

Table of Contents

Preface and Conference Organization

Chapter 1: Composites

Preparation and Properties of PS/PP/Nano-TiO₂ Composites S.W. Yu, S.J. Xiao, P.B. Zhang, L.J. Zhang and Y.Q. Li	3
Mechanical Properties of Thermoplastic Composites via <i>In Situ</i> Polymerization from Cyclic Oligomers K.A. Hao, Z.Q. Wang and L.M. Zhou	7
A Multi-Scale Non-Deterministic Approach to Composite Curing Process Simulation P. Carlone and G.S. Palazzo	11
Study on Preparation and Properties of High Permeability Polyurethane Composites with Low Swelling L. Wang, F. Liu and S.T. Cao	16
Numerical Simulation for the Thermo-Mechanical Coupling of Tubular Braided Carbon/Carbon Composites G.Y. Liu and G.F. Wei	20
Internal Stress Calculations of Continuous Fiber Reinforced Composites under Transverse Loads Y.R. Li, Z.Q. Cheng and H.B. Jiang	24
The Thermo-Mechanical Coupling Analysis of SiCp/A356 Composites Brake Disc of a Passenger Car S.H. Cui, J. Yuan and H.Y. Li	28
Effects of MAPE Treatments on Thermal Properties of Silvergrass Reinforced High Density Polyethylene Composites D. Xue, W.W. Yu, J. Lu, Q. Liu, X.J. Liu and W. Lei	33
Effects of PMDI Modified on Physico-Mechanical Properties of Silvergrass Reinforced High Density Polyethylene Composites W.W. Yu, J. Li and Y.P. Cao	38
Properties Characteristics of Silicone Inhibitors Z. Chen, D. Li, A.J. Shi, Y. Li and S.X. Wu	43
The Bentonite Copolymer Composite for Removing Lead Ions W.J. He, Y.F. He, Z.H. Zhang, J.H. Guo and R. Wang	47
The Research Status, Superiorities and Prospect of Composite Insulation Materials in China R.F. Chen, H.L. Gu and Y.M. Jia	51
Conductive Polypyrrole/Polyurethane Composite Fibers for Chloroform Gas Detection X. Liu, Z.Y. Qin, X.L. Zhang, L. Chen and M.F. Zhu	55
Research on CFRP Periscope Outer Tube J.G. Zhang, Y. Zeng, G.L. Zhang, Y.C. Fang, Y.F. Hu and Y. Xu	59
Thickness Swelling and Water Absorption Character of Laminate Floor H.X. Yu, C.R. Fang, M.P. Xu and R.Q. Tang	64
Preparation and Properties of C/SiC Composites via Liquid Silicon Infiltration Process G.D. Li, C.R. Zhang, H.F. Hu and Y.D. Zhang	70
Judgment Method of Accelerated Testing Effects on Compound Friction Material S.M. Xu, R.B. Ma, J.H. Du, J.H. Liu and Q. Jin	76
Sintering Properties of Fused Silica/Nano-Zirconia Composite Ceramic Y.W. He, J.L. Bu, R.S. Wang, D.M. Zhao, J.X. Chen, L.X. Yu and Z.F. Wang	81
Flame Retardancy and Mechanical Properties of Brominated Flame Retardant for Long Glass Fiber Reinforced Polypropylene Composites X. Luo, M. He, J.B. Guo and B. Wu	85
Interface Reaction of CNTs/Al Composites Fabricated by High Energy Ball Milling G. Yue, X.L. Cai, K.J. Wang, H.P. Sun and Y.G. Chen	90

