

Table of Contents

Preface and Organizing Committees

Chapter 1: Composites

Mechanical Behaviors of Sic Particle Reinforced Al Matrix Composites: A Study Based on Finite Element Method	
C. Sun, R. Shen, M. Song and Y. Du	3
Preparation and Properties of Cf-TiB₂-Cu-Graphite Composites	
S.F. Xu, S.P. Xu, C.N. Zhu and C.Y. Yuan	8
Microstructure and Mechanical Properties of <i>In Situ</i> TiB₂/6061 Composites	
L.H. Zhong, Y.T. Zhao, S.L. Zhang and R. Wen	14
Effect of High-Energy Ball Milling to Powders on Microstructure and Physical Properties of Al-50Si Alloy	
L.J. Zhang, J.P. Xie and A.Q. Wang	18
The Influence of Nonlinear Matrix on Mechanical Behavior of Polymer Particulate Composite	
Z. Majer	23
Study on Biomimetic Composites by Imitating Shell Structure	
X.F. Ding, A.G. Lin, Z.D. Xie, Y.M. Diao and C.X. Mu	27
Preparation and Electrochemical Properties of Amorphous Tin-Copper Composite Oxide CuSnO₃	
T. Liu, R.B. Du and X.J. Kong	31
First Principles Study on the Electronic Properties of Cr, Fe, Mn and Ni Doped β-Ga₂O₃	
H. He, W. Li, H.Z. Xing and E.J. Liang	36
Rapid <i>In Situ</i> Reactive Sintering and Properties of ZrO₂-ZrW₂O₈ Composites	
X.Y. Guo, C.Z. Fan, X.S. Liu, W.B. Song, C.X. Cheng, E.J. Liang, M.J. Chao and B. Yuan	42
Influence of LiCl Flux on the Process of <i>In Situ</i> Fabrication Aluminum Matrix Composites	
G.R. Li, X.T. Yuan, H.M. Wang, X.Y. Zhang, Y.T. Zhao, J.J. Wang, K.X. Gu, H. Zhang and X.J. Xu	47
Effects of Different Factors on Antibacterial Properties of Crosslinked Chitosan-Coated Ag-Loading Nano-SiO₂ Composites	
L. Zhang, M. Niu, J.M. Dai, L.Q. Wei, X.G. Liu and B.S. Xu	51
Piezoelectric, Dielectric and Pyroelectric Property in Morphotropic Phase Boundary MnO₂ Doped Bi_{0.5}(Na_{0.82}K_{0.18})_{0.5}TiO₃/P(VDF-TrFE) 0-3 Composites	
M.Y. Fan, Y.Y. Zhang, Q.F. Zhang, G.Z. Zhang and L. Lu	55
Field Emission of Gallium-Doped Carbon Nanotubes	
H. He, C. Yuan, E.J. Liang and S.F. Li	61
Study on the Polyethyleneglycol-Based Silicon Wafer Wire Cutting Fluid for its Stability Improvement	
Y.S. Zhou, P. Wang and H. Gu	67
Experiment Study on Effects of Critical Factors on Quality of Prototypes in Fused Deposition Modeling	
A.H. Peng	73
Research on the Structure and Friction Properties of the SiC Particles Reinforced Copper-Based Self-Lubricating Composites	
S.Y. Chen, H. Fan, D. An, J. Liang and C.S. Liu	77
Abrasive Wear Characteristics of <i>In Situ</i> TiC-Reinforced Iron Matrix Surface Gradient Composites	
L.L. Wang, Y.H. Xu and L.S. Zhong	81
Ultrafine W-Cu Composite Powder Research Progress	
J.X. Gao, Y.G. Li, Y. Tian and Y. Jiao	86
Reservoir Fracture Characteristics and its Influence on Oilfield Development in Chang 4+5 Formation in Southern Puziwan Area	
K. Zhang, J.W. Chen, Y.F. Zhou, P.G. Han and Q. Huang	90

The Non-Isothermal Crystallization Kinetics of Dispersible Nano-SiO₂/PA66 Composites L. Jia, L.P. Guo and X.M. Xu	94
Mechanical and Thermal Properties of Reactable Nano-SiO₂/polyoxymethylene Composites X.M. Xu, L.P. Guo, Y.D. Zhang and Z.J. Zhang	103
Effects of Particle Volume Fraction on Dynamic Deformation Behaviors of B₄C Reinforced Aluminum Matrix Composites X.F. Li, B. Liu, W.M. Huang and H.W. Wang	110
Synthesis of Magnetic Fe₃O₄@TiO₂ Nanocomposite and its Photocatalytic Property D.Z. Wang, L.N. An, X.B. Zhang, X.Y. Li and J. Shi	117
Ballistic Impact Testing and Analysis of Triaxial Braided Composite Fan Case Material L.L. Liu, H.J. Xuan, G.T. Chen, D. Ye, W.R. Hong, J. Xing and J. Wang	121
Fabrication of Si₃N₄ Reinforced 316L Stainless Steel Composites by Powder Injection Moulding D.D. Guan, X.B. He and X.H. Qu	133
Density, Microstructure and Mechanical Property of Large-Scale C/C Composites Prepared by Thermal Gradient CVI W.F. Cao, H. Li, L.J. Guo, K. Li and H.L. Deng	139
The Tribological Properties of Several PTFE Based Self-Lubricating Composites in Vacuum J. Zheng, H. Zhou, Z.H. Wan and R.P. Sang	144
Preparation of Polyaniline/SiO₂ Composites by Modified Silica Using Succinic Acid E.Y. Li, X.F. Wang, X.Z. Wang and H. Wang	149
The Effects of Oil Palm Fruit Bunch (OPFB) Fiber and Coupling Agent Loadings on the Performance of Hybrid Composites A. Kalam, M.N. Berhan and I. Hanafi	154
The Preparation and Properties of MgO-CaO-ZrO₂ System Composite Materials R.L. Wang, Y.P. Wang, Y. Cui and L.X. Yu	161
Preparation and Properties of Ce-Zr-Mn Composite Oxide Oxygen-Storage Materials Y.Q. Zhou, D.W. Yin, X.Y. Yang and J.H. Ma	165
Influence of Sintering Temperature and Atmosphere on Phase Makeup of SiAlON-Graphite Composites W.W. Wang, H.Y. Cao, J.X. Wang and Z.P. Zhang	169
The Energy Absorption of Carbon Fiber Reinforced Polymer under Different Impact Speed G.Z. Quan, Y. Tong and G.S. Li	174
Synthesis of Carbon Nanofiber-Titania-Cordierite Monolith Composite and its Application as Catalyst Support on Citral Hydrogenation J. Zhu, M.S. Li and M.H. Lu	178
Securing Superior Properties of Composite (PP+WF) through Central Composite Design A.N.M. Karim, N.A.B. Khalid, R.N.H.R. Ismail, M. Haque and S. Begum	186
Preparation and Research on Performance of Fluorine Rubber/Metal Composite Sealing Boards A.L. Zhang, Y.F. Feng, S.X. Li, S. Wang and Z.Q. Lv	190
Collision Ansysis of Sandwiched Polyurethane Composite Steel Tube L. Wang and X. Zhang	194
Microwave Absorbing Properties of MnO₂/Ni-Zn Ferrite/Graphite Structural Composite J.L. Deng and K. Huang	201
Microstructure and Corrosion Resistance of <i>In Situ</i> Al_{0.983}Cr_{0.017}/Al Composites J. Zhang, Q.L. Wang, B. Wan and L.Z. Zhao	206
Damping Properties of Cups-Stacked Carbon Nanotubes (CSCNTs)/RTM6 Composites Y. Liu, R.F. Li, H.X. Peng, A. Limmack and Z.W. Han	210
Theoretical Study of the Electronic Structures of Li-Doped ZnO Q.X. Wan, J.Y. Chen, Z.H. Xiong, D.M. Li, B.L. Shao and G.D. Liu	214
Preparation and Photocatalytic Activity of TiO₂/FeOOH Nanocomposite D. Chen, S.J. Hu and G.H. Li	219
Tensile Properties on Single-Bar Modified Tricot Fabric Reinforced Composites X.H. Ma and Z.G. Qin	223
Study on Microstructure Characterization of SiCp/Al Composites D.S. Li, X.L. Zhou, A.H. Zhou, X.Z. Hua and Y.W. Yu	227

The Effect of Heat Treatment on the Microstructure and Mechanical Properties of Multilayered Composites Welded by Explosion	231
E.A. Prikhodko, I.A. Bataev, A.A. Bataev, V.S. Lozhkin, V.I. Mali and M.A. Esikov	
Studies on the Thermal Conductivity of Al₂O₃/Epoxy Resin Composite Materials	235
X.H. Wan, L.G. Wang, B. Zuo, E.Z. Wang and G.Z. Zhu	
Production of Thermal Insulation Composite Material Based on Polymers	239
A. Kalužová, J. Pěnčík, L. Matějka, L. Matějka, T. Pospíšil and D. Dostálková	
Isothermal Crystallization Kinetics of Poly(phenylene Sulfide)/ZnO Composites	243
Z.H. Zhang, W.X. Zhou, Y.D. Li and C.M. Yan	
Investigation on Rapid Prediction of Elastic Properties for Woven Fabric Composites	247
W.Y. Wu, Q. Liu, Y.Z. Lin and Z.J. Zong	

Chapter 2: Micro/Nano Materials

Preparation and Characterization of Regenerated Nanocomposite Made from Bacterial Cellulose/PMMA	255
C.C. Chen, D.G. Li, Q.Y. Deng, Y.M. Wang and D.L. Lin	
Effect of the Addition of Nano-β-TCP on the Microstructure of Mg-Zn-Zr Alloy	259
C. You, Y.Z. Bi, M.F. Chen, Y. Sun and D.B. Liu	
Synthesis, Characterization and Photocatalytic Properties of CdS Nanorods	264
L.J. Xie, L.M. Duan, L. Xu, Y. Wang, X.L. Wang and Z.R. Liu	
Study of the Nano Material Using Diisopropylamine as Replacing Solvent	268
M. Lin, H.Y. Peng, L. Rong, K. Zhang, S.Y. Song, Z.S. Hu and Y.G. Shi	
Preparation and Application of Core-Shell PMMA/Chitosan Nanoparticle	271
B.Y. Sha, Q.S. Liu, L. Cheng and X.Y. Yin	
Catalytic Thermal Decomposition of Ammonium Perchlorate Using Cu/Cr Hydrotalcite Derived Nanocomposite Oxides	275
H.B. Liu, B.Z. Guo, Z.Y. Huang, H.H. Xu, C.Y. Fang and Q.Z. Jiao	
A Simple Method for Controlling the Morphology of CuO Nanostructures by Droplet	280
H.R. An, F.S. Cai, X.W. Wang and Z.H. Yuan	
Mesoporous Nano Carbon Sorbents for Separating Different Biomolecules	284
A.R. Kerimkulova, S. Azat, Z.A. Mansurov, M.K. Gilmanov, S.A. Ibragimova, S.M. Adekenov and B.B. Rachimova	
Selenium Nanoparticles Synthesized via a Facile Hydrothermal Method	289
Y.F. Niu, J.P. Guin, R. Chassagnon, F. Smektala, A. Abdelouas, T. Rouxel and J. Troles	
Synthesis and Characterization of Co-Ce Codoped TiO₂/SiO₂/NiFe₂O₄ Magnetic Mesoporous Microspheres	293
Z.H. Ouyang, L. Wu and D.L. Yi	
Synthesis of Spherical SrCO₃ Powders by Ultrasonic Waves	301
M.X. Qi, J.S. Li, S.X. Wang, Z.S. Yang, S.Y. Wang and X.W. Zou	
Preparation and Luminescence Property of Multi-Walled Carbon Nanotubes/Europium Doped Yttria Oxide Hybrids	305
T.G. Liu, C.S. Chen, X.D. Xie and C.Y. Qiu	
Investigation on the Large-Scale Synthesis of PbSe Nanocrystals	310
J.Z. Niu, G.M. Tian, Y.G. Cheng, H.D. Li and H.S. Hao	
Rapid Solvent-Free Melting Synthesis of Tungsten Nitrides with Lamellar, Solid Spherical Nanostructures at a Low Temperature	314
W. Luo, Y. Tang, D.G. Ouyang, B. Han, M.H. Li and S.H. Zhu	
The Analysis of Noises of Flows across the Superhydrophobic Surfaces with Microscale Structures	319
D. Song, B.W. Song and H.B. Hu	
Study and Application of Nanomaterials in Drilling Fluids	323
L. Li, J.S. Sun, X.G. Xu, C. Ma, Y.P. Yang and X.B. Yuan	
Preparation of CuS Hollow Microsphere by a Simple Hydrothermal Method and its Catalytic Property	329
M.R. Wang, W.J. Li and M.L. Pan	
Fabrication of Poly Phosphoric Acid into Polyacrylonitrile Composite Nanofibers	333
M.R. Mohammad Shafiee, M. Salehi Esfandarani, R. Moloudi and M. Ghashang	

