheng	1541
Investigations of Adsorption of 1-Dodecyl-3-Methyl Imidazolium Chloride on Iron Surface as Corrosion Inhibitor	
Q. Zhao, M.S. Pei, W.J. Guo and S.N. Wang	1545
Effects of Li_2O on Properties of Low Fluoride Content Mould Flux for High Speed Continuous Casting	
Y.Q. Lu, G.D. Zhang and M.F. Jiang	1549
Effect of Kaolin on the Properties of Flue Gas Desulphurization Gypsum-Steel Slag Cementitious Materials	
L. Zhang, Z. Wang, L.Y. Fan and G.P. Shi	1553
The Relationship Between the TiO_2 Photocatalyst Deactivation, Regeneration and the Concentration of the Surface Adsorbed SO_4^{2-}	
Y. Huang, Z.H. Zhou, Y.P. Wu, Y.C. Meng and S. Shen	1557
Preparation and Characterization of Hydrophilic PVDF Membrane via Graft Modification by Acrylic Acid	
L.G. Wang, X.G. Zhang, S.F. Hou, X.J. Wang, A.M. Wang and S.Q. Liu	1563
Experimental Research on Durabilities of Coal Gangue Concrete	
J.M. Guo and L.L. Zhu	1569
Synthesis and Characterization of Mesoporous SAPO-11 by Using Carbon Particles	
J. Liang and F.P. Wang	1576

The Application of Peroxide in the Degumming Process of Ramie	1580
G.L. Liu, Z.F. Li, R.Y. Ding and C.W. Yu	
The Key Problems in the Manufacturing of the Bamboo Buffer Packaging Material	1585
Y. Liu, S.Y. Qi and Z.Y. Shi	
GGBFS Activated by Tetra-Isopropyl Titanate	1589
C.J. Zhu, H.Q. Ru and C. Zhang	
Floc's Formation and Settlement of Organic Poly-Silicic-Ferric Coagulant	1596
Y. Fu, X.Y. Zhang, N. Shil and J.C. Zhang	
Mathematical Modeling and Numerical Simulation of Fouling Processes of Polymeric Ultrafiltration Membrane	1600
W.C. Song, Y.X. Jia and T.F. Shi	
Study on the Oil-Absorbing Materials with Waste Plastics	1604
Y.J. Gong, S.S. Qiu, Y. Zhang and J.P. Wei	
Analysis of Photo-Degradation of Dyed Veneer by XRD and SEM	1609
Y. Liu, J.M. Gao, L.M. Shao and H.W. Guo	
Research on Strategy-Oriented Management of Environment Performance of County and Municipal Party and Government Leaders	1613
J.K. Zhou	
Study on Performance of Al-Zn-In-Mg-Ti Sacrificial Anode	1619
Y.B. Huang, G.W. Song, H.D. Ding and X.H. Shao	
Study on the Addition of SiO₂ into Lithium-Iron-Phosphate Glass	1623
R.J. Yang, Y.H. Wang, H.L. Liu and S.Q. Liu	
Biomimetic Hemocompatible Nanofibrous Scaffolds as Potential Small-Diameter Blood Vessels by Bilayering Electrospun Technique	1627
H.Y. Wang, Y.K. Feng, H.Y. Zhao, R.F. Xiao and J.T. Guo	
Grafting Sulfoammonium Zwitterionic Brushes onto Polycarbonateurethane Surface to Improve Hemocompatibility	1631
Y.K. Feng, D.Z. Yang, H.Y. Zhao, J.T. Guo, Q.L. Chen and J.S. Liu	
Electrochemical Properties of PANI/CNTs Composites Modified by Oxygen Plasma	1635
C. Li, L. Zhang and K. Wang	
Fluorescent Sensors for Nitroaromatic Compounds Based on the Comb-Like Polysiloxane-Acrylate	1640
Y.Z. Cui, X.L. Ren, X.M. Dong and Y.T. Wang	
Flexible and Ordered Macroporous PMMA Polymers Films	1645
L.E. Deng, Y.S. Wang and M. Fu	
Synthesis and Characterization of Highly Regioregular Poly (3 - Hexylthiophene)	1649
C.Y. Zhou, L.T. Yan, L.N. Zhang, X.D. Ai and T.X. Li	
Experimental Study on Uniaxial Time-Dependent Cyclic Deformation of POM/PTFE Blends	1653
Z.W. Zhu, X. Liu, G.Z. Kang and L.X. Cai	
Preparation of L-Tryptophan Imprinted Polymer Microspheres in Aqueous Media by <i>In Situ</i> Grafting on Surface	1658