The Propagation of In-Plane Waves in Multilayered Elastic/Piezoelectric Composite Structures with Imperfect Interface M. Lan and P.J. Wei	95
Hot Compression Performance of TiC10/Cu-Al₂O₃ Composite Prepared by Vacuum Hot-Pressed Sintering Z.Q. Yang, Y. Liu, B.H. Tian and Y. Zhang	99
Study on Pore Structure of Multi-Layered Spunbonded Nonwovens C.Y. Zhu, W.W. Ying, X.F. Zhan and X. Lei	103
Morphology, Dynamic Mechanical and Mechanical Properties of Long Glass Fiber Reinforced Polypropylene and Polyvinyl Chloride Composites B.S. You, K.Z. Zhang, J.B. Guo and L. He	107
Preparation of 3D Honeycomb Basalt Fibers Woven Composites J.R. Cui, L.H. Lv, X. Wang, C.Y. Wei, Y.Z. Cui and J. Yang	111
SiC_p/7050 Aluminum Matrix Composite Made by High-Energy Ultrasonic and Two Steps Casting Processing L.H. Zhang and F.J. Jiao	115
Correlation between Curing Temperature and the Properties of Conductive Composites X.Y. Wang, Z.D. Xia and Z. Li	119
Effect of Functionalized Multi-Walled Carbon Nanotubes on the Interfacial Properties of Ramie Fiber/Poly(lactic Acid (PLA) Composites N.T. Zhou, X.B. Shi, X.J. Sun, W. Du, L. Yao and Y.P. Qiu	123
Effects of Functionalization MWCNTs on the Mechanical and Electrical Properties of nylon-6 Composites X.D. Zhu, Q.J. Jiao, C.G. Zang and X.P. Cao	127
Study on Properties of Carbon Nanotubes/Epoxy Resin Composite Prepared by <i>In Situ</i> Polymerization Z. Yue, M.Y. Yu and X. Lan	132
PBA/P (MMA-MAH) Core-Shell Particles Toughening Reinforced PA6 W.J. Mei, Y.Z. Xiong, Z.Y. Liu and J.Z. Luo	136
Light-Weight and High Thermal Insulating EPDM Composites Modified with Pretreated Hollow Phenolic Micro-Spheres Z.G. Zeng, X.L. Jia, X.P. Yang, J.Y. Zheng and W.S. Li	140
Researches on Flame Retardation and Hygrothermal Aging Properties of PP/PA6/APP/OMMT Composites H.L. Liu, C.P. Yang, C.G. Liu, Y.J. Wu and R.L. Meng	146
Preparation of Laponite-Armored Polystyrene Particles by Pickering Emulsion Polymerization Y. Yang, D.Y. Wu and S.D. Jiang	152
Effects of Processing on Mechanical Properties of Polypropylene Composites X. Sui, B.H. Wang, H.M. Wu, L. Wang, W. Zhao, L. Li, H.J. Wu and D.D. Yuan	156
Synthesis and Characterization of CNT/Fe₃O₄-ZnS Nanocomposites G.T. Wu, J. Li, X.M. Li, H.W. Zhang, Y.F. Dong and Y.W. Deng	160
Mechanical Properties of Carbon/PEEK Composites According to the Fiber Ply Orientation and Sizing Removal of Carbon Fiber for Artificial Hip Joint Y.H. Kim, S.W. Yoon, J.W. Lee, T.H. Kim, M.K. Jung, K.M. Moon, H.S. Choi and R.I. Murakami	164
Moisture Deterioration Mechanism of Fiber Reinforced Composites Y.H. Kim, J.M. Park, J.W. Lee, J.H. Jeong and K.M. Moon	176
Mechanical Properties and Fracture Characterization of Al-5%wtMg Composite Reinforced with Carbon Nanotube Y.G. Chen, X.L. Cai, H.P. Sun, G. Le and C. Hu	186
Isothermal Crystallization of PET/PTT-CNTs Composites F. Xie, H. Liang, X.J. Ren and Y.F. Chen	191
Characterizations of Liquid Polycabosilane (LPCS) Used as SiC Matrix Precursor for CLVD Process M. Mei, X.B. He, X.H. Qu, H.F. Hu and Y.D. Zhang	195
Preparation of Polymer Composite Latex via Miniemulsion Polymerization: Fluorinated Acrylate as Co-Stabilizer and Functional Modifier F.C. Zhao, S.Q. Liao, Y.F. Zhao, H.S. Tan and N. Xu	200

Estimation of the Elastic Modulus and Moisture Absorption of Sisal Fibre Y.O. Shen, Y. Li and F. Lv	204
---	-----

