

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

Chapter 2: Micro/Nano Materials

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

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

Preparation of Au@Ag Core-Shell Nanorods and Investigation of its Surface Plasmon W. Yuan, P.J. Wang and Y. Fang	446
Surface Morphology and Texture of Nickel Crystal Micro-Casting by Electroforming under Magnetic Field W.P. Jia, M.H. Wu and F. Yang	450
DNA/AuNP Fluorescent Detecting Nano-Device C. Zhang, J. Yang and J. Xu	455
Reaction Mechanism Study on Combustion of Micro Nanometer Iron Powder C.M. Zhang, J. Jin, D.D. He, H. Zhang, J. Jiang, X.Y. Gao and W.J. Gao	459
Field Emission Properties of the Single-Wall Carbon Nanotubes Synthesized by Arc-Discharge Method S.X. Wu, F. Yang, S.L. Xue and X.L. Zhao	465
Synthesis of BaMoO₄ Nanocrystallites Using Sol-Gel Process Q.Z. Zhang	469
Study on Stabilized of Poly(Vinyl Alcohol) Nanofibers Based Sandwich Structure Purification Material R.X. Liu, T.Q. Liu and N. Zhao	473
Photoluminescence Properties of β-SiC Nanoparticles by Electric-Pulses Discharge in Liquid-Phase Compound K. Du, R.H. Wei, F.W. Liu, S. Sun and L.B. Li	477
Heteroe-Pitaxial Growth and Optical Properties of SnO₂ Nanowires on ZnS Nanobelts M. Jiang, J.H. Duan and Z. Liu	481
Functions of Cotton Yield Response to Soil Salinity in Akesu River Irrigation District Y. Zhang, P.T. Cong, S.J. Hu, L.H. Wang, F.Q. Guo and W. Wei	486
A New Type Battery Equalization Circuit of Electric Vehicle C.P. Li, B.Z. Xia, X.L. Li and W.W. Zheng	495
Synthesis and Electrochemical Properties of KMn₈O₁₆ Nanorods H. Zheng, X.Y. Jiang, H.M. Wu, M.Y. Dan, C.Q. Feng and S.Q. Wang	500
Portrait of China's R&D Activities in Nano-Science and Nanotechnology in Bibliometric Study Y. Zhao and N. Ma	505

Chapter 3: Iron and Steel

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

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

Creep-Fatigue Interaction Life Prediction for P91 Steel Based on Improved Elman Neural Network Model	
N. Li, W.P. Yan, F. Ye and L.Y. Ma	674
The Recrystallization Behavior Study of 3%Si Nonoriented Electrical Steel	
W.M. Shi, J. Liu and C.Y. Li	678
Formation of the {111}<112> and {111}<110> Recrystallization Texture in Deep Drawing Low Carbon Steel	
X. Li, P. Yang and L. Meng	687
Effect of Stabilizing Heat Treatment on Intergranular Corrosion Resistance of Welded Stainless Steel AISI 321	
A. Mahmoudi, M. Esmailian and S.E. Aghamiri	692
Study on Roll Wear Model for Hot Strip Mill	
Z.F. Guo, J.H. Hu and X.Y. Sun	697
Corrosion Behavior Analysis of Various Ions in the Soil to the X80 Buried Pipeline	
S.Q. Xu, R.L. Xie and L. Na	701
Research on Micro Inclusions of SS400 Steel in Slag Washing Process	
S.M. Wang, Y.P. Huo and S.M. Wang	706
Development on a New Interstitial-Free Steel with $r \leq 0.3$	
L.B. Pan, Y.P. Hu, X. Wei, R. Ge and A. Long	711
Effect of Alloying Elements Ti and Nb on Microstructure and Performance of 3.5Ni Steel	
Q.X. Zhou, H. Huang and J.H. Li	717
Experimental Research on Sintering Amorphous Based Material with Iron-Tailings	
H.C. Deng	722
Effects of Composite Nickel-Base Boracic Brazing Filler on the Boride near the Brazing Seam of 316L Stainless Steel	
S. Yu, Y. Zhishui, Y. Zhi, L. Jun and H. Guo	730
Microstructure Transformation of Continuous Cooling of Nb-Ti Micro-Alloyed Low Alloy Steel	
J.C. Bao, X. Li, J. Zhao, B.Q. Ning and J.P. Li	734
Effect of Titanium on Microstructure and Phase Composition of High Boron Alloyed Stainless Steel	
J. Liu, K. Zhang and J.T. Han	738
Experimental Research on Mineral Processing Technique of a Brazilian Specularite	
W.Z. Wang, Q.M. Jia and C.G. Yang	742
Experimental Research on the Iron Separation from an Ultra Poor Iron Ore	
W.Z. Wang, L.P. Chen and C.G. Yang	746
Preparation, Decomposition and Characterizations of Bangka - Indonesia Ilmenite (FeTiO_3) Derived by Hydrothermal Method Using Concentrated NaOH Solution	
L. Hanum Lalasari, F. Firdiyono, A. Herman Yuwono, S. Harjanto and B. Suharno	750
The Effect of Cold Asynchronous Rolling Technique on High Manganese Steel Mn13	
X.H. Sun, C.M. Qiu, Y.F. Wang and L. Deng	757
Effects of RE on Critical Cooling Rate of Bearing-B Steel	
Y.S. Zhao, X.M. Zhang and Z.G. Gao	761
The Effects of the Sputter-Etching Parameters on the Formation of Conical Protrusions on the Surface of SUS304 Stainless Steel	
T. Bai and Q.L. Zhang	764
Study on Microstructures and Properties of 22Mn2SiVBS Steel on Different Cooling Rate	
M. Wang, H. Xin and S.L. Guo	768
Primary Recrystallization Texture in Rolled ($\text{Fe}_{81}\text{Ga}_{19}$)₉₉B₁ Sheet	
Z.H. He, D.Y. Su, Y.H. Sha, F. Zhang and L. Zuo	772