Adsorptive Removal of Rhodamine B from Aqueous Solutions by Carbonaceous Microspheres	337
Z.A. Yang, L.J. Feng, X. Wang, R. Ma and X.C. Song	
Energy Band Calculation of Spiral Single-Walled Carbon Nanotubes	341
H.X. Wang, Z.B. Song and D.Z. Liu	
Synthesis of MoO₃ Nanostructures and their Photocatalytic Properties	345
Z.R. Yu, D.Q. Chu, Q.H. Li and L.M. Wang	
Synthesis and Optimum of Silver Selenide Nanopowder via Room Temperature Conversion Method	349
F.X. Yang, F.X. Liu and X.L. Yu	
The Effect of Strain Rate on the Tensile Behavior of Electrodeposited Nanocrystalline Ni-Co Alloy	353
L.Y. Qin, J.S. Lian, L.Z. Quan and E.C. Jiang	
Synthesis of Magnesium Oxychloride Nanowhisker by Microemulsion Method	357
L.Q. Qin, C.B. Wang and Z.Y. Qin	
Formation of Cylindrical Nanoholes in Heavily Doped P-Type Si(100) Substrate via Pt Nanoparticles-Assisted Chemical Etching	362
B. Zhu, L.J. Li, Q.Q. Sun, H.L. Lu, S.J. Ding and W. Zhang	
Synthesis of Highly Ordered Silver Nanowire Arrays with SERS Activity	368
T.Y. Xia, L.S. Zhang, P.J. Wang and Y. Fang	
Solvent Mediated Structure Control of Hierarchical CoS Nanostructures	372
Y.J. Zhu, L. Luo, L.L. Song and X.Y. Li	
Formation and Structural Characterization of Novel K₂Ti₆O₁₃ Nanobelts	376
Y.M. Qi, C.X. Cui, H. Liu, Y. He, J.G. Xiao and B.H. Ma	
Preparation of ZnO Nanostructures and their Self-Assembly	380
H.D. Huang, W.T. Yang and L.N. Wang	
The Preparation of Silver Nanowires and the Study of SERS Activity of Single Nanowire	384
H.Y. Li, M.J. Dang, P.J. Wang and Y. Fang	
Study of Degradation Function by the Composition of Nano Bi₂WO₆ and Graphene	388
Y. Zhang, C.S. Liu and J.G. Sheng	
Morphology Modulated Preparation of PbWO₄ Nano- and Macrostructures	392
G.J. Xing, X.X. Xiong, D.M. Peng, Y. Wang and G.M. Wu	
Research on Preparation of Nanocomposite Antibacterial Agent	398
Y. Zheng and J.F. Zhang	
Study on Precursor Preparation of Co₃O₄ Nanometer Particle and its Thermal Decomposition	402
Q.C. Cao and Y.J. Xu	
Preparation and Properties of Nanocomposites Containing FGF-2, other Related Dressings and the Primary Animal Tests	406
T.H. Wu, H.R. Lin and L.H. Shen	
Hydrothermal Synthesis of 3-Dimensional Flower-Like Y₂O₃:Eu³⁺ Microstructures and the Luminescence Properties	411
Y.Y. Ruan, Y.S. Liu, W.J. Dong and C.R. Li	
Synthesis of Fluorinated Silica Nanoparticles and the Wetting Prevention Ability	415
F. Yang, D.Y. Tang and Y.D. Guo	
Preparation and Application of Microencapsulated Flame Retardant Containing Phosphorus-Silicon	419
Y. Yang, J.L. Fang and M. Lin	
The Study on Tribological Properties of the Nanoparticles Additives in Lubricant	425
X.M. Li, Z.Y. Song and Y.Q. Ma	
Electrooxidation for Methanol on Pd Nanoparticles Modified Electrodes in Alkaline Medium	431
M.L. Xu and G.T. Yang	
Effect of Zinc Substitution on Microstructure and Antibacterial Properties of Cobalt Ferrite Nanopowders Synthesized by Sol-Gel Methods	436
N. Sanpo, J. Wang and C.C. Berndt	
Fragrance and Flavor Microencapsulation Technology	440
G.Y. Zhu, Z.B. Xiao, R.J. Zhou and F.P. Yi	

Preparation of Au@Ag Core-Shell Nanorods and Investigation of its Surface Plasmon	446
W. Yuan, P.J. Wang and Y. Fang	
Surface Morphology and Texture of Nickel Crystal Micro-Casting by Electroforming under Magnetic Field	448
W.P. Jia, M.H. Wu and F. Yang	
DNA/AuNP Fluorescent Detecting Nano-Device	450
C. Zhang, J. Yang and J. Xu	
Reaction Mechanism Study on Combustion of Micro Nanometer Iron Powder	455
C.M. Zhang, J. Jin, D.D. He, H. Zhang, J. Jiang, X.Y. Gao and W.J. Gao	
Field Emission Properties of the Single-Wall Carbon Nanotubes Synthesized by Arc-Discharge Method	459
S.X. Wu, F. Yang, S.L. Xue and X.L. Zhao	
Synthesis of BaMoO₄ Nanocrystallites Using Sol-Gel Process	465
Q.Z. Zhang	
Study on Stabilized of Poly(Vinyl Alcohol) Nanofibers Based Sandwich Structure Purification Material	469
R.X. Liu, T.Q. Liu and N. Zhao	
Photoluminescence Properties of β-SiC Nanoparticles by Electric-Pulses Discharge in Liquid-Phase Compound	473
K. Du, R.H. Wei, F.W. Liu, S. Sun and L.B. Li	
Heteroe-Pitaxial Growth and Optical Properties of SnO₂ Nanowires on ZnS Nanobelts	477
M. Jiang, J.H. Duan and Z. Liu	
Functions of Cotton Yield Response to Soil Salinity in Akesu River Irrigation District	481
Y. Zhang, P.T. Cong, S.J. Hu, L.H. Wang, F.Q. Guo and W. Wei	
A New Type Battery Equalization Circuit of Electric Vehicle	486
C.P. Li, B.Z. Xia, X.L. Li and W.W. Zheng	
Synthesis and Electrochemical Properties of KMn₈O₁₆ Nanorods	495
H. Zheng, X.Y. Jiang, H.M. Wu, M.Y. Dan, C.Q. Feng and S.Q. Wang	
Portrait of China's R&D Activities in Nano-Science and Nanotechnology in Bibliometric Study	500
Y. Zhao and N. Ma	

Chapter 3: Iron and Steel

Study of Adhesion in Steels Surface Hardened	513
N. López-Perrusquia, M.A. Doñu-Ruiz, F. Vasquez, O. Trujillo-Alfaro and Y.E. Vargas-Oliva	
Study on the Flow Stress Curve of the Warm Deformation of Medium Carbon Steel	517
Z.J. Li, Y. Peng, H.M. Liu, L.Z. Xiao, S.F. Wang and P. Gao	
Preparation of Paclitaxel-Loaded Microspheres with Fe₃O₄ Nanoparticles and Study of their Target-Orientation and Sustained-Release Property	521
S. Cui, B.L. Lin and X.D. Shen	
Effect of Cooling Rate on Microstructures and Mechanical Properties of X80 Pipeline Steel	525
Q.B. Yu	
State Analysis on Reactor Furnace Pipe Used over a Design Cycle	529
L.F. Ma, X.F. Ding, J. Zhang, K.T. Mao and L.J. Gong	
Production of as-Cast High Strength Toughness Ductile Iron	533
M. Li	
Influence of Tin on Properties and Corrosion Behavior of Q125 Grade Tube Used in Deep Well	538
J.S. Zhang, H.B. Wu, L.D. Wang, S. Liu, Y.T. Liu and D. Tang	
Effect of Ferrite Grain Size on the Yield-Strength Ratio of Low-Carbon Alloy Steel	545
Q.B. Yu	
The Effect of Nb on the Microstructures and Hardness of Quenching-Partitioning-Tempering Medium Carbon Steels	549
H. Zheng, K.M. Wu, F. Hu and Y.Z. Zeng	
Iron Ore Sintering Process Based on Alternative Gaseous Fuels from Steelworks	554
J.A. de Castro, V.S. Guilherme, A.B. França and Y. Sazaki	

Fracture of High Carbon Microalloyed Steel Bars Used for Fracture Splitting Con-Rods	561
X.Z. Zhang, Q.F. Chen, Y.Z. Xiong and Z.T. Xu	
Study on Bimetal Compound Casting Technology of Hammers	566
H. Wang	
Effect of Nitrogen on the Mechanical Properties of Heat-Resisting Steel	571
X. Liu and L.M. Wang	
The Impact on Pellets Quality by Semi-Self-Fluxing Iron Powder	576
L.L. Wang, H.B. Ke and H.Y. Zhang	
Stability of Reversed Austenite in 9Ni Steel	580
H.B. Wu, L. Li, K. Zhang and D. Tang	
Modeling and Optimizing Rolling and Cooling Processing-Parameters for C-Mn-Si Economical Dual Phase Steel Produced on CSP	586
W. Tan, B. Han and S. Wang	
Effect of Annealing Time on the Microstructure and Texture of Interstitial Free Steel	593
Z.F. Wang, R.D. Han, S.B. Zhou, Z.H. Yao and L.X. Wu	
The Microstructure and Characteristic of 410L Stainless Honeycombs Fabricated by Extruding and Sintering	597
Y. Zhou, Y.J. Du and X.Q. Zuo	
Effect of Tempering Temperature on the Microstructure and Mechanical Properties of a 0.1C Steel with High Strength and Low Yield Ratio	601
W.H. Zhou, H. Guo and C.J. Shang	
Influence of Austenite Grain Size on the Crystallography of Allotriomorphic Ferrite in a Low Carbon Steel	605
Y. Bai, H. Guo, S.W. Yang and X.L. He	
Cleanliness Evaluation for 55SiMnMo Steels Produced by EAF→LF→VD→Billet Casting Process	611
J.T. Zhu, J.S. Li, A.M. Cheng, L.Y. Sun and X.M. Ding	
Effects of Normalizing Annealing on the Recrystallization Texture of 4.2wt.%Si Non-Oriented Electrical Steel Thin Sheets	615
J. Liu, Y.H. Sha, Y.C. Yao, F. Zhang and L. Zuo	
Study of the Ti-Mn-Al-Si-O-S Complex Inclusions Inducing Intragranular Acicular Ferrite	620
C. Yang, M. Jiang, X. Wang and T. Ou	
Influence of Vanadium on Microstructures and Mechanical Properties of High Strength Normalized Steel	628
M.W. Tong, Z.X. Yuan and K.G. Zhang	
Effect of Strain Rate on Nb(C,N) Precipitation in Micro Alloy Steel Slab	633
Z.H. Zhu and S.T. Qiu	
High-Strain-Rate Superplasticity of Big Grains in Spray Forming Ultrahigh Carbon Steel Contain 1.6wt.%Al(UHCS-1.6Al)	639
J. Wang, H.S. Shi and J.G. Zhang	
Research of the DWTT Fracture of X70 Pipeline Steel	643
Y. Sun	
Effect of Boron Mud on Melting Temperature of CaO-Based Steelmaking Slag	647
H.M. Wang, G.R. Li, T.W. Zhang, L.L. Yang, X. Zhu and Y.T. Zhao	
Shield Performance of High Boron Alloyed Stainless Steel Composite Plate	651
J. Liu, G.L. Xie, K. Zhang and J.T. Han	
The Tempering on Microstructure and the Yield-to-Tensile Ratio of High Performance Steels	655
X.M. Wang and H. Zhao	
Comparisons of Laser Cut and Water Cut for Silicon Steel Plate	659
G.W. Liu	
Effect of Rare Earth on Inclusions and Impact Property of Ferrite Stainless Steel	662
X. Liu and Z.J. Fan	
The Morphology and Content of δ Ferrite in Non-Equilibrium Solidified 0Cr18Ni9 Austenitic Stainless Steel	666
L.J. Shen, Y.L. Ma and S.Q. Xing	
Microstructures, Mechanical Properties and Textures of Deep Drawing Dual-Phase Steel	670
J.Y. Ye, Z.Z. Zhao, Z.G. Wang, A.M. Zhao and J.J. Chen	