Chapter 2: Micro / Nano Materials

A Review on Polymer/Kaolinite Nanocomposites Y.X. Jia, L.J. Sun, X.G. Chen, M. An and X.M. Sang	213
Hydrothermal Synthesis and Electrochemical Performance of WO₃ Nanoparticles L.J. Feng, R. Ma, X.H. Li and X.C. Song	217
Preparation and <i>In Vitro</i> Degradation of PLLA Super Fiber Membrane J.X. Yu	221
Effect of Thermal Treatment on the Physical Properties of Electrospun PVDF/PMMA Composite Membrane J.M. Zhao, Y.Z. Liang, S.C. Cheng and Y.P. Qiu	224
Flash Synthesis of Tetragonal-ZrO₂ Nanostructures by Microwave-Induced Combustion Process Y.Q. Xu, S.W. Du, J. Gao, Y. Cao, C.G. Chen and X.H. Xian	228
Synthesis and Characterization of Large Area Carbon Nanotubes Array Z. Wang and C.H. Yu	232
Fabrication of Porous Alumina Nanofibers with Hollow Structure by Single Capillary Electrospinning P.C. Liu, J.H. Ma, J.H. Gong and J. Xu	236
Surfactant CTAB-Assisted Synthesis and Gas-Sensing Characteristics of SnO₂ Nanomaterials H.Y. Zhao, Q.P. Jiang and Y.H. Li	241
A Facile Non-Aqueous Approach for the Synthesis of Cu Nanowires J.R. Jin, Y.Z. Chen, H.Z. Guo, Z.W. Wang and D.L. Peng	245
Controllable Preparation of Multishaped Micro/Nanosized Hydrated Nickel Molybdate via Chelator-Assisted Hydrothermal Route J. Zhang, Z.Q. Jiang, J.J. Li, X.G. Du and B.C. Song	249
Synthesis of ZnO Nanorod Arrays on Chaleted Sol-Gel-Derived ZnO Thin Films and its Optical Absorption in Visible-Light Region L.R. Yang, J.C. Wei, L. Zhang and H.B. Chen	253
Preparation of TiO₂/CNT Composites and Effect of CNT's Structure on Morphology of Nano-TiO₂ F. Li, H. Bian and H. Zhang	259
Synthesis of Carbon Nanofibers on Iron and Copper Catalysts by Chemical Vapor Deposition Y. Hyun, H. Kim and C.S. Lee	265
Study on Needle and Needleless Electrospinning for Nanofibers W.J. Liu, H.F. Zhang, D.W. Li, C. Huang and X.Y. Jin	276
Synthesis of Carbon Nanofibers on C-Fiber Textiles by Thermal CVD Using Fe Catalyst S.W. Lee, K. Mees, H.S. Park, M. Willert-Porada and C.S. Lee	280
Effects of Reaction Conditions on Microstructures and Properties of Polyaniline Nanofibers through Interfacial Polymerization F. Tian, Z.Y. Qin, Q. Wu, N. Liu and Y.Q. Lu	293
Polyaniline Nanofibers Produced via Rapid Initiated Polymerization in a Binary Oxidant System J.N. Luo, Z.Y. Qin, Q. Wu, Z. Zhou and Y.Q. Lu	297
A Review of Nanostructured TiO₂ Application in Li-Ion Batteries J. Wei, J.X. Liu, Y.C. Dang, K. Xu and Y. Zhou	301
Synthesis of Vanadium-Doped TiO₂ Hollow Spheres and their Visible Light Photocatalytic Activity X.X. Lin, D.G. Fu, Y.F. Ye and L.Y. Hao	307
Study on PS-Molybdophosphoric Composite Fibers via Electrospinning Process Z.M. Zhang, T.T. Li, J. Cao and H.T. Li	311

Characterization and Photocatalytic Activity of TiO₂ Nanoparticles with Precipitation Method Synthesis	
J.H. Li, J.H. Hao and W. Wang	315
Progress on Fabrication of Free-Standing and through-Hole TiO₂ Nanotube Arrays	
K. Xu, J.X. Liu, Z.Y. Wu, J. Wei and T.T. Yu	319
A Study of Optimum Conditions for Electrospinning Cellulose Acetate Nanofibers in Trifluoroacetic Acid Solvent	
E. Omollo, C.Y. Zhang, W.J. Liu and N. Sizo	323
Simulation on the Dielectrophoretic Assembly of Carbon Nanotubes	
S.H. Zhen, L.B. An and C.R. Chang	328
Study on Morphology and Thermo-Mechanical Properties of Carbon Nanotube-Modified Polycarbonate	
T.F. Shen and F.C. Wu	332
Novel Methods for Preparation and Surface Treatment of Nano-CaCO₃	
F.C. Wu and T.F. Shen	336
Synthesis and Characterization of Superparamagnetic Fe₃O₄ Nanoparticles	
D.H. Sun, J. Wu and J.L. Zhang	340
Technical Study on Microwave Method for the Preparation of Flower-Like ZnO	
D. Liu	344
Characterization of Core-Shell Structure Palygorskite Modified by Nano-CaCO₃ (PnC) Composite Particles	
D.F. Zhao, M.H. Li and J.S. Xie	348
Fabrication of Micro-Structural ZnO Crystal and the Concentration Fields of the CVD Reactor	
J.B. Xu, H.J. Tian, Y.J. Tian and H. Wen	352