Chapter 4: Ceramic

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

The Properties of YSZ-Ni-Cr Cermet Fabricated by Sol-Gel Method S.L. Guo, M. Wang, S.H. Lv, J. Li and X.C. Du	787
Study of Nb-Zn-Mn Co-Doped Ba(Ti,Zr)O₃ Ceramics Y.H. Wang and J.H. Shen	791
A Rational Way to Prepare BaTiO₃ Ceramics L. Luo, Y.J. Zhu, L.L. Song and X.B. Zhang	797
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 H. Xiong, G. Xiong and C.H. She	805
Effect of Roasting Process on the Properties of Alumina-Based Ceramic Core L.G. Wang, B. Zuo, G.Z. Zhu and E.Z. Wang	809
Microstructure and Toughening Mechanism of ZrO₂ Ceramic C. Wang, Y.L. Han, S.C. Guo, F.S. Zhang and H.F. Fu	814
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 H. Xiong, G. Xiong and C.H. She	832
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	
J. Yu, J.R. Li, Z.X. Shi, J.Q. Zhao, S.Z. Liu and M. Han	888
Supercapacitor Fabrication by Titanium Alloy	
C.C. Chen, P.C. Chen, J. Zou and S.J. Hsieh	894
Study on the Quenching Microstructure of Fe-0.36C-1.4B Alloy	
Y.J. Dong, Z.H. Li, Q.H. Cen and M.H. Liu	899
Ageing Precipitation and Strengthening Behavior of the Spray Formed Al-Zn-Mg-Cu Alloy	
H.W. Liu, F. Wang, B.Q. Xiong, Y.A. Zhang, Z.H. Li and X.W. Li	903
The Microstructure and Mechanical Properties of Super-High Strength Al Alloys by Spray Forming	
G.W. Zhang, Z. Chen, W. Chen, H.Y. Xin, J. Zhai, A.Z. Guo, L. Ma and G. Chen	909
Research on a New Type Grain Refiner Refining α-Al by Adding Molten State and Diluted Al-Ti-B-RE Master Alloy	
Z.J. Wang	915
Effects of Ni/Ti Ratio and Heat-Treatment on Transformation Temperature, Mechanical Properties and Shape Recovery Strain of Ni-Ti-Nb Alloy	
Z.W. Feng, J.B. Wang, X.J. Mi, W.D. Miao, Z.S. Yuan and J. Zhou	919
Effect of Rolling Deformation to Microstructure and Properties of Mg-8.5Li-1Al-1Ce Alloy	
W. Tao, M.L. Zhang, S.J. Zhao, C.M. Song and C. Ju	924
Fatigue Behavior of GH4169 Alloy up to Very High Cycles	
X. Zhao, J.J. Zhao and Y.J. Liu	928
Effect of Ti Content on Microstructure and Hardness of A356 Alloy	
M. Qu, L.B. Zheng, M. Zhao, T.T. Li, F.B. Liu and G.P. He	932
Fractal Characteristics of Primary Phase Morphology in Semisolid A356 Alloy	
Z. Liu and X.M. Liu	936
The Effect of Cold-Drawing on Recovery Stress of Ni-Ti-Nb Shape Memory Alloy	
E.M. Wang, Q.H. Hong, Z.M. Ni and J. Han	941
Study on the Mechanical Property and Microstructure of Surgical Implanted Ti-6Al-7Nb Titanium Alloy	
J.B. Wang, Z.Y. Shang, Z.S. Yuan, J. Zhou, Z.W. Feng, W.D. Miao and M. Zhu	945
Influence of Gd Addition on the Structure and Capability of Ni-Mn-In Metamagnetic Shape Memory Alloys	
L.N. Bai, G.X. Zheng, Z.J. Duan and J.J. Zhang	950
Effects on the as-Cast Structure of 7075 Aluminum Alloy by Treating with Electrical Pulse Inoculation	
Z.Y. Sun, Y. Liang, L.F. Yu and Z.Y. Shi	954
Adjusting Microstructure and Magnetic Properties of Ni-Mn-In Metamagnetic Shape Memory Alloys by Addition of Gd	
L.N. Bai, G.X. Zheng, J. Xin and J.J. Zhang	959
Some Studies on Preparation of Large Spray Deposited Aluminium Alloy Tube Preform	
Z.G. Chen, H.C. Liu, W.H. Liu, Z.S. Wang and Z.H. Chen	964
Study on Cyclic Load Creep Test of the Nickel-Based Super Alloy K403	
X.R. Ning, X.X. Cai, L. Yi and W. Chen	969
Study on Present Situation and New Trends of the Electrodeposition of Nickel-Cobalt Alloy	
M.M. Yu, H.Y. Li and Y. Wang	973
Thermal Flow Deformation Behavior and Mechanism of As-Cast and As-Extruded Burn Resistant Titanium Alloy	
H.Y. Sun, J.X. Cao, B. Wang, X. Huang and C.X. Cao	977
Experimental Study on the Mineral Processing of a Certain Low Grade Copper-Molybdenum Ore in Xinjiang	
Q.M. Jia, L.M. Zhang and W.Z. Lv	983
The Influence of Composition on the Material Structure and Performance of 3104 Aluminum-Alloy Canbody Material	
R.Y. Huang, Z.M. Yin, Q.W. Huang and M.S. Liao	987
Influence of Titanium Alloying Element Substrata on Bacterial Adhesion	
K. Mediaswanti, V.K. Truong, J. Hasan, E.P. Ivanova, F. Malherbe, C.C. Berndt, C. Wen and J. Wang	992