Creep-Fatigue Interaction Life Prediction for P91 Steel Based on Improved Elman Neural Network Model	674
N. Li, W.P. Yan, F. Ye and L.Y. Ma	
The Recrystallization Behavior Study of 3%Si Nonoriented Electrical Steel	678
W.M. Shi, J. Liu and C.Y. Li	
Formation of the {111}<112> and {111}<110> Recrystallization Texture in Deep Drawing Low Carbon Steel	687
X. Li, P. Yang and L. Meng	
Effect of Stabilizing Heat Treatment on Intergranular Corrosion Resistance of Welded Stainless Steel AISI 321	692
A. Mahmoudi, M. Esmailian and S.E. Aghamiri	
Study on Roll Wear Model for Hot Strip Mill	697
Z.F. Guo, J.H. Hu and X.Y. Sun	
Corrosion Behavior Analysis of Various Ions in the Soil to the X80 Buried Pipeline	701
S.Q. Xu, R.L. Xie and L. Na	
Research on Micro Inclusions of SS400 Steel in Slag Washing Process	706
S.M. Wang, Y.P. Huo and S.M. Wang	
Development on a New Interstitial-Free Steel with $r \leq 0.3$	711
L.B. Pan, Y.P. Hu, X. Wei, R. Ge and A. Long	
Effect of Alloying Elements Ti and Nb on Microstructure and Performance of 3.5Ni Steel	717
Q.X. Zhou, H. Huang and J.H. Li	
Experimental Research on Sintering Amorphous Based Material with Iron-Tailings	722
H.C. Deng	
Effects of Composite Nickel-Base Boracic Brazing Filler on the Boride near the Brazing Seam of 316L Stainless Steel	730
S. Yu, Y. Zhishui, Y. Zhi, L. Jun and H. Guo	
Microstructure Transformation of Continuous Cooling of Nb-Ti Micro-Alloyed Low Alloy Steel	734
J.C. Bao, X. Li, J. Zhao, B.Q. Ning and J.P. Li	
Effect of Titanium on Microstructure and Phase Composition of High Boron Aligned Stainless Steel	738
J. Liu, K. Zhang and J.T. Han	
Experimental Research on Mineral Processing Technique of a Brazilian Specularite	742
W.Z. Wang, Q.M. Jia and C.G. Yang	
Experimental Research on the Iron Separation from an Ultra Poor Iron Ore	746
W.Z. Wang, L.P. Chen and C.G. Yang	
Preparation, Decomposition and Characterizations of Bangka - Indonesia Ilmenite ($FeTiO_3$) Derived by Hydrothermal Method Using Concentrated NaOH Solution	750
L. Hanum Lalasari, F. Firdiyono, A. Herman Yuwono, S. Harjanto and B. Suharno	
The Effect of Cold Asynchronous Rolling Technique on High Manganese Steel Mn13	757
X.H. Sun, C.M. Qiu, Y.F. Wang and L. Deng	
Effects of RE on Critical Cooling Rate of Bearing-B Steel	761
Y.S. Zhao, X.M. Zhang and Z.G. Gao	
The Effects of the Sputter-Etching Parameters on the Formation of Conical Protrusions on the Surface of SUS304 Stainless Steel	764
T. Bai and Q.L. Zhang	
Study on Microstructures and Properties of 22Mn2SiVBS Steel on Different Cooling Rate	768
M. Wang, H. Xin and S.L. Guo	
Primary Recrystallization Texture in Rolled $(Fe_{81}Ga_{19})_{99}B_1$ Sheet	772
Z.H. He, D.Y. Su, Y.H. Sha, F. Zhang and L. Zuo	

Chapter 4: Ceramic

The Application of SunyPCC800 in CFB Boilers	779
Y.P. Yang and Y.F. Xu	
Effect of Ta, Nb and V Additions on the Microstructure and Mechanical Properties of $(W,Ti)C-Co$	783
Y. Wu, H.X. Xin and Y.C. Zhai	

The Properties of YSZ-Ni-Cr Cermet Fabricated by Sol-Gel Method	787
S.L. Guo, M. Wang, S.H. Lv, J. Li and X.C. Du	
Study of Nb-Zn-Mn Co-Doped Ba(Ti,Zr)O₃ Ceramics	791
Y.H. Wang and J.H. Shen	
A Rational Way to Prepare BaTiO₃ Ceramics	797
L. Luo, Y.J. Zhu, L.L. Song and X.B. Zhang	
Fabrication and Effects of Different Average Grain Sizes on Thermal Conductivity of Nd:YAG Ceramics	
S. Tian, Q.X. Cao, B. Wang and F.M. Xu	801
Effect of Glass Additions on Ca[(Li_{1/3}Nb_{2/3})_{0.92}Zr_{0.08}]O_{3-δ} Microwave Ceramics	805
H. Xiong, G. Xiong and C.H. She	
Effect of Roasting Process on the Properties of Alumina-Based Ceramic Core	809
L.G. Wang, B. Zuo, G.Z. Zhu and E.Z. Wang	
Microstructure and Toughening Mechanism of ZrO₂ Ceramic	814
C. Wang, Y.L. Han, S.C. Guo, F.S. Zhang and H.F. Fu	
Effect of Different Nucleating Agents on the Microstructure and Properties of LMAS Glass-Ceramics	
W.H. Jiang, Y.F. Wu, J.M. Liu, Q.X. Zhu, X.Y. Tan, Z.H. Bao and P.P. Yu	819
The Influence of Al₂O₃-AlN Compound Additive on the Crystallization Characteristics and Properties of Fused Quartz Ceramic Materials	
S.B. Shen, J.L. Bu, L.X. Yu, J.X. Chen and Z.F. Wang	824
Study on Preparation and Property of Woodceramics	
W.H. Zhou, Y.S. Yu and X.L. Xiong	828
Microwave Dielectric Properties of Low-Temperature Sintered Ca[(Li_{1/3}Nb_{2/3})_{0.95}Zr_{0.05}]O_{3-δ}-0.04TiO₂ Ceramics	832
H. Xiong, G. Xiong and C.H. She	
Effect of MgO on the Microstructure of Polycrystalline Nd:YAG Ceramics and its Action Mechanism	
B. Wang and Q.X. Cao	836
Influence of CeO₂ and Sintering Parameters on the Performance of Vitrified Bond Diamond Abrasive	
G.T. Zhao, Y.M. Zhu, Z.H. Li and X.F. Lv	840
Method of Improving Dielectric Properties of AlN Ceramic	
H.N. Ma, Z.M. Yang and J. Du	844
Preparation and Application of Magnesium (II) 2,2,2-Trifluoroacetate as an Efficient Catalyst for the Catalytic Preparation of 1-Amidoalkyl-2-Naphthol Derivatives	
M.R. Mohammad Shafiee, R. Moloudi, N. Teimouri Jervekani and M. Ghashang	851
Preparation and Characterization of SrO-Fe₂O₃-FeO-SiO₂-B₂O₃ System Hexaferrites Glass-Ceramics	
J.A. Liu, M.M. Zhang, X.N. Yang and W. He	855
Synthesis of CaO-Na₂O-Fe₂O₃-FeO-B₂O₃-SiO₂ Glass-Ceramics for Hyperthermia Application by Aqueous Solution-Melt Method	
J.A. Liu, M.M. Zhang, X.N. Yang and W. He	861

Chapter 5: Metal Alloy Materials

Analysis of Copper and Copper Alloys Electric Components Short Circuited Melted Mark Metallographic Structure	
S.J. Mo, J. Zhang, J. Liang and W.B. Yang	869
Study on the AZ31B Magnesium Alloy in the Application on High-Speed Trains	
J.Z. Liu, Y.H. Zhao, L. Song and Z.X. Xiang	875
Chapter 5: Metal Alloy Materials	
Effect of Cr and Ni Contents on Microstructure and Properties of High Boron Stainless Steel Composite Plate	
J. Liu, K. Zhang and G.L. Xie	883

Microstructural Evolution of the $/001/$ Oriented Single Crystal Superalloy DD6 Creep at 760°C and 785 MPa	888
J. Yu, J.R. Li, Z.X. Shi, J.Q. Zhao, S.Z. Liu and M. Han	
Supercapacitor Fabrication by Titanium Alloy	894
C.C. Chen, P.C. Chen, J. Zou and S.J. Hsieh	
Study on the Quenching Microstructure of Fe-0.36C-1.4B Alloy	899
Y.J. Dong, Z.H. Li, Q.H. Cen and M.H. Liu	
Ageing Precipitation and Strengthening Behavior of the Spray Formed Al-Zn-Mg-Cu Alloy	903
H.W. Liu, F. Wang, B.Q. Xiong, Y.A. Zhang, Z.H. Li and X.W. Li	
The Microstructure and Mechanical Properties of Super-High Strength Al Alloys by Spray Forming	909
G.W. Zhang, Z. Chen, W. Chen, H.Y. Xin, J. Zhai, A.Z. Guo, L. Ma and G. Chen	
Research on a New Type Grain Refiner Refining α-Al by Adding Molten State and Diluted Al-Ti-B-RE Master Alloy	915
Z.J. Wang	
Effects of Ni/Ti Ratio and Heat-Treatment on Transformation Temperature, Mechanical Properties and Shape Recovery Strain of Ni-Ti-Nb Alloy	919
Z.W. Feng, J.B. Wang, X.J. Mi, W.D. Miao, Z.S. Yuan and J. Zhou	
Effect of Rolling Deformation to Microstructure and Properties of Mg-8.5Li-1Al-1Ce Alloy	924
W. Tao, M.L. Zhang, S.J. Zhao, C.M. Song and C. Ju	
Fatigue Behavior of GH4169 Alloy up to Very High Cycles	928
X. Zhao, J.J. Zhao and Y.J. Liu	
Effect of Ti Content on Microstructure and Hardness of A356 Alloy	932
M. Qu, L.B. Zheng, M. Zhao, T.T. Li, F.B. Liu and G.P. He	
Fractal Characteristics of Primary Phase Morphology in Semisolid A356 Alloy	936
Z. Liu and X.M. Liu	
The Effect of Cold-Drawing on Recovery Stress of Ni-Ti-Nb Shape Memory Alloy	941
E.M. Wang, Q.H. Hong, Z.M. Ni and J. Han	
Study on the Mechanical Property and Microstructure of Surgical Implanted Ti-6Al-7Nb Titanium Alloy	945
J.B. Wang, Z.Y. Shang, Z.S. Yuan, J. Zhou, Z.W. Feng, W.D. Miao and M. Zhu	
Influence of Gd Addition on the Structure and Capability of Ni-Mn-In Metamagnetic Shape Memory Alloys	950
L.N. Bai, G.X. Zheng, Z.J. Duan and J.J. Zhang	
Effects on the as-Cast Structure of 7075 Aluminum Alloy by Treating with Electrical Pulse Inoculation	954
Z.Y. Sun, Y. Liang, L.F. Yu and Z.Y. Shi	
Adjusting Microstructure and Magnetic Properties of Ni-Mn-In Metamagnetic Shape Memory Alloys by Addition of Gd	959
L.N. Bai, G.X. Zheng, J. Xin and J.J. Zhang	
Some Studies on Preparation of Large Spray Deposited Aluminium Alloy Tube Preform	964
Z.G. Chen, H.C. Liu, W.H. Liu, Z.S. Wang and Z.H. Chen	
Study on Cyclic Load Creep Test of the Nickel-Based Super Alloy K403	969
X.R. Ning, X.X. Cai, L. Yi and W. Chen	
Study on Present Situation and New Trends of the Electrodeposition of Nickel-Cobalt Alloy	973
M.M. Yu, H.Y. Li and Y. Wang	
Thermal Flow Deformation Behavior and Mechanism of As-Cast and As-Extruded Burn Resistant Titanium Alloy	977
H.Y. Sun, J.X. Cao, B. Wang, X. Huang and C.X. Cao	
Experimental Study on the Mineral Processing of a Certain Low Grade Copper-Molybdenum Ore in Xinjiang	983
Q.M. Jia, L.M. Zhang and W.Z. Lv	
The Influence of Composition on the Material Structure and Performance of 3104 Aluminum-Alloy Canbody Material	987
R.Y. Huang, Z.M. Yin, Q.W. Huang and M.S. Liao	
Influence of Titanium Alloying Element Substrata on Bacterial Adhesion	992
K. Mediaswanti, V.K. Truong, J. Hasan, E.P. Ivanova, F. Malherbe, C.C. Berndt, C. Wen and J. Wang	