Chapter 3: Iron and Steel

Study on Bainitic Microstructure under Low Austempering Temperature and its Wear Resistance of Low-Alloy High-Carbon Steel	
J. Yang, Z.B. Wang, H.L. Zhang and X.L. Liang	361
Research on Structural Inheritance Characteristic and the Related Normalizing Elimination Process for 300M Steel	
D.B. Liu, J.W. Liu and S.Q. Lu	365
Research on the Reverse Loading Hardening Model of the X80 Pipeline Steel	
X.Z. Cai, L.F. Wang, S.Y. Zhao, B.F. Guo and Y.X. Zhu	370
Physical Simulation of Inclusions Removal in 180t RH Degasser	
C.J. Yang, F.P. Tang, T. He and Q. Fu	375
Phase Transformation Behaviors of Nb-V-Ti Microalloyed Pipeline Steel X70	
Y.H. Wang, Y.N. Zheng, T.S. Wang, B. Liao and L.G. Liu	380
Study on Process of SPHC Steel Solidification	
X.G. Ma, Y.L. Li, R.L. Sang and Y. Shen	385
Effect of Temperature on Tribological Performances of Ion Nitrocarburized Layer of 42MnCr52 Steel	
C.H. Hu, F.J. Qi, M.L. Lu, G.N. Wang, Q. Liu and X.F. Sun	389
Effects of Nb on Martensite Size in B-Bearing Steel	
Y. Zhang, H. Guan and Z.G. Gao	393
Study on the Preparation of Carbon-Containing Pellets from the Mixed Ore of V-Ti Iron Concentrate and Titanium Concentrate	
J.H. Li, K.H. Qiu, S.L. Yang, N. Sun and P. Huang	396
Study on Mixing Time in Bottom-Blowing Ladle with Immersed Tube	
Q.H. Qi, M.G. Shen, D.H. Zhang and T. Wu	400
Cold Model Experiments and Mechanism on Inclusion Removal by Ultrasonic Horn	
S.M. Kang, M.G. Shen and C.W. Li	404
The Latest Development on the Heat Treatment, Microstructure and Mechanical Properties of Low-Carbon Martensite Steel	
B.Y. Ma, C. Yan, Y.S. Ding, Y. Li and Y.D. Liu	408

Study on Continuous Cooling Static Transformation Regularity of T700 Z.F. Song, Y.L. Feng, R.M. Feng and S.J. Yin	412
Research on Continuous Cooling Dynamic Transformation of T700 Z.F. Song, Y.L. Feng, R.M. Feng and S.J. Yin	416
Evaluation on the High-Temperature Oxidation Behavior of HP Steam Turbine Rotor Materials L.B. Niu and T. Shibata	420
Alloy Elements Added in Fe-6.5wt% Si Silicon Steel and their Effect on Ductility and Magnetic Properties Z.Y. Cheng, J. Liu, W.S. Chen, G.D. Sun, X.F. Lin, Y. Zhu, S. Zhu, J.C. Zhu and Z.D. Xiang	426
Control of Element and Inclusion for X80 Pipeline Steel Q.C. Peng, L. Qiu, J. Zou and Z.B. Tong	431
The Influence of Hot Rolling Process on the Performance of HG70C Q.C. Peng, S. Peng, D.P. Fan, K. Chen, J.Z. Li and W. Li	436
Martensite Phase Transform during Nitrogen-Spray Water Jet Quenching L.F. Wang, B.D. Shao, H.M. Cheng and C. Tian	442
Development of Economic-Type X70 Linepipe Steel Hot Strip H.M. Yang	446
Influence of Primary Austenite Dendrite on the Microstructure and Mechanical Properties of Gray Cast Iron J.T. Zhang and F.Z. Ren	450
Thermal Analysis of Solidification Process and Mechanical Properties in Heavy Section Ductile Iron Casting W.P. Chen, L.W. Zhou, W.H. Li and Z. Liu	454
Dephosphorization by Slag Pour out in the Smelting for High Carbon 70 Steel Y.B. Liu, J.Z. Zhang, Y.L. Liu and C.Y. Gao	462
The Galvanic Corrosion Behaviors of 13Cr-N80 Steel Couples in NaCl Solution at Different Temperature L. Wu, F.Q. Xie and X.F. Yao	467
Dendrite Grow up Relations with Cooling Speed Q.J. Zhang, C.L. Yan, Z.M. Cui and Y.G. Wu	473

Chapter 4: Ceramic

The Effect of Precipitate Agent in Co-Precipitation Synthesis $Y_3Al_5O_{12}$ and $Y_3Fe_5O_{12}$ Powders M. Zeng and Y.H. Wang	479
Preparation of Mullite-Aluminum Titanate-Cordierite Multiphase Ceramics Y.N. Zhao, G. Chang, G. Liu, H.B. Song and W.L. Zhang	484
Preparation of Ultrafine Zirconia Suspension Using Glutin-Urea Gelcasting System J.F. Wang, J. Du and X.D. Zhu	488
Dielectric Properties of Na_2O Doped $CaO-B_2O_3-SiO_2$ System Glass-Ceramics P.F. Wei	492
Two Morphologies of Tetragonal Phase in the $MgO-PSZ$ Ceramics Y.F. Wang, Y.K. Li and C. Sun	497
Study on Defect Complexes in High-K Sr and Zr Co-Doped $BaTiO_3$ Ceramics D.Y. Lu and X.Y. Sun	501
Effect of Sintering Temperatures and Ba/Ti Ratio on Dielectric Properties of $BaTiO_3$ Ceramic Y.Y. Li, G.X. Dong, B.Y. Zhu, Q.X. Liu and D. Wu	506
Magnetic Properties and High Thermal Conductivity of Al_2O_3 Ceramics Prepared by Spark Plasma Sintering Z.H. Jia, X.G. Tang, D. Chen, J.B. Wu and Q.X. Liu	512
Influence of Nano-Yb_2O_3, Nano-Nd_2O_3 and Nano-Dy_2O_3 on Sintering and Crystallization of Fused Quartz Ceramic Materials Y.L. Gu, J.L. Bu, C. Ma, D.M. Zhao and Z.F. Wang	517