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

Chapter 6: Biomaterials

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

Dissolution of Cellulose in [Amim]Cl/Lithium Salts Solvents System W.X. Liao, J. Song, B.W. Cheng and J. Mei	1100
Research Progress on Tissue Engineering of Neural Stem Cells X.Y. Chen, S.J. Zhuang, X.M. Hou and Q.S. Liu	1104
Effects of Calcination upon Properties of Needle-Cokes Z.C. Shao, X.Q. Liu and B. Yang	1108
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 Y.W. He and L.C. Liu	1135
Effect of Hyperbranched Polymer on Crystallization Kinetics of Isotactic Polypropylene G.T. Liu and J. Lei	1142
Effect of Process Parameters on Jet Length in Electrospaying of Thermoplastic Polymer A. Jadhav, L.J. Wang, C. Lawrence and R. Padhye	1146
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 D.G. Qu, D. Xiang, P. Mou, H. Wang, Y.L. Gong and N. Liu	1308
Research on Composite Powder and Magnet Properties of Bonded NdFeB Magnets W.Z. Qin, J. He and J.H. Meng	1314
Giant Magnetoresistance in (Ni₆₀Co₃₀Fe₁₀/Cu) Trilayer Growth by Opposed Target Magnetron Sputtering Ramli, M. Djamal, F. Haryanto, S. Viridi and K. Khairurrijal	1319
Synthesis and Characters of Fe₃O₄/AMPS Magnetic Composite Material X.Y. Hou, C.Y. Hou, Z. Zhang, W.Z. Wang, L.L. Gao, J. Wang, X. Gao and Z.D. Cui	1323
Synthesis and Luminescence Property of Poly(<i>phenylenevinylene</i>) with Alkoxy Substituents under the Ultrasonic Irradiation W. Ding, J.H. Si and F. Yun	1328
Optimization of the Two Parameters of Classical Blaze Grating in Littrow Mount S.W. Zhang and J.X. Ying	1332
A Study on Gadolinium Sensitized Chemiluminescence System C. Yang and N.L. Ren	1337
Influence of Gd³⁺ Doping Quantity on Magnetic Performance of Co₂Z Hexaferrite L.H. Yu, J. Yao, Z.K. Feng and A.P. Huang	1341
Ascertainment of the Figure of Merit for the State-of-the-Art Thermoelectric Materials via Temperature Y.J. Liu and N. Zhu	1346
Current-Voltage Characterization on Au-DNA-Au Junctions under the Influence of Magnetic Field N. Mahmoudy Khatir, S.M. Banihashemian, V. Periasamy, W.H. Abd Majid and S.A. Rahman	1350
The Application of Symmetrical Equation of Diffracted Wavevectors in Integral Theory of Gratings J.X. Gao and F.C. Zhang	1354
Two-Photon Luminescence in Yb:YAG C.H. Peng, H.T. Liu, K.T. Wu, Y.F. Chen, H. Chou and I.M. Jiang	1359