Effect of KBF₄ Addition on the Microstructure of Mg-6Zn-1Si Alloy	996
B.F. Zhang, Q. Chen, X.W. Chen and H.L. Zhao	
Site Preference and Elastic Properties of 3d Transition Metals Alloying Addition in Ductility YAg Alloys	1000
Y.R. Wu, W.Y. Hu and L.S. Xu	
Bending Properties of AA7055 Aluminum Alloy Reinforced with <i>In Situ</i> TiB₂ Particles	1005
D. Chen, Z. Chen, P. Zhang, Y.J. Zhang, H. Ma and H.W. Wang	
The Influence of Ni on the Microstructure of Co-Base ODS Alloys	1011
L. Zhang, X.B. He, M.L. Qin, Y. Liu and X.H. Qu	
Atomistic Simulation for the Site Preference of Tb₃(Fe_{28-X}Co_X)V_{1.0} Compounds	1015
J. Sun, S. Huang, J. Shen and P. Qian	
Formation Mechanism of Low Angle Boundary of DD6 Single Crystal Superalloy Blades	1019
Z.X. Shi, J.R. Li, S.Z. Liu and J.Q. Zhao	
Investigation on Dislocation Network in Al-5.8Cu Aluminum Alloy Impacted Plate	1023
Y. Zhang, H. Guan and Z.G. Gao	
A Study on Influence of Annealing and Aging on High Temperature Internal Friction in Al-Zr Alloy	1027
X.H. Cao and Y. Wang	
Study of Crystal Structural about La_{2/3}(Ca_(1-X)Zn_X)_{1/3}MnO₃	1031
Y. Xin, G.Y. Chen, C.H. Luo, X.F. Deng and L.Y. Hu	
Precise Re-Os Dating of Molybdenite from the Northern Dabie Molybdenum Belt in Central China and its Geodynamic Implications	1035
J.P. Li, Y.F. Li and K.J. Xie	

Chapter 6: Biomaterials

Synthesis and Structure Determination of Carbonized Nano Mesoporous Materials Based on Vegetable Raw Materials	1041
S. Azat, V.V. Pavlenko, A.R. Kerimkulova and Z.A. Mansurov	
Comparative Analysis of Bacterial Diversity for Cutlassfish (<i>Trichiurus haumela</i>) during Cold Storage by the Culture-Dependent and Culture-Independent Methods	1046
W.Q. Lan and J. Xie	
Effect of Modified Atmosphere with Varying O₂ Concentrations on the Quality of Packed Pacific White Shrimp (<i>Penaeus vannamei</i>) during Cold Storage	1054
Y.F. Qian, J. Xie, S.P. Yang, Q. Xiong, L.P. Zhang, Z.L. Gao and W.H. Wu	
Preparation of High Water Absorption and Retention Material by Graft Copolymerization of Calcium Lignin Sulphonate with Acrylic Acid and Acrylamide	1060
X.F. Yang, X.G. Yu, Q.H. Xue and Z.Y. Zhang	
Research on Viscoelasticity and its Influence Factors of Polymer Solution	1065
Y.J. Zhou, J.Y. Lv and D. Wu	
Structure of Patinopecten Yessoensis Shell is a Biomimetic Example of Composite	1070
A.G. Lin, X.F. Ding, Z.D. Xie, X.Y. Ma and C.X. Mu	
How to Strengthen the Sense of Solid Wood of Frame-Board Type Furniture	1074
L.H. Tang and W.J. Liu	
Using RAFT Polymerization to Synthesize Potential Drug/Gene Delivery System	1079
Y. Zhao, X. Tan and L. Zhang	
Rheological Property and Miscibility of Lignin-Based LDPE/EVA Blends with Compatibilizer	1083
J. Zhou and X.G. Luo	
Synthesis of Graft Copolymer by Using Acrylamide and Methacryloyl Chloride Guar Gum and its Adsorption Behavior to Metal Ions	1087
L.T. Dong, J. Zhu and W.F. Xiao	
Synthesis and Characterization of Poly Phenoxy Bisphenol-S Phosphate	1091
D.M. Ban, Y. Min, Y.H. Zhang and O. Zhao	
Fabrication and Characterization of Poly L-Lactic Acid/Modified Nano-Hydroxyapatite Composite Fibrous Scaffold	1095
Z.Q. Cheng, G.H. Pang, H.Y. Wang, J.F. Li and X.Z. Zhao	

Dissolution of Cellulose in [Amim]Cl/Lithium Salts Solvents System	1100
W.X. Liao, J. Song, B.W. Cheng and J. Mei	
Research Progress on Tissue Engineering of Neural Stem Cells	1104
X.Y. Chen, S.J. Zhuang, X.M. Hou and Q.S. Liu	
Effects of Calcination upon Properties of Needle-Cokes	1108
Z.C. Shao, X.Q. Liu and B. Yang	
Analysis for Stress-Strain Curve during Stretching Coarse Yak Hair with Different Pretreating Condition	
J. Liu	1112
Study on the Variety Identification Method of Bast Fibers	
H. Zhang, J. Zhang and X.X. Zhang	1116
Mechanical and Thermodynamic Properties of Chlorophyll-a Surfactants at Air-Water Interface	
V. Periasamy	1119
Study on Multi-Elements in Traditional Chinese Medicines <i>Ophiopogon japonicus</i> and Lotus Seeds by the ICP-AES with Microwave Digestion	
S.B. Zhang, X.W. Ji and C.P. Liu	1126

Chapter 7: Elastomers & Polymers

Study and Application on Layered Polymer Injection with Concentric String	1135
Y.W. He and L.C. Liu	
Effect of Hyperbranched Polymer on Crystallization Kinetics of Isotactic Polypropylene	1142
G.T. Liu and J. Lei	
Effect of Process Parameters on Jet Length in Electrospraying of Thermoplastic Polymer	1146
A. Jadhav, L.J. Wang, C. Lawrence and R. Padhye	
Preparation of Rigid Flame Retardancy Polyurethane Foam Material with Difficult Combusted Degree	
Z.H. Qiu, Y.B. Sun and Z.H. Du	1151
Properties of High Solid Content UV Curable Waterborne Polyurethane Dispersions with Different C=C Content	
Y.B. Jiu, X.M. Zeng, J.H. Ji, Y. Zhai and L.C. Wang	1158
The Reaserch of Displacement Oil of the Polymer System with the Low Interfacial Tension Conditions	
W.G. Ma, Q. Guo, D. Li, R.Q. Liu and H.F. Xia	1163
Evaluation of the Thermal Stabilization Effect of Maleic Anhydride Derivatives on Polyvinyl Chloride	
J.P. Liu, X. Song, W. Yuan and X.Y. Wang	1167
Synthesis of Hydrophobic Modified Polyacrylamide Functional Materials in Supercritical CO₂	
L. Zheng, Y. Wang and Y. Dang	1171
Discussion upon the Draft Ratio Affecting PEN-PPS Filaments	
T.T. Zhang, Y.P. Yu and P. Zhou	1176
Research on Corrosion and Scale Inhibition Performance of HEDP	
M.D. Li, B. Zeng, L. Yang, J.M. Zhao, Y.H. Du, H. Zhang and Z.P. Zhu	1180
Synthesis and Phase Behavior of Polysiloxane Nematic Liquid Crystal Elastomers	
Y.G. Jia, K.M. Song and B.Y. Zhang	1185
Shear Studies on Polymer Flooding Systems with High Concentrations	
J.G. Wang, P. Wu, Q.Q. Du, H.H. Cao and M. Sun	1189
Preparation and Characterization of Elastomers Based on Polydimethylsiloxane/Poly(methyl methacrylate) Blends	
N.Q. Zhang, J. Dong and H.Y. Chen	1193
Analysis and Prediction of Damping Properties of Multi-Layered Organic Hybrid Materials Consisting of Polarized Polymers and Small Molecules	
X.B. Ding, T. Liu, Y.H. Zhang and J. Han	1197
Characterization and Modification of Nitrile Rubber in the Transformer Oil	
S. Zhang, M.R. Sun, L.W. Tang, F. Hu, C.H. Zhang, Y.H. Miao and Y. Zhang	1201

Capacitance Fading Induced by Degradation of Polyaniline: Cyclic Voltammetry and SEM Study

H.R. Zhang, H.L. Li and J.X. Wang 1205

The Research of EVA to PLA/E-AA-GMA Blend Materials Toughening

W. Yuan, J.P. Liu, X. Song and H.M. Yan 1210

Effect of CMCS on Vulcanization Kinetics of Natural Rubber

Y.Z. Wang, H.X. Gui, T. Chen, H.H. Huang, F.Q. Zhang and R.Z. Zeng 1214

Influence of Chiral Maltose on the Mesomorphic Properties of Main-Chain Liquid-Crystalline Polymers

M. Tian, L.L. Guo, D.S. Yao, J.S. Hu, X.Z. He and H.G. Wang 1218

Manufacturing of Porous Biomaterials for Dental Implant Applications through Selective Laser Melting

F. Cardaropoli, V. Alfieri, F. Caiazzo and V. Sergi 1222

Chapter 8: Optical/Electronic/Magnetic Materials

Magnetism Study of Spin Correlations in $\text{Bi}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$

Q. Wang 1233

Synthesis and Fluorescence Property of Novel Zn^{2+} Schiff Base Complex

L.H. Wang, Y.L. Wang, Z.Z. Hou and Y.Z. Liu 1237

Oxygen Content Change Characters and the Influence Superconductivity in the Doped YBCO Systems

Y.Q. Huang 1241

Research on Two-Stage Three-Phase Photovoltaic Grid-Connected System

X.J. Zhou and Y. Ruan 1247

Recent Progress in Developing Magnetic Properties of Mn-Doped ZnO Diluted Magnetic Semiconductors

Y. Zhang, T. Li, Y.X. Wang and X.W. Zhao 1252

Study on the Crystal Size of PCBM in Organic Photovoltaic Cells

N.H. Sun and X.Y. Chang 1258

Electrogenerated Chemiluminescence and Sensory Property of Rubrene Microparticles Immobilized on ITO Electrode

D.B. Xiao, L.L. Liu and Z.J. Gu 1262

The Two-Photon Excited Fluorescence of Pyrazine Derivatives

L.X. Diao, Y.Z. Cui, X.J. Meng and X.W. Liu 1266

The Optical and Structural Properties of $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$ Multiple Quantum Wells by Metal Organic Chemical Vapor Deposition