Effect of Different Sintering Temperature on the Performance of Mullite-Corundum Refractory Materials	
P. Li, X.Y. Gu, T. Luo and Y.X. Chen	521
Improvement of Thermal Shock Resistance Performance of High Alumina Ceramic Filter Support	
Y.C. Tian, X. Liu, H. Tang, J.L. Bu, D.M. Zhao, Y.J. Chen and L.X. Yu	525
Fracture Mechanics Analysis of GI All-Ceramic Crowns	
C. Fan	529
Changes of the Glass Structure in the Phase Splitting Process of $\text{Na}_2\text{O-CaO-Al}_2\text{O}_3\text{-B}_2\text{O}_3\text{-SiO}_2\text{-TiO}_2$ System	
S.J. Gao, W.L. Zhang, G.Q. Hou and X.D. Zhu	533
Research in Toughening Wear-Resistant of Alumina Ceramic	
Z.S. Zheng, S. Geng and R. Yang	537
Vickers Hardness of Multi-Wall Carbon Nanotube Reinforced Alumina	
J.Y. Zhang, C.J. Xu, R. Todd and Z.Y. Fu	541
Effect of Addition of $\text{Al}_2\text{O}_3\text{-SiO}_2$ Gel Powder on Strength of $\text{Al}_2\text{O}_3\text{-MgO}$ Unfired Bricks	
J.C. Wei, S.X. Liu, S.S. Niu, W.P. Ma and J.B. Tu	546
Effect of Addition of Fused Alumina Zirconia on the Properties of Unfired $\text{Al}_2\text{O}_3\text{-C}$ Slide	
J.C. Wei, L. Ai, X.M. Ji and J.B. Tu	550
Effects of Magnesia Fines on Physical Properties of $\text{Al}_2\text{O}_3\text{-MgO}$ Unfired Bricks	
J.C. Wei, S.S. Niu, Y.L. Wang, W.P. Ma and J.B. Tu	554
The Study of $\text{CaO-SiO}_2\text{-B}_2\text{O}_3\text{-Al}_2\text{O}_3\text{-La}_2\text{O}_3$ Glass Ceramics as Sealant for Planar Intermediate Temperature Solid Oxide Fuel Cells	
J. Yu, J.J. Yang, W.H. Ma, B. Yu, R. Li, J. Xing, B. Qian and P. Ning	558
Research and Characterization of $\text{CaO-SiO}_2\text{-B}_2\text{O}_3\text{-Al}_2\text{O}_3\text{-La}_2\text{O}_3$ Sealant with Different Alumina for ITSOFC	
B. Qian, J.J. Yang, J. Yu, W.H. Ma, B. Yu, R. Li, J. Xing, N. Zhang and P. Ning	562

Chapter 5: Metal Alloy Materials

Research Advancement of Porous Fiber Metals	
S.F. Liu, X.C. Ge, H. Tang and X. Yang	569
Hot Deformation Behavior of as-Cast AZ61 Magnesium Alloy	
Z.X. Feng, Q.N. Shi, F.S. Pan, J. Tan, L.W. Chen and X.L. Chen	574
Structural, Thermodynamics and Dynamics Properties of Fe-Ni Melts with Different EAM Models	
T. Fang, L. Wang and Y. Qi	579
Research Progress of Mg-Al Based Alloys	
X.J. Song, Q.A. Li, S.L. Fu, W.J. Liu and Z. Chen	583
Influence of the Temperature on the Mechanical Properties and Fracture Surfaces of 93WNiFe Alloy	
Y.G. Xu	587
Effect of T6 Heat Treatment on Dry Sliding Frictional Wear Characteristics of Al-20Si-5Cu Alloy	
Y.X. Jin, Q.Q. Tong, X.Y. Wang and H.M. Chen	591
Effect of Hydrogenation on Microstructure and Mechanical Properties of Ti-6Al-4V Titanium Alloy	
L. Zhou and H.J. Liu	596
Grain Refinement of Y in As-Cast Mg-Y Alloys	
Q. Zhang, Q.A. Li, J. Chen and X.Y. Zhang	603
Influence of Aging Time on Mg-8Al-1Zn-3Ca Alloy	
W.J. Liu, Q.A. Li and Z. Chen	607
Microstructure and Mechanical Properties of Mg-12Gd-2Y-2Sm-0.5Zr Alloy	
Z. Chen, Q.A. Li, W.J. Liu and X.J. Song	611
Preparation of CoCrFeNiCuMnSi_x High Entropy Alloys and their Microstructure and Properties	
L.S. Zhang	615