J. Ding, S.S. Chen, X. Li, X.G. Ying, S.F. Jiang, S. Weng and W.Y. Zhang	
The Properties and Hydrolysis of Polysiloxanes with Cyanoethyl Groups	1663
R.F. Guan and Y.R. Dong	
Synthesis and Application of Molecularly Imprinted Sol-Gel Film for Simultaneous Determination of Multi-Component Pesticide Residue	1667
S.G. Ge, P.N. Zhao, J.H. Yu and J.D. Huang	
Influence of the Heating Conditions on the Asphalt Compositions by Grey System Theory	1673
M. Yu and S.P. Wu	
Relation of 2D Permeability and Preform Structure Parameters	1678
J.H. Jiang and N.L. Chen	
Effect of Super-Absorbent Polymer as Admixture on the Mechanical Properties of Mortars	1683
T. Yang, N. Sun, W.J. Guo, J. Zhang, M.S. Pei, Y.F. Wei and S.N. Wang	
Synthesis and Properties of an Amphoteric Superplasticizer Compatible with Sulphoaluminate Cement	1688
N. Sun, J.J. Qin, W.J. Guo, J. Zhang, M.S. Pei, Y.F. Wang and S.N. Wang	

Effect of Glycerol on the Self-Assembly of P123 in a Room-Temperature Ionic Liquid [Bmim]PF₆ X.N. Li, M.S. Pei, L.Y. Wang and L. Wang	1693
Effects of UV Aging on the High-Temperature and Fatigue Performances of Asphalt Mortar L. Pang, L. Long, S.P. Wu and W. Lu	1698
Preliminary Study on Asphalt Mortar Containing Shaped-Stabled Phase Change Material M.Z. Chen, G.J. Xu, S.P. Wu and W. Lu	1702
Investigation on Static Shear Creep Behavior of Asphalt Mastic Containing Recycled Red Brick Powder Y.H. Sun, S.P. Wu, J.Q. Zhu and J.J. Zhong	1707
Preparation, Characterization and Microwave Absorption Properties of Nano/Micro Carbon Fiber X.P. Duan, J.H. Jin, S.L. Yang and G. Li	1712
Preparation and Properties of Enzymatic Hydrolysis Lignin Modified Thermoplastic Starch Composites B. Liu, Q.F. Lv, R. Fang and X.S. Cheng	1717
Growth and Magneto-Optical Properties of CaTbAlO₄ Crystal M. Mei, L.L. Cao, Y. He, R.R. Zhang, F.Y. Guo, N.F. Zhuang and J.Z. Chen	1722
Synthesis of Nanocrystalline (W, Ti)C from Respective Elemental Powders by Mechanical Alloying and Spark Plasma Sintering J.H. Liang, C. Yang, X. Li, S.G. Qu and Y.Y. Li	1728
Study on the Preparation and Mechanical Properties of Polystyrene/Y₂O₃ Composites Y.L. Dou, C.L. Zhang, G. Sun and W.H. Xu	1735
Catalytic Synthesis of Dioctyl Phthalate over Al-MCM-41 Molecular Sieves H.F. Zhou, Y.J. Yang and J.S. Zhang	1741
Microstructures of Graphite/Copper Composites Prepared by Mechanical Milling and Hot Extrusion Y.P. Jin and M. Hu	1747
The Influence of Solvent Metal Microstructure on Synthetic Quality of Diamond Single Crystals X.H. Fan, B. Xu and C. Gao	1753
Influence on Activation Property of Calcined Coal Gangue by [SO₄]²⁺ C.C. Gong and D.X. Li	1757
The Effect of Depositing Time on the MPCVD of Diamond on Porous Carbon Monolith Q. Mei, X.J. Yu, B.Y. Zhao, R.B. Li, Y.J. Lay and K.A. Hu	1761
Photocatalytic Property of Amorphous WO₃ Films Prepared by Reactive Magnetron Sputtering J.M. Huang, Y.Y. Liu and G.P. Wan	1767
Synthesis and Characterization of Silicone Based Pressure Sensitive Adhesive M. He, Q.Y. Zhang and J.Y. Guo	1773
The Preparation of TiO₂ Nanotube Arrays L.X. Pang, P.F. Cuan, H. Shi and X.D. Tang	1779
Synthesis and Characterization of Water Based Acrylic Pressure Sensitive Adhesive of Surface Protection Tape M. He, Q.Y. Zhang and J.Y. Guo	1785