L.J. Han, B.F. Ding and G.M. Lin 1270

Study on Ultrasonic Electroforming Ni-P Coatings on NdFeB Permanent Magnet

L. Li, X. Cheng and F.S. Yin 1275

Upconversion Luminescence Property of Nanocrystalline $\text{Y}_2\text{O}_3:\text{Pr}^{3+}, \text{Yb}^{3+}$

D. Hu, Y.Q. Zhou, R.N. Dai, D.S. Chen, G.D. Cai, W.Z. Li, S.C. Li and P.L. Li 1279

The Effect of Environment on Photovoltaic Module Efficiency

V. Jafari Fesharaki, I. Arbaban, J. Jafari Fesharaki and M. Jomardi 1283

Theoretical Study on Electronic Structures and Spectroscopic Properties of Indene-C₆₀ Monoadduct (ICMA)

Z.C. Xu, H.S. Zhang, Z. Li, X.S. Yang and G. Zhang 1287

An Investigation of Half-Metallic Ferromagnets Behavior in Hg_2CuTi -Type Heusler Alloy Ti_2FeAl by Using GGA

X.D. Yang, B. Wu and S. Zhang 1291

Effect of Nb Doping on Electronic and Magnetic Properties of Heusler Alloy Ti_2NiAl with Hg_2CuTi -Type Structure

Y. Chen, B. Wu and H. Chen 1295

Temperature Dependent Characteristics of 1D Photonic Crystal with Defects

H.B. Wang, K. Tong, M.T. Wang and C.C. Guo 1299

A New Design of Photonic Crystal Fiber with Fattened Dispersion and Low Effective Mode Area

D. Li, Q. Xu, D.Q. Yuan and X.C. Duan 1304

Research on the Relationship between the Spray Overlap Width and the Photoresist Film Thickness and Uniformity	1308
D.G. Qu, D. Xiang, P. Mou, H. Wang, Y.L. Gong and N. Liu	
Research on Composite Powder and Magnet Properties of Bonded NdFeB Magnets	1314
W.Z. Qin, J. He and J.H. Meng	
Giant Magnetoresistance in (Ni₆₀Co₃₀Fe₁₀/Cu) Trilayer Growth by Opposed Target Magnetron Sputtering	1319
Ramli, M. Djamel, F. Haryanto, S. Viridi and K. Khairurrijal	
Synthesis and Characters of Fe₃O₄/AMPS Magnetic Composite Material	1323
X.Y. Hou, C.Y. Hou, Z. Zhang, W.Z. Wang, L.L. Gao, J. Wang, X. Gao and Z.D. Cui	
Synthesis and Luminescence Property of Poly(phenylenevinylene) with Alkoxy Substituents under the Ultrasonic Irradiation	1328
W. Ding, J.H. Si and F. Yun	
Optimization of the Two Parameters of Classical Blaze Grating in Littrow Mount	1332
S.W. Zhang and J.X. Ying	
A Study on Gadolinium Sensitized Chemiluminescence System	1337
C. Yang and N.L. Ren	
Influence of Gd³⁺ Doping Quantity on Magnetic Performance of Co₂Z Hexaferrite	1341
L.H. Yu, J. Yao, Z.K. Feng and A.P. Huang	
Ascertainment of the Figure of Merit for the State-of-the-Art Thermoelectric Materials via Temperature	1346
Y.J. Liu and N. Zhu	
Current-Voltage Characterization on Au-DNA-Au Junctions under the Influence of Magnetic Field	1350
N. Mahmoudy Khatir, S.M. Banihashemian, V. Periasamy, W.H. Abd Majid and S.A. Rahman	
The Application of Symmetrical Equation of Diffracted Wavevectors in Integral Theory of Gratings	1354
J.X. Gao and F.C. Zhang	
Two-Photon Luminescence in Yb:YAG	1359
C.H. Peng, H.T. Liu, K.T. Wu, Y.F. Chen, H. Chou and I.M. Jiang	

Chapter 9: New Functional Materials

The Research Progress of Embedded Solid Lubricant Materials	1369
Y. Ding and P.Y. Song	
New Luminescent Mesoporous Material Covalent Bonded with Europium (III) Organic/Inorganic/Polymeric Hybrid	1374
Y. Li, X. Wang, W. Chian, J.L. Wang, P.P. Chang, D. Liu, Z. Jin and X.Q. Li	
The Research on Wear Resistant Polyurethane Hose Capable of Being Flat	1378
K. Guo, Z.H. Zhang and H. Zhou	
Functionally Graded Plates under Thermal and Moisture Effects	1382
C.Y. Lee and J.H. Kim	
Synthesis and Properties of Acrylate Modified Waterborne Polyurethane Emulsion	1386
L. Fei	
Study on Release of Anion Concentration about Negative Oxygen Ions Fabric	1393
H.X. Zhang, X.X. Wu, R. Tao, C.Y. Zhu and J.W. Bi	
Using Paper as Reinforcement in Silty Sand	1397
A. Chegenizadeh and H. Nikraz	
Effect of Multi-Material Substitutions on Static and Dynamic Properties of Electric Vehicles	1402
L.L. Yu, Z.H. Su, J.Z. Lin, Y.S. Yuan, C.X. Cui and L. Yu	
Influence of Construction of Textile Material on Performance of Warp Sizing	1408
Y. Tong	
Non-Isothermal Crystallization Behavior of Poly(trimethylene Terephthalate-Co-Isophthalate) Copolymers	1413
T.W. Shyr, C.H. Tung and Y.T. Liu	
Facile Synthesis of near-Infrared-Emitting Water-Dispersed CdHgTe/CdS/ZnS Core/Shell/Shell Quantum Dots	1417
C.G. Li, C. Ye, J. Yu, F. Zhou, W.Y. Zhong, Z.Y. Yan and Y.Z. Hu	

Study on the Fiber Bending Deformation during Knitting Process K. Yang and S. Liu	1421
Comparative Research of the Sizing Performance of the Compact Spun-Yarn and Ring Spun-Yarn Q. Ma and X.F. Liu	1425
Sound Insulation Property of Warp Knitted Fabrics K. Yang and T.S. Ye	1429
Tensile Property Test Analysis of Double Protein Modified Fiber J.Z. Zhu, S.H. Wang, J.R. Hu and Y. Li	1433
Creation Based on Superhydrophobic Soot Waterproofing Materials Obtained in Flames M. Nazhipkazy, B.T. Lesbaye, Z.A. Mansurov, A.K. Arapova, D.K. Baidaulova, M.G. Solovyova and N.G. Prikhodko	1437
Synthesis of Novel Separation Materials Based on Molecular Imprinting Technology S.J. Xiao, S.W. Yu and H.X. Li	1441
Characterization of Indium-Doped CdZnTe Crystal Grown under Te-Rich Conditions G.L. Wei, L.J. Wang, J.J. Zhang, Z.W. Yuan, K.F. Qin, J.H. Min, X.Y. Liang and Y.B. Xia	1446
Physical Chemistry of Fermentative Hydrogen Production Mechanism D.C. Na and Y.F. Li	1450
A Geometric Analysis of the Loop Form of a Tricot Stitch Knitted Fabric Z. Guo, J.J. Chen and J.Z. You	1455
Analysis of the Influence of Static Flow Resistance on the Sound Absorption Properties of Aluminum Foam H.Q. Bao, N. Zhang and X.G. Hou	1459
Application of the KH560 on Improving the Interface Fastness of Composites of Starch and Cotton Fiber J.F. Liu, H.N. Wang and G.Y. Cao	1463
Reduced Graphene Oxide Nanosheets Functionalized with Bile Salts as Support for Electrochemical Catalysts Z.P. Sun, W.Q. Zhang and X.M. Lu	1467
Study on the Supercritical CO₂ Art of Dyeing S.Y. Li, B. Du, S.H. Gao, J. Wei, Y.P. Zhao and L.J. Zheng	1478
The Dynamics and Governance of Tongxiang Sweater Cluster Based on GVC W.M. Zhu	1482
The Study on Properties of Kapok Nonwoven Material S.Y. Li, H. Zhang and C.F. Zang	1487
Photocatalytic Degradation of Nanometer TiO₂ Sol Composed Fabric to Dye J. Guo and J.F. Zhang	1491
Synthesis and Photophysical Characterization of Dendritic 8-Hydroxyquinoline Complexes S.H. Guo, L. Li, Y.P. Yang and X.B. Yuan	1495
Preparation and Characterization of the Hydrophilic Copolyester Q. Wang, C.S. Wang, H.P. Wang, Z.L. Jiang and J.L. Liu	1499
Study on the Wool-Solospun Spinning Technology L.X. Huang	1503
The Influence of Electrode Materials on the Electrical Degradation Process of Lead Zirconate Titanate under Harsh Operating Environment D.Y. Zheng, J. Swingler and P.M. Weaver	1507
Biomimetic Synthesis of Prismatic Calcite Mesocrystals in the Presence of Nonionic Copolymer Y.P. Wu, X.H. Wang and Q. Zhang	1512
Synthesis and Characterization of Polyacrylates Side-Chain Liquid Crystalline Polymer via Atom Transfer Radical Polymerization Y.G. Jia, P. Tian, K.M. Song and B.Y. Zhang	1516
Synthesis and Spectral Properties of Polymeric Dye from Waste Plastic D. Liu, J.L. Liu, D.P. Zhou, H.M. Wang and Z.L. Zhu	1520
A High-Throughput Screening of N-Carbobenzoxy-L-Tryptophan Imprinted Polymers and their Application for Monolithic Chiral Stationary Phase J. Qi, L. Guo and H.F. Sang	1525

The Study on Nano-Silica Modified Phenolic Resin Used as the Magnesite-Carbon Brick Binder	1529
Q.L. Liao, L.M. Zeng and X.K. Li	
Wound Dressing Utilising Nonwoven Wool Matrix	1534
S. Islam, L. Arnold and R. Padhye	
Numerical Simulation for the Optimization of the Angle of the Velocity of the Hydrogen in the High Performance Hydrogen Bell-Type Annealers	1542
S.L. Fang, S.P. Jin, Y.X. Zhang, S.Y. Huang and W.Q. Wen	
Researches on the Fixation Performance of Chitosan and its Derivative	1547
N.N. Lei, N. Zhong, Y.D. Shi and X.R. Ling	
DFT Study on Structures, Stabilities and Electronic Properties of Tert-Butyl Silsesquioxanes $\text{Si}_{2n}\text{O}_{3n}(\text{CMe}_3)_{2n}$ ($n=1-6$)	1552
C.G. Zhang, S.Y. Yu and H.M. Zhang	
Elastic Modulus of Rhombus Dodecahedron Closed-Cell Cellular Materials	1556
L.G. Zhang, H. Zhu, X.D. Qi and J. Wang	
4.9tex \times 2 Cotton / Pearl 65/35 High Count Blended Yarn Spinning Process Design	1560
J. Li and Y. Wang	
Optimization of Separation Process of Waste Polyester-Cotton Fiber by Using Response Surface Analysis	1564
H. Huang, Y.L. Yu and W. Kong	
The Antistatic Research of Polyester/Nylon Fabrics Finished by Triblock Copolymer Containing Organic Silicon	1569
T. Wang, X.L. Xu, X.Y. Sui and L.N. Wang	
Research on Open-Cell Rigid Polyurethane Foam as Vacuum Insulated Panel Core	1573
A.K. Kan and H.D. Han	
Effect of Laundering Temperature on the Color of Brown Naturally Colored Cotton	1577
X.L. Zhou, Z.Q. Shi, Z.R. Tang and W.L. Zhou	
Influence of Fractal Structure on Light Absorption of down Fiber Assembly	1582
S. Yang	
Study of the Hydrophobic Modification of Chromium Sesquioxide with Lauric Acid	1586
S. Luo, J.C. Huo, H. Lei and J. Deng	
Preparation and Characterization of Ternary Composite Composed by Chitosan, Porphyrin Derivative and Single-Walled Carbon Nanotubes (SWCNTs)	1591
C.H. Huang, C.J. Hou, J. Li, H. Qi, S.F. Chen, H.B. Fa and D.Q. Huo	
Fuel Cell Electric Vehicle Energy Management Strategy Simulation Study	1597
J. Zhang and S.B. Wang	
Adsorption of Cu (II) from Aqueous Single Metal Solutions by Bagasse Pith Chemically Modified with EDTA Dianhydride (EDTAD)	1601
C.L. Ouyang, X.L. Liu, F. Hu, S.X. Nie, J.C. Liu and H.N. Song	
The Investigation of Dyeing Properties of Anion Modified Linen Fibers	1605
S.Z. Gao and Q. Liu	
Influence of Heat Insulation Material on Thermal Stress of Long Nozzle	1609
H.M. Liu	
Synthesis and Luminescence Characteristics of Mg (II) Complexes with 5-Bromosalicylaldehyde-Nicotinoylhydrazone	1615
X.S. Tai	
Effects of BaF₂ Addition on Properties of Strontium Barium Niobate Based Glass-Ceramics for Energy Storage Capacitors	1619
G.H. Chen, T.Y. Liu, Y. Yang and W.J. Zhang	
Different Natural Season Weathering of B.mori Silk Fabric	1623
J.F. Ming, Y.X. Jiang and B.Q. Zuo	
Study on Crystallization Kinetics of Li₂O-Al₂O₃-TiO₂-P₂O₅ Glass by Non-Isothermal Technique	1629
Y.H. Wang, K. He, C.K. Zu and J. Chen	
Biological Performances of Titanium Scaffolds: A Review	1634
K. Mediaswanti, C. Wen, E.P. Ivanova, C.C. Berndt, F. Malherbe and J. Wang	