Effect of Al on Zn-Al Filler Metal Wettability on Pure Aluminum Surface M. Zhang, Y.B. Lin and H.L. Jiang	619
Effects of Hydrogen on Diffusion Bonding of TiAl-Based Intermetallics with Hydrogenated Ti6Al4V Alloy Interlayer Containing 0.5wt% Hydrogen L. Jia and L. Fan	624
Study on Structure Properties Casted with Mg-Y-Nd-Gd-Zn-Zr Magnesium Alloy Z.W. Huang, G.Z. Zhao, Y.Y. Wan and J.Q. Tao	630
The Effect of Sr Modification on the Microstructure and Properties of Mg₂Si Reinforced Near-Eutectic Al-Si Alloy Y.T. Liu, J.X. Lin, X.P. Wu, L.Y. Niu and G.Y. Li	638
Enhancement of Faceted Growth of Primary Al₃Ni Phase in High Magnetic Field C.J. Li, L. Chen and Z.M. Ren	642
Thermal Stress Variation of Titanium Alloy under Laser Radiation J.R. Cheng	647
RE-Boronizing below Beta Transus Temperature on TC4 Titanium Alloy Surface J.S. Li, F.H. Li, L. Lei, X.H. Yi, Z.G. Fan and D.Y. Gong	651
Application Research of Al-Fe-P Master Alloy on Modifying ZL109 Alloys G.H. Qi	655
High-Temperature Oxidation Behavior of Cu-20Ni-75Co Alloy Z.Q. Cao, F.C. Li and Y. Shen	659
Effects of Ball Milling Time on the Microstructure and Mechanical Property of Cu90Al10 Alloy C.J. Li, G. Chen, Q. Yuan, J. Tan, L. Teng, Q.X. Zhang and X.K. Zhu	663
Microstructure and Property Evolution of Cu90Zr10 Alloy in the Process of Mechanical Alloying C.J. Li, L. Teng, J. Tan, Q. Yuan, J.J. Tang, T.L. Chen and X.K. Zhu	667
Study of Microstructure and Mechanical Properties of Extruded Spray Forming Al-8.5Fe-1.3V-1.7Si Alloy R.H. Zhang, Y.A. Zhang and B.H. Zhu	671
Study on Performance of Beryllium Bronze's Stress Relaxation D.J. Wang, W.F. Zhang, X.T. Fang and L. Zhao	675
Study of the Phases of Mg-Zn-La Magnesium Alloys at 150°C M.L. Huang, L.N. Dong, Y.L. Wang and L.W. Quan	679
Study on Oxidation Behavior of Beryllium Bronze Y.L. Zhang, W.F. Zhang, A. Zhang and S.J. Zhao	683
Influence of Stirring Time and Holding Time on Microstructure and Properties of the A356 Alloy Modified by Sc S. Zhang, G. Yang, J.H. Yi and H. Yan	687
Microstructures of AZ61 Magnesium Alloy Solidified via Ultrasonic Vibration Treatment J.P. Yao, Z. Sun, W.Y. Long and L. Zhang	691
Effect of Cooling Rate on Microstructure of Semi-Solid AZ61 Slurry Produced via Ultrasonic Vibration Process J.P. Yao, Z. Sun, W.Y. Long and L. Zhang	696
Wear Behavior of Cu-Based Composite under Different Electrical Currents R.G. Zheng and X.X. Zhang	701
Organization and Performance of the Novel High Aluminum Zinc-Based Alloy J.M. Ji, H.H. Shao, G.C. Meng and D.Q. Gu	705
Effect of Fe on the Performance of Rare Earth Aluminum Conductor T.D. Ma, Y. Su, Q. Wang and J.L. Li	711
Research of Resistance to High Temperature and Creep Resistant Magnesium Alloy X.J. Zhang and G.H. Geng	715
Damage and Fracture Mechanism of As-Cast Ti40 Titanium Alloy during Hot Compression Y.C. Zhu, W.D. Zeng, Y.Q. Zhao and W.W. Peng	721
The Study on Fracture Behavior in Hot Compression of As-Cast Ti60 Titanium Alloy W.W. Peng, W.D. Zeng, Q.J. Wang and Y.C. Zhu	725
First-Principles Investigations on Magnetic Properties in Off-Stoichiometric Ni₂MnIn Magnetic Shape Memory Alloys J. Bai, J.L. Gu, Y.B. Li, X. Zhao, L. Zuo, J.M. Raulot and C. Esling	730