Chapter 9: New Functional Materials

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

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. Nazhipkyzy, 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	
Q.L. Liao, L.M. Zeng and X.K. Li	1529
Wound Dressing Utilising Nonwoven Wool Matrix	
S. Islam, L. Arnold and R. Padhye	1534
Numerical Simulation for the Optimization of the Angle of the Velocity of the Hydrogen in the High Performance Hydrogen Bell-Type Annealers	
S.L. Fang, S.P. Jin, Y.X. Zhang, S.Y. Huang and W.Q. Wen	1542
Researches on the Fixation Performance of Chitosan and its Derivative	
N.N. Lei, N. Zhong, Y.D. Shi and X.R. Ling	1547
DFT Study on Structures, Stabilities and Electronic Properties of Tert-Butyl Silsesquioxanes $\text{Si}_{2n}\text{O}_{3n}(\text{CMe}_3)_{2n}$ ($n=1-6$)	
C.G. Zhang, S.Y. Yu and H.M. Zhang	1552
Elastic Modulus of Rhombus Dodecahedron Closed-Cell Cellular Materials	
L.G. Zhang, H. Zhu, X.D. Qi and J. Wang	1556
4.9tex $\times$ 2 Cotton / Pearl 65/35 High Count Blended Yarn Spinning Process Design	
J. Li and Y. Wang	1560
Optimization of Separation Process of Waste Polyester-Cotton Fiber by Using Response Surface Analysis	
H. Huang, Y.L. Yu and W. Kong	1564
The Antistatic Research of Polyester/Nylon Fabrics Finished by Triblock Copolymer Containing Organic Silicon	
T. Wang, X.L. Xu, X.Y. Sui and L.N. Wang	1569
Research on Open-Cell Rigid Polyurethane Foam as Vacuum Insulated Panel Core	
A.K. Kan and H.D. Han	1573
Effect of Laundering Temperature on the Color of Brown Naturally Colored Cotton	
X.L. Zhou, Z.Q. Shi, Z.R. Tang and W.L. Zhou	1577
Influence of Fractal Structure on Light Absorption of down Fiber Assembly	
S. Yang	1582
Study of the Hydrophobic Modification of Chromium Sesquioxide with Lauric Acid	
S. Luo, J.C. Huo, H. Lei and J. Deng	1586
Preparation and Characterization of Ternary Composite Composed by Chitosan, Porphyrin Derivative and Single-Walled Carbon Nanotubes (SWCNTs)	
C.H. Huang, C.J. Hou, J. Li, H. Qi, S.F. Chen, H.B. Fa and D.Q. Huo	1591
Fuel Cell Electric Vehicle Energy Management Strategy Simulation Study	
J. Zhang and S.B. Wang	1597
Adsorption of Cu (II) from Aqueous Single Metal Solutions by Bagasse Pith Chemically Modified with EDTA Dianhydride (EDTAD)	
C.L. Ouyang, X.L. Liu, F. Hu, S.X. Nie, J.C. Liu and H.N. Song	1601
The Investigation of Dyeing Properties of Anion Modified Linen Fibers	
S.Z. Gao and Q. Liu	1605
Influence of Heat Insulation Material on Thermal Stress of Long Nozzle	
H.M. Liu	1609
Synthesis and Luminescence Characteristics of Mg (II) Complexes with 5-Bromosalicylaldehyde-Nicotinoylhydrazone	
X.S. Tai	1615
Effects of BaF_2 Addition on Properties of Strontium Barium Niobate Based Glass-Ceramics for Energy Storage Capacitors	
G.H. Chen, T.Y. Liu, Y. Yang and W.J. Zhang	1619
Different Natural Season Weathering of B.mori Silk Fabric	
J.F. Ming, Y.X. Jiang and B.Q. Zuo	1623
Study on Crystallization Kinetics of $\text{Li}_2\text{O-Al}_2\text{O}_3\text{-TiO}_2\text{-P}_2\text{O}_5$ Glass by Non-Isothermal Technique	
Y.H. Wang, K. He, C.K. Zu and J. Chen	1629
Biological Performances of Titanium Scaffolds: A Review	
K. Mediaswanti, C. Wen, E.P. Ivanova, C.C. Berndt, F. Malherbe and J. Wang	1634

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

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

Chapter 11: New Energy Materials

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

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

Chapter 12: Environmental Friendly Materials

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

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

Chapter 13: Structural Materials and Biomaterials

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

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

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

Chapter 14: Chemical Materials

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

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</i> Sonn.) 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