Chapter 10: Building Materials

Study on Coal Roadway Supporting Parameters of Broken Thick Top-Coal Large Section W.H. Guan, K. Lv, B. Peng and W. Ma	1641
Simulation on NO_x Generation of RSP Calciner for Cement Production M. Ya and Z.B. Chen	1647
Research on Performance of Vulcanized Eucommia Ulmoides Gum Blending with Asphalt Z.G. Li and Y. Zhao	1652
Experimental Research on Strengthen Mechanism of NaOH on Light Wall Materials Prepared from Crushed Brick Powder X. Wang and Y.C. Guo	1657
The Performance Study of the Open Channel Concrete in Cold Area J.L. Tian and J.G. Niu	1661
Research Progress of Energy Conservation Architectural Coatings Z.Q. Zhang	1665
Influence of Nano-Clay on the Performance of phosphoaluminate cement J.L. Wang	1670
The Study on the Application of Material Media in the Modern Decorative Art J.W. Li	1673
Properties Research on Chiral Liquid Crystalline Polysiloxanes Containing Chiral and Electron Withdrawing Group X.Z. He, L. Han, Y. Zhai, M. Tian and D.S. Yao	1678
Study on Full-Slag Concrete Feasibility T.J. Chen	1682
The Effect of Asphalt Binder Aging on Fatigue Performance of Epoxy WMA Y.C. Qin, S.Y. Wang, W. Zeng, X.P. Shi, J. Xu and S.C. Huang	1686
Experimental Research on Durability of Fair-Faced Concrete C.Q. Cai, Q.S. Guo and X. Li	1693
Experimental Study of the Characteristics of Damp and Efflorescence Mechanism for Building Brick Z.K. Lei, J.H. Zheng and L. Zhou	1697
Flexural Behavior of near Surface Mounted CFRP Bars Strengthened Reinforced Concrete Beams S.H. Ahmad, A.B. Najm and A. Naani	1702
Study on Water-Rock Interaction in Sea and Freshwater Transitional Zone J.G. Ren and Q.Q. Wu	1711
Research on Aging Properties of Tourmaline Modified Asphalt S.M. Hu, C.H. Wang, Q.L. Du and R. Li	1715
Effect of Gradation and Cement on the Properties of Soil-Cement Mixtures S.C. Hsu, H.Y. Chiang and J.Y. Lin	1719
Properties Improvement of Fired Clay Bricks Incorporating with Cigarette Butts A. binti Abdul Kadir and A. Mohajerani	1723
Investigation of Road Performance and Colloidal Structure of Tourmaline Modified Asphalt Y.Z. Zhao, P. Wang, C.H. Wang and Y.W. Li	1731
Dry Shrinkage and Compressive Strength of Blended Cement Pastes with Fly Ash and Silica Fume Y. Li, D.S. Sun, X.S. Wu, A.G. Wang, W. Xu and M. Deng	1735

Chapter 10: Building Materials

The Application of the Deep Carbonized Woods to Building Skins J. Zhu and Y.F. Chen	1741
Mechanical Analysis and Numerical Simulation of Steel-Ring and Rigid-Frame Restrained Concrete C. Wang, J.H. Li and Z. Wang	1745

Experimental Study on Rock Breaking with Impacting Water Jet by Modulation of Chaos C.L. Tian, X.L. Cheng and W. Wang	1751
Experiment Study of Influence Factors on High-Temperature Stability of Closely Gap-Graded Bituminous Mixture R. Guo, Z.J. Feng and P. Li	1755
Research on the Adobe Wall of Traditional Civil Structure Dwelling in Tianshui & Guanzhong X.W. Meng, M.H. Ye, H.R. Shi and Y.F. Yan	1759
Experiment Study of Reclaimed Asphalt Pavement Gradation Fluctuation on Influence of Central Plant Hot Recycled Mixture Performance T.Z. Ming, T. Liu and G.W. Hu	1763
Preliminary Study about the Sediment Carrying Capacity Formula W.Y. Zhang, Z.X. Wang and J. Zheng	1771
Three-Dimensional Sediment Numerical Simulation of Wenzhou Oufeif Tidal Flat Sea Area J.R. Li, L. Mo and W.H. Zhang	1775
Experimental Research on Dynamics Characteristics and Damage of ALC Wallboard Y.M. Yang and H. Zhang	1780
Service Life Prediction of Reactive Powder Concrete due to Seawater Infiltration X.W. Ma and Y.Y. Ji	1785
Influence of Air Content on the Compressive Strength of Concrete R.Y. Bai, J.W. Cai, J.X. Wu and G.L. Wei	1790
Analysis and Evaluation for Longxihe Dangerous Rock Stability L. Nie, D.Y. Qiao, Z.D. Su, H. Zhang and Y. Lv	1794
A Method Based on Neural Network for Risk Prediction of the Typical Moraine-Dammed Lake Outburst in the Himalayan Region W.M. Xu, G.C. Wang and C. Liu	1799
Laboratory Fast Corrosion Test of Plain Steel Bars in Concrete Beams S.B. Zhao, P.B. Hou and F.L. Qu	1803
Study on Compaction Characteristics of Solidified Mud with Different Proportion of Curing Agent C.H. Wang, J.J. Zhao, X.H. Wang, X.Q. Wang and S.G. Di	1807
A Homogenisation Procedure for the Steady State Periodic Forced Response of Laminated Composite Beams at Large Vibration Amplitudes E.B. Merrimi, K. El Bikri and R. Benamar	1811
Production of Bitumens from Coal Sources Modified by Elementary Sulfur N. Smagulova, Z. Kairbekov, A. Ermek and E. Yermoldina	1815
Research on the Influences of the Molding Processes of TOR Asphalt Rubber Mixtures upon the Pavement Performance A.H. Kang, Q. Zhang and P. Li	1819
Review of Researches on Carbonization of Concrete: Influencing Factors and Forecast Models S.B. Zhao, H.X. Chen and L.Y. Pan	1825
Study on the Rule of Temperature Descent for Large Stone Asphalt Mixtures X.J. Feng, S. Ye and P.W. Hao	1829
Kyanite Ore Beneficiation Experimental Research in Hebei J.X. Zhang, Y.L. Feng, F.S. Niu, M. Chen and X.G. Wang	1833
Performance and Mechanism Study on C50 Micro-Expansion Polypropylene Fiber Reinforced Anti-Cracking Pumping Concrete G. He	1837
Study on the Factors Affecting the Anti-Seismic Performance of Steel Reinforced High-Strength Concrete Columns B.S. Yang and S.H. Song	1842
The Discussion of Iron Wire Fire Hazard L.T. Wang, D.W. Xia, A. Gao and Q.S. Meng	1847
Study on Influencing Factors and Control Measures of Diaphragm Wall Panel Trench J. Zhang, H. Chen, C.Q. Cai, M.Y. Shi, H. Yan and Z.F. Chen	1851
Research on Accelerated Corrosion of Steel Bar in Reinforced Concrete Components M. Yang, L.Y. Leng and P.F. Zhang	1855

Problems and Solutions of High-Rise Buildings in Coupling Beam Design	1859
J. Zhang and Y. Zhang	
Using New-Type Composite Silicate Heat-Insulation Material to Improve Residential Energy Efficiency in Regions of Cold Winter and Hot Summer	1864
S. Yan, L. Zeng, H. Zuo and J.H. Li	
Evaluation of the Strain-Softening Law of Concrete from the Fracture Test	1868
W.C. Tang and H.Z. Cui	
Study of the Effect of Boron Carbide Content in Concrete as Radiation Shielding Application	1877
M.R. Yusof, Y. Abdullah and Z. Samsu	
Mechanical Properties of Rocks Used for the Construction of Vehicular Bridges Supported by Pier Masonry	1881
G. Mendoza-Chavez, L.H. Martínez-Mártinez, D.J. Delgado-Hernandez, D. De León Escobedo, E.M. Alonso-Guzmán, W. Martínez-Molina, E. Arreygue-Rocha, H.L. Chávez-García and J.C. Arteaga-Arcos	
The Study of Using Fly Ash to Produce Ultra High Performance Fibre Reinforced Concrete	1889
V. Corinaldesi	
Observation about Architecture Skin Using New Material	1893
W. Zhang and J.Q. Yu	
Contrastive Study on Mineralogy of Brazil Kaolinite and Beihai Kaolinite	1898
X.M. Qiu, C.J. Yan, Y.N. Ma and C.Y. Zhou	
Fly-Ash Usage in New Cement-Based Material for Concrete Waterproofing	1902
S. Bohus, R. Drochytka and L. Taranza	
An Experimental Study on Ductility of Fiber-Strengthening Concrete	1907
C.G. Cai, Z.X. Wei and X.P. Yang	
On Performance & Application Prospect of Inorganic Materials Used for Exterior Walls Insulation in Hot Summer and Cold Winter Zone	1913
L. Jun	
Experimental Study on Flexural Behaviors of All-Lightweight Aggregate Concrete Slabs	1918
Y.M. Yang and H. Zhang	
Effect of Anisotropy on Shear Wave Velocity in Wood	1923
J.P. Zhou, J.X. Liu, W.Y. Gao, Z.W. Cui, W.G. Lv and K.X. Wang	
Test on Corrosion Resistance of GFRP Anchor Bolt	1927
X.Y. Luo, X.X. Tang, K.L. Li and Y.C. Kuang	
Experimental Study on Mix Design of Plastic Concret with Lower Elastic Modulus and Higher Impervious Coefficient	1936
S.Z. Cheng, S.J. Xu, R. Cong and K.L. Wang	
Experimental Investigating of Latex Cement as Similar Material Simulating Soft Rock Creep	1940
Y.Y. Wang, F. Li and X.J. Tai	
Application of FLAC to Study on Anchorage for Mountain Slope	1944
H.J. Chen and W.B. Yuan	
Thermal Conductivity and Strength Properties of Soil-Based Lime Adobe Stabilized with Pottery Burnt Hull Ash	1950
W. Namboonruang, R. Rawangkul, W. Yodsudjai and N. Suphadon	
Study and Application of a Modified Agent GHPC-1 for Green High-Performance Concrete	1955
Q. Wang, C.Z. Li, J.C. Liu and M.Y. Xu	
Thermal Stress Numerical Simulation on Concrete Hydration Heat of Giant Floor in Deep Foundation Pit	1961
G.D. Han, C.S. Guan and J. Cheng	
Effect of Polypropylene Fibers on the Toughness of Concrete Materials	1965
S.P. Zhang and B.H. Zhao	
Structural Performance of Chinese Larch Plywood	1969
H.B. Zhou	
Development of a Fire Resistant Low Alloy Steel for Construction	1973
Y. Sun	
Division of Frost Damage Grades and its Prevention Measures in Tunnel	1977
Y.B. Luo, J.X. Chen and H.L. Chao	