Structures and Undercooling Technology of Ag-28.1 wt.% Cu Eutectic Alloy S. Zhao, D.L. Wei and Q. Miao	734
Corrosion Behavior of the Transient Liquid Phase Diffusion Bonding Joint of TiNi Shape Memory Alloy and Stainless Steel in Hanks' Solution Y.L. Wang, Q.Z. Gao, G.F. Sun and J. Ye	739
Research on Isothermal Phase Transformation Kinetics of TC21 Alloy Q.F. Wang, C.C. Zhu, D.Z. Xin, M.J. Zhang and X.W. Wang	743
Study on Alloy Particles and its Deposited Metal Microstructure and Properties J.S. Sun, H.M. Wang, E.L. Jiao and G.Q. Zhang	748
Nanocrystalline Cu₉₀Nb₁₀ Alloy Produced by Mechanical Alloying C.J. Li, Q.X. Zhang, Q. Yuan, J. Tan, L. Teng, G. Chen and T.L. Chen	752
Microstructure and Corrosion Properties of Mg-Zn-Ca-Nd Alloy for Biomedical Application D.M. Jiang, Z.Y. Cao, L. Guo, X. Sun and J.L. Zhang	756
Effects of Solution and Cryogenic Treatments on Microstructures and Mechanical Properties of AZ31 Alloy Tubes B.Y. Yu, Q.Q. Luo, Y. Li, Y.J. Wu and R.X. Li	760
The Corrosion Behavior of 07/09Cr2AlMoRE Used for Petro-Chemical Equipment Y.F. Zhang, Y. Ma, Y. Hao, H.X. Guo and W.M. Song	765
Effect of Melt Intensive Homogenization on Solidification Microstructure of 7075 Aluminium Alloy by Twin-Screw Stirring Z.H. Gao, J. Xu, G.J. Liu, Z.F. Zhang, M.G. Tang, S.M. Zhang and Z. Fan	771
Valence Electron Structures Analysis on Relationship of Cu Physical or Mechanical Properties and Vacancy Y.F. Wang, Y.K. Li and M. Xia	776

Chapter 6: Elastomers & Polymers

Synthesis and Properties of a Novel Polymeric Phosphate Flame Retardant L. Yan	785
The Research Method and Performance Analysis of the Curing Process of E51-593 System and TDE85-593 System D.F. Li, Y.Y. Liu, H.J. Kang and H.F. Tan	789

Chapter 6: Elastomers & Polymers

Preparation and Property Studies of Core-Shell Structure Polyacrylate Microspheres for Plastisol X.L. Song, Z.H. Cheng, Y. Chen, Y.Z. Xu and C.P. Wang	797
Miscibility Study of Chitosan and Methylcellulose Blends P.T. Liu, X.M. Wei and Z. Liu	802
Study on the Effect of the Temperature Rise of Rubber Compound on Tread Rubber Quality during Mixing Process K.J. Chen, S. Xu and D.L. Xu	806
Plastics: The Discovery in the World and Development in China Y.X. Jiang and M. Jiang	811
Research on Mechanical Properties, Compatibility, Flame Retardancy, Hot-Air Ageing Resistance of Hydrogenated Nitrile-Butadiene Rubber/Chloroprene Rubber Blends T.T. Wang, G.L. Zhong and L.L. Zhou	816
Toughening Modification of PA6 with Different Core-Shell Particles Z.Y. Liu, Y.Z. Xiong, W.J. Mei and L. Wang	820
Effect of Types of Antioxidants on Crosslink Density and Tensile Properties of Epoxidized Natural Rubber C.J. Yang, Y.Y. Luo, B.Q. Chen, K. Xu, J.P. Zhong, Z. Peng and F.X. Wang	824
Preparation for PTFE Hollow Fiber Membranes Used in Water Treatment and Optimization for its Extrusion Process C. Zhuang, Z.Q. Luo and W.Q. Chen	828

Magnetorheological Effect of NDI Polyurethane-Based MR Elastomers X. Yang, C.G. Shuai and S.L. Yang	832
Properties of Europium (III) Chelating Polymer Film H. Liang, F. Xie, Y.F. Chen and X.J. Ren	836
Experimental Study of the Characterization of Ultra-High Molecular Weight Polyethylene Fiber Plastic Y.K. Wen, C. Xu, X.H. Dong and S. Wang	840
Preparation and Characterization of poly(L-lactide) /poly (ϵ-caprolactone) Composite Films for Food Packaging Application J.Y. Yang, Y.Y. Qin, J.X. Cao, M.W. Yuan, S.Q. Liu and M.L. Yuan	845
The Crystallization Properties of PET Obtained by Using the Attapulgite-Supported Aluminum Oxide Hydroxide Catalyst Q.H. Lin, X.H. Gu and D.J. Chen	849
Synthesis and Characterization of PBA-P(MMA-HPMA) Core-Shell Latex Particles Z. Sun, Y.P. Liu and X.J. Liu	854
Compatibilizing Modification of Polyethersulfone/Polycarbonate Blend C.Y. Ma, Y.M. Ma, Z. He, C. Yan and D. Jiang	858
Synthesis and Mesomorphic Behavior of Chiral Liquid Crystalline Elastomers Derived from (S)-(-)-2-Methyl-1-Butanol Y.G. Jia, L.J. Han, T. Sun and X.Z. He	863