The Engineering Technology Index Analysis of the Low-Carbon Building	1985
B.K. Qi, J.M. Zhao and Y. Qu	
A Novel Hydrophobic-Induced Method for Water Soluble Silk Fibroin	1991
Y. Wang, P. Li, C.H. Zhu and D.D. Fan	
Finite-Element Analysis on Carbon Fiber Reinforced Polymer (CFRP) Plates Reinforcement for the Rigid Joints of Steel Structures	1997
H. Ma, L.C. Zhou, Z.B. Li, X.W. Zhang and X.Y. Sun	
The Matching of Flow Control and Structure Parameters for the Bitumen Foaming Technology	2002
H.Y. Cheng, T.Y. Yan, P.F. Wang, Z.Q. Li and J. Du	
Analysis of Structural Properties and Seismic Performance of a Temple	2007
D.F. Gao, L. Wang and P.F. Li	
Study on the Structural and Aseismal Performance of Multi-Storey Ancient Chinese Timber Structure Shangyou Tower of Palace Style	2012
D.F. Gao, P.F. Li and L. Wang	
Overall Dynamic Analysis of K-Reticulated Shell Structure with BRB in Severe Earthquakes	2017
X.L. Wang and K. Zhou	
Research and Analysis to Find the Optimal Parameters to Reducingharmful Vibrations of the Inverted Pendulum System	2021
Seismic Analysis of Soil Nailed Wall Using Finite Element Method	2027
J.C. Wu and R. Shi	
Practice and Theoretical Thought on the Supporting for Soft Rock	2032
Q.X. Zhang, H. Zhao, T.H. Xu and S.P. Zhang	

Chapter 11: New Energy Materials

Study of Micro-Inclusion of Beam Blanks	2039
W. Tai, J. Gao and C.L. Du	
Groove Resistance Simulation Analysis and Fault Detection of Aluminum Reduction Cell	2044
S.P. Wang and Y.J. Song	
Research on Evaluation System of China's Energy Security Considering Energy Transportation	2049
D.X. Niu, X. Lu, H.H. Qiao and H.J. Zhai	
A Single Ion Conducting Gel Polymer Electrolyte Based on Poly(lithium 2-Acrylamido-2-Methylpropanesulfonic Acid-Co-Vinyl Triethoxysilane) and its Electrochemical Properties	2053
W.W. Cui, D.Y. Tang and L.L. Guan	
Superconducting Magnetic Energy Storage Summarize	2057
X.S. Zhou, B. Lu and Y.J. Ma	
Study on the Application of N,N'-1-Ethyl-4-Butyl, Triethylene and Diamine Hexafluorophosphate in Supercapacitors	2061
K.D. Cai, W.F. Mu, J.Y. Mu and Z.X. Jin	
An Investigation of the Electrochemical Hydrogen Storage Performances of the RE-Mg-Ni-Based A₂B₇-Type Electrode Alloys Prepared by Melt Spinning	2065
Y.H. Zhang, L.L. Chen, X.G. Liu, T. Yang, Z.H. Hou and D.L. Zhao	
The Influence of Interface Silicon Oxide Layer on Photovoltaic Effect of Iron-Doped Amorphous Carbon Film/SiO₂/Si Based Heterostructure	2071
R. Li, X.Y. Tan, Y.H. Huang, Y. Liu and Q.Q. Liu	
CdTe Solar Cells on Flexible Metallic Substrates	2075
J.J. Wu, H.C. Wu and C.Z. Zhao	
Using Natural Dyes to Prepare Nanoporous TiO₂ Dye-Sensitized Solar Cell	2079
Y.F. Pan	
Physical and Electrochemical Properties of a Mixed Lithium Phosphate as Cathode Material for Lithium Ion Battery	2083
H. Xie and J.Z. Liu	
Preparation of Zirconia-Yttrium Fibres from Steady Precursor by Sol-Gel Technique	2087
P.P. Xu, X.F. Wang, S.D. Fu and J.F. Xu	

Summary of Lithium-Ion Battery Polymer Electrolytes	2092
W. Bin and F. Chun	
Thermoelectric Power Generation System with Loop Thermosyphon and TiO₂-Nanofluids	2100
J.C. Jang, S.H. Rhi, K.B. Lee, K.W. Lee, S.K. Kim, S.H. Kim, W.G. Lee, N.K. Kim and D.R. Shin	
Effect of Heat-Treatment on the Activity of Nickel Phthalocyanine Catalysts for Oxygen Reduction Reaction in Acid and Alkaline Electrolytes	2104
L. Ding, L. Xu, L.L. Liu, J.L. Qiao and Y.Y. Liu	
Catalytic Processing of Coal into Liquid Fuels: Mechanochemical Activation of Coal	2108
K. Zhaksyntay, A. Ermek and M. Zhannur	
The Preparation and Characterization of a Novel Biodiesel Named Curcas Oil Diethylene Glycol Ether Ester	2112
D.Y. Jiang	
A Survey of Nuclear and Solar Energy	2116
C. Wang and K. Zeng	

Chapter 12: Environmental Friendly Materials

Preparation of Domestic Honeycomb Briquette from Corn Stover and Coal	2123
X.B. Zhang, L.Q. You and T.G. Wang	
The Influence of Mechanochemical Treatment on the Acid and Catalytic Properties of Modified Natural Zeolite	2127
V. Gulzira, M. Raisa, Y. Elmira and K. Zhaksyntay	
Polymermetallic Catalysts with Nano-Sized Particles on the Basis of the Palladium and the Potassium Humate	2131
E. Elmira, K. Zhaksyntay, S. Nazym, V. Gulzira and R. Nurzai	
The Analysis of Tianjin Subway Environmental Control System	2135
L. Chang, C.H. Tang and Z. Li	
Effect of CeO₂ Promoter on Catalytic Performance of CuO-ZnO-ZrO₂/HZSM-5 Catalyst for Carbon Dioxide Hydrogenation into Dimethyl Ether	2139
M.Y. Zhang, H. Wang and W.G. Gao	
Experimental Study on Synthesis of Adsorption Material of Porous Zeolite with Fly Ash	2143
Y.H. Niu, Y. Li and X.F. Zhang	
Waste Paper Application in Geotechnical Project	2148
A. Chegenizadeh and H. Nikraz	
Experimental Study on Treatment Phenolic Wastewater by Polymerized Silicate Containing Aluminium Sulfate and Magnesium Sulfate	2154
J.M. Yang, Y. Chen, Z. Wang and P. Ma	
A Free-Lead and Cadmium of Antimony Ruby Glass Composition and its Preparation Method	2158
H.J. Tang	
Assessment of the Effects of Land Use Change in Upper Catchments of Lake Kivu on its Water Quality	2162
J.D.D. Bazimenyera, Q. Fu and N. Théophila	
Optimization of Preparation Process of La-Ce-Palygorskite Catalysts for NO Decomposition by Response Surface Methodology	2166
J.G. Zou, Z.H. Zhang, S.Y. Liu and P. Luo	
Research on Corrugated Cardboard and its Application	2171
L.J. Bi	
Polycarbonate from the Copolymerization of Carbon Dioxide with Epoxide	2177
Y.R. Wang, G. Qin and S.K. Cao	
Sol-Gel Preparation and Characterization of SiO₂/TiO₂ Composite Mesoporous Materials with Bacterial Cellulose for Photocatalysis of Methyl Orange	2181
X.L. Xiong, C.H. Pei and S.W. Li	
Research Nanostructurized Carbon-Containing Catalysts on the tonkeris Clay Base by Physico-Chemical Methods	2186
B.K. Dinistanova, S.K. Tanirbergenova, R.M. Mansurova and Z.A. Mansurov	

Preliminary Research on the Uptake Behavior of Ammonium Molybdophosphate for Cesium and the Corresponding Structural Transformation	2191
Z.Y. Huang, D. Zhang and Z.Y. Tan	
Study on the Defluorinated Materials of High Fluoride	2195
R.Y. Chen, Z. Shi, Z.B. Zhang and M. Liu	
Study on Mechanism of Removing the Organic Matter in Heavy Oil Sewage by the Electric Flocculation Method	2201
Y. Wang, J.N. Jie, Z.Y. Li, L.G. Wang, J. Wu, Y. Tao and L.C. You	
Influence Factors and Kinetic Study on Photocatalytic Degradation of Rhodamine B by Fe-Doped TiO₂/Diatomite Composite	2209
J.X. Lin, L. Wang and C. Sun	
Estimating the Energy Carbon Footprint of Huangshan National Park	2214
M. Li, J.H. Zhang, J. Chen, J. Zhou and N.N. Wang	
Study on the Photocatalytic Degradation of Bisphenol a by La³⁺ Doping TiO₂ under Sunshine Irradiation	2220
X. Jin, J.L. Lian and Y. Qiao	
Preparation of Poly(vinyl Alcohol)(PVA)/peat/clay Composite Beads as Adsorbents for the Removal of Pb (II) and Zn(II) Ions from Aqueous Solutions	2224
W.C. Chan and C.W. Cheng	
Study on Preparation of Compound Activated Carbon Adsorbent and Effect of Thiophene Adsorption	2228
G.J. Wang, N.N. Guo and J.K. Zhang	
New Closed UV Sterilizer Application of Wastewater Treatment	2232
J.K. Zhang, Z.B. Dong and Y.B. Yang	
Progress in Modified MBR with TiO₂ for Wastewater Reuse	2236
X.D. Chen, L.F. Dong and Y. Wei	
Preparation of Nanosized TiO₂ Synthesized by Sol-Gel Pathway Using Ionic Liquid as Assistant and its Photocatalytic Activities	2240
W. Wei, C.S. Yu, S.J. Wang and Q.D. An	
The Purifying Capacity and Influential Factors of Wetland Soil to Phenol	2245
X.D. Wang, L. Ying, L.Y. Zheng and X.J. Ma	
Fouling Removal Technology with Intermittent Rotation Spiral-Insert	2252
T.L. Yu, D.Q. Peng, T.X. Yu, B. Deng, Y.P. Liu, B.L. Shi, X.Y. Feng, Z.K. Zhang and X.H. Zhi	
Catalytic Dechlorination of Para-Nitrochlorobenzene in Wastewater through a Nanoscale Nickel-Iron Bimetallic Catalyst	2257
S.F. Niu, C.H. Li and Y.P. Cai	
R&D on Wollastonite of Advanced Materials and Low Carbon Products	2264
Y.J. Li, X.Y. Wang and X.W. Xu	
Study on Treatment of Waste Emulsion with Pulse-Electrolysis	2275
X.Y. Sun and Y.W. Qian	

Chapter 13: Structural Materials and Biomaterials

Correlation Analysis between Single Nucleotide Polymorphism of Fatty Acid Synthase and Fatness Traits in Chickens	2283
Y.X. Wang	
Study on Scale Inhibition Performance of Polyaspartic Acid Derivative	2287
Y.H. Gao, Z.F. Liu, L.H. Zhang and H.H. Li	
Study the Biodegradation of a Injection Human-Like Collagen Hydrogel	2291
Y.Z. Du, D.D. Fan, X.X. Ma, C.H. Zhu and L.J. Zhang	
Synthesis and Characterization of Carboxymethyl Chitosan/Human-Like Collagen Hydrogel	2296
Y.H. Wang, C.H. Zhu, Y. Mi, D.D. Fan and L.J. Zhang	
Study on the Bio-Composite from Sisal Fiber Reinforced Cellulose Acetate	2301
A.J. Jiang, X.Q. Xu and H.W. Wu	
Preparation of Transglutaminase Cross-Linked Tilapia Scale Collagen Microspheres Containing L-Ascorbic Acid	2307
P. Li, X.R. Shen, Z.W. Duan and Z.H. Wang	

The High-Cell-Density Fermentation of Recombinant <i>Escherichia coli</i> Based on the Control System	2312
T.Z. Mu, Y.E. Luo, D.D. Fan, L. Guo and J. Cao	
The Advantage of Automatic Control in Human-Like Collagen Production by Recombinant <i>Escherichia coli</i> BL21	2316
T.Z. Mu, Y. Luo, D.D. Fan and T. Zhang	
Structure of <i>Antheraea pernyi/Bombyx mori</i> Silk Fibroin Scaffolds	2321
X. Wu, Y.H. Jiao, G.Y. Liu, S.Q. Yan and M.Z. Li	
Sodium Alginate Extraction by Enzyme-Ultrasonic Combined Method	2326
Y. Lei, B. Du, Y.F. Qian, F. Ye and L.J. Zheng	
Optimization of the Extraction of Coconut Protein and the Evaluation of Antioxidant and ACE Inhibitory Activities of its Enzymatic Hydrolysates	2330
Z. Liu, X.R. Shen, Y. Yu, Y. Wang and P. Li	
Chemical Analysis and Antioxidant Activities <i>In Vitro</i> of Polysaccharide Extracted from Corn Silk	2335
Y.T. He, H.N. Gao, Y.X. Xu, X.M. Pan and J.R. Li	
Preparation and Electrospinning of Acidified-Oxidized Potato Starch	2340
H.J. Wang, X. Jin, W.Y. Wang, C.F. Xiao and L. Tong	
Formation of Silkworm-Like Vaterite via Orientated Attachment Process	2345
J. Liu, X.H. Wang, Q. Zhang and Y.B. Guan	
Ionic Liquid-Regenerated Cellulose Beads as Solid Support Matrices for Papain Immobilization	2349
S.K. Yao, Q.J. Li, W. Zhang, J.X. Gong and J.F. Zhang	
Producing Cellulase on <i>Phanerochaete chrysosporium</i> by Fermentation and Breeding by Induced Mutation of Cellulose-Degrading <i>Phanerochaete chrysosporium</i>	2353
Y. Wang, J.S. Chung, G.L. Cao, L. Zhao and A.J. Wang	
Study on Biocompatibility of Post-Irradiated Silk Fibroin <i>In Vitro</i>	2357
H.Y. Jin, Y. Liu, X. Liu, D.P. Wang, J. Liu, H. Yin and Y. An	
Effect of Gamma Irradiation on the Biocompatibility and Biodegradation of Silk Fibroin <i>In Vivo</i>	2361
H.Y. Jin, Y. Liu, X. Liu, D.P. Wang, J. Liu, H.M. Zhang, C.Y. Zong, H. Zhao, X.Q. Feng, H. Yin and Y. An	
Cellulose/Collagen Beads Prepared Using Ionic Liquid for Cu(II) Adsorption from Aqueous Solutions	2365
J.L. Wang, M.H. Li, L.G. Wei, Y.C. Ma, K.L. Li and Y.C. Yu	
The Surface Micro-Morphology Transition of Pearls Induced by Cerium	2370
W.L. Shi, Y.F. Jin and Y. Ge	
Increased Dissolution of Lignocellulosic Biomass in Ionic Liquid 1-Butyl-3-Methylimidazolium Chloride at High Temperature	2375
D. Chen, C.F. Liu and R.C. Sun	
Nanospheres Conjugated with Hab18 as Targeting Carriers for Antitumor Drug	2381
T. Chen, Q.P. Yan, F.R. Li and S.Q. Tang	
DBD Plasma Induced Mutation in Phosphate-Solubilizing Bacteria <i>Acinetobacter CalcoaceticusYC-5a</i>	2385
Y.X. Ren, X.L. Zhu and D.D. Fan	
Effect of PEO on the Hydrophilicity of PLLA Ultrafine Fibers	2390
J. Xu, J.X. Wang, X.T. Dong, G.X. Liu and W.S. Yu	
Build and Apply of Granular Sludge Enriched by Phosphorus Accumulating Organisms	2394
D.C. Na	
A Novel Method for Preparing the Surface Molecularly Imprinted Polymers to Target Isolate Ginsenoside Rg1 and its Analogues	2400
Q.S. Liu, L.N. Yi, Q.J. Wang, Q.L. Guo, Y.F. Jiang and X.Y. Yin	
Antimicrobial Peptides from <i>Musca Domestica</i> Expressed in <i>Escherichia coli</i>	2404
B. Zeng	
Flexural Properties of Bio-Composite Made from Hydrothermally Treated Kenaf (<i>Hibiscus cannabinus</i>) Fibres	2409
M.N.A. Mohammad Taib, M.A. Jamaludin and M. Abu Kassim	

Correlation Analysis between Single Nucleotide Polymorphism of the Lipoprotein Lipase and Fatness Traits in Chickens	2413
Y.X. Wang	
A Method for the Introduction of Acetylthiol Groups into Recombinant Human-Like Collagen	2416
Y.H. Wang, C.H. Zhu, D.D. Fan, Y. Mi and Y. Sun	
Apoptosis of Human Leukemia Cell Line K562 Cells Induced by Hydroxycamptothecine	2420
S.L. Shao, W.W. Zhang, W. Zhao and G.H. Wu	
Efficient Syntheses of 2-Chloro-2'-Deoxyadenosine (Cladribine) from 2-Chloroadenosine	2425
S.H. Xu	
Study on the Photosynthetic Efficiency of the <i>Michelia alba</i> Leaves by Using Photo-Acoustic Tomography Spectroscopy Technology	2429
G.H. Lie, G.W. Lie, X.Q. Feng, T. Yang, D.Q. Zhang, H.L. Ke and H.Z. Mao	
Effect of ADM on Proliferation and Apoptosis of Human Gastric Cancer Cell SGC-7901	2434
S.L. Shao, W.W. Chen, W.W. Zhang, W. Zhao and F.Y. Li	
Hydrolysis Kinetics of Cornstalk in Formic Acid Solution	2438
J.P. Zhuang and X.P. Li	
Hydrolysis of Bamboo Fiber for Production of Fermentable Sugars in Saturated Formic Acid	2442
J.P. Zhuang and X.P. Li	
Biosorption of Uranium by <i>Deinococcus radiodurans</i> Cells under Culture Conditions	2446
M.X. Liu, F.Q. Dong, W. Zhang, W. Kang, X.Q. Nie, H.F. Wei, Y. Sun and X.G. Du	
Electrodeposition of ZnO Nanosheet Structures and their Application for Glucose Biosensor	2450
Q. Zhang, Y. Du, J. Hua and J.W. Di	

Chapter 14: Chemical Materials

Utilization of Scoria as PRB Reactive Media for the Removal of Petroleum Hydrocarbon from Groundwater	2457
Y. Zhang, Y.L. Zhang, S.Y. Zhang, F. Song, J.Y. Huang, Y. Zhang and X.D. Bai	
Dilute Sulfuric Acid Pretreatment and Enzymatic Hydrolysis of Corn Stover into Fermentable Sugars	2462
S.X. Chen, Q. Yong, Y. Xu and S.Y. Yu	
Synthesis and Electroluminescent Property of Bis{2-(naphtha [3,4]imidazol-2-Yl) Pyridinato} Magnesium	2469
S.J. Yang and A.C. Yeh	
Hydrothermal Oxidation of Phenol with H₂O₂	2475
Y.N. Jia	
The Stannous Complex of Succinimide as Multifunctional Additive for Lubricating Oils	2479
Y.G. Shi, Z.C. Li, L. Mei and P. Sun	
Preparation and Mechanism Analysis of High-Efficiency early Strength Agent	2483
M.S. Zhang	
A Novel Approach to Get Bisphenol-a Bis(Diphenyl phosphate)	2488
D.M. Ban, Y. Min, Y.H. Zhang and O. Zhao	
Synthesis and Properties of Silicone Modified Acrylate Emulsion	2491
X.Z. Zhang, P. Wang, L. Liu and J.B. Xiong	
Integrating Grey Relational Analysis with Combination Weighting for Selecting Bearing Material	2495
A.H. Peng	
Applied Research of the Flexible Epoxy Resin Curing Agent	2499
X. Wang, S.R. Zheng and R.M. Wang	
Calculation Model of Activity for Slag System of CaO-SiO₂-Fe₂O₃	2503
X. Zhu, H.M. Wang, G.R. Li and Y.T. Zhao	
Impact of Graphite Type on Performance of Polycrystalline Diamond Powder	2507
C.L. Li and J. Chen	
A New Type of Compatilizer and its Application in Polystyrene Ether/Nylon 66 Alloy	2513
Y.T. Zhang, Y. Li, L. Li and X.W. Qu	

Research on the Rheological Properties of Domestic and International PPS Resin R.P. Zhang, P.W. Xiang, J.M. Dai, J.Y. Zhang, M. Niu and X.P. Guo	2517
Effect of Applied Voltage on Polymer Aggregation in Electrospraying of Thermoplastic Polymer A. Jadhav, L.J. Wang and R. Padhye	2522
Study on the Characterization and Application of Poly-Silicate Magnesium Ferric Sulfate Borate (PFMSSB) S.Z. Fang, S.Q. Li and S.M. Luo	2526
First-Principles Investigation of ThO₂ Y.P. Li, P. Qian, L.J. Bai, J.C. Li and J. Shen	2531
Study of Fibrous AlPO₄-5 via Hydrothermal Conditions: Morphology Evolution and Growth Mechanism C.X. Zhao, Y.X. Yang, W. Chen, P. Webley and J.Q. Cao	2535
Synthesis, Characterized and Biological Activities of Chalcone Derivatives X.Y. Qiu, S.Z. Li, A.R. Shi and Q.L. Yue	2540
Dielectric Characteristics of Hydrated Paraffin J.Z. Ye, G.Q. Zuo, S. Wang, C. Xie, Y. Wang and Y.H. Shi	2544
Predicting Impact Sensitivity of Heterocyclic Nitroarenes from Molecular Structures Selected by Genetic Algorithm R. Wang, Y.G. Wang and H. Liu	2550
Effect of BPR on the Preparation of Nb-Base Powder via Ball Milling D.Z. Zhang, M.L. Qin, L. Zhang, X. Lu and X.H. Qu	2554
The Influence of the Viscosity of Edible Ink to Ink-Jet Printing Drop State J.M. Sun, X.F. Wei and B.Q. Huang	2559
Study on Preparation and Hydrophobicity of MTES Derived Silica Sol and Gel Y. Ma, H.R. Lee and T. Tsuru	2563
Synthesis of Ba₂B₅O₉Cl Whiskers via Flux Method D.H. Zhu, X.Y. Nai, Q.Q. Song, S. Yun, Y.X. Zhang and W. Li	2567
Flame-Fusion Growth of Rutile Single Crystal X.G. Bi, X.D. Liu and W. Niu	2571
Effects of Supercritical Carbon Dioxide on Interfacial Properties of Carbon Fiber K. Liu, L.H. Meng, J.C. Zeng and X.B. Feng	2577
Synergistic Effects of Colour Protective Agent and Modified Atmosphere Packaging on the Preservation of Litchi (<i>Litchi chinensis Sonn.</i>) Fruit S.P. Yang, J. Xie, Y.F. Qian, N.W. Li, X. Liu and R. Zhou	2585
Determination of Mineral Elements in Fermented Liquid with Temperature-Controlled Wet Digestion and Flame Atomic Absorption Spectrometry Z.X. Gao, Y.H. Wu, Y.W. Luo, Q.S. Mu, K.H. Ao and G.M. Zhou	2591
OD-Characterization of the Symmetric Group S₄₉ Y.X. Yan	2596
Morphology and Mechanical Properties of PA6/ABS Blends J.B. Guo, K.Z. Zhang and S.H. Qin	2600
Preparation of Semisolid Feedstock by Reversed Cone Channel Pouring X.R. Yang, B.Y. Sun, Q.X. Huang and W.M. Mao	2606