Chapter 7: Optical/Electronic/Magnetic Materials

Preparation and Nonlinear Optical Property of Triazole-Based Fluorene Functional Polymer X.L. Ji, S.Y. Guang, X.Y. Su and H.Y. Xu	869
Hydrothermal Preparation and Characterization of ZnO with Various Morphologies for Dye-Sensitized Solar Cells Z. Xiao, W. Zhong, S.J. Xu and Y.P. Luo	873
Synthesis of $\text{Zn}_{0.2}\text{Ca}_{0.8}\text{TiO}_3:0.1\text{Pr}^{3+}$ by Sol-Gel and its Luminescence Characterization Y. Shen, L.Y. Han and L.Y. Hou	877
Anomalous Refractions Based on Photonic Band Modulation of Photonic Crystals G.Y. Dong and J. Zhou	881
Design of Diffuse Reflection Composites and Study on Reflectivity Properties S.B. Li, D.M. Wu, X.T. Zheng, Y. Liu and H.L. Wei	885
Preparation and Characterization of Blue-Emitting $(\text{SrCaBa})_3(\text{PO}_4)_2 \cdot \text{SrCl}_2:\text{Eu}^{2+}$ Phosphors D. Cheng and Z.H. Yang	890
Hierarchical Porous Materials for Supercapacitors Y.H. Li, S.Y. Zhang and Q.M. Yu	894
The Preparation and Characterization of Novel Nonlinear Optical Active Dye L.F. Li and H.Y. Xu	899
The Design of the Polymer Diffuse Material with Microstructure and the Research of the Reflection Properties of Materials S.B. Li, D.M. Wu, X.T. Zheng, Y. Liu and X.L. Gao	903
Synthesis and Millimeter Wave Attenuation Properties of the FeCl_3-Graphite Intercalation Compound M.S. Zhou and Y.M. Zhang	908
Preparation and Luminescence Properties of $\text{ZnO-SiO}_2\text{-B}_2\text{O}_3\text{-Na}_2\text{O}:\text{Sm}^{3+}$ Glass Y.Q. Zhang, Q.S. Liu and M. Li	914
Magnetic Phase Transition and Magnetic Properties of $\text{LaFe}_{11.6}\text{Si}_{1.4}\text{B}_x$ Compounds K. Xie, Y. Liu, M.Q. Cao, P.C. Xia and L.J. Yue	919
Effect of Graphene Layer Number on the Performances of Graphene Nanosheets Counter Electrode for Dye-Sensitized Solar Cells S.J. Xu, Y.F. Luo, W. Zhong, Z.H. Xiao, Y.P. Luo and J.H. Lai	923
Temperature and Time-Resolved Dependence of Photoluminescence in InGaN Quantum Dots C. Chen, Z.R. Qiu, X.P. Shu, Z.C. Li, J.P. Liu and Z.C. Feng	927

Effect of La Contents on La-Doped Bi₂Ti₂O₇ Dielectric Thin Films X.N. Yang, J.A. Liu, B.B. Huang and S.J. Gao	931
Band-Tailored InAs/GaSb Superlattice in Infrared Application J. Guo, R.T. Hao, Q.R. Zhao and S.Q. Man	936
Full-Potential Study of the Magneto-Optical Kerr Effect for AuMnSb and AuMnSn X.F. Shang, Y.W. Wang and M.Q. Tan	941
Polycrystalline Silicon Films on SiO₂ Substrate Treated by Excimer Laser Annealing C.Y. Duan, B. Ai, R.X. Li, C. Liu, J.J. Lai, Y.J. Deng and H. Shen	946
Space Charge Limited Current and Magnetoresistance in Si X. Jin and H. Wang	952
Luminescent Properties of Eu²⁺-Activated SrAl₂Si₂O₈ as an Potential Blue Phosphor for near UV LED Chips L.J. Luo, Y.W. Zhu and P. Chen	956
Design for Amorphous Silicon Solar Cells C.R. Xue and X.Y. Sun	961
Influence of Substrate on Soft Magnetic Properties of Fe-Co-Si/Native Oxide Multilayer Films H.P. Zuo, S.H. Ge, F. Zhang, G.W. Wang, M. Xu, C.H. Wu and L. Li	965
High Efficiency Thin Film Silicon Solar Cells C.R. Xue and X.Y. Sun	970
Effect of Yttrium Oxide on the Viscosity and Crystallization of Borosilicate Glass at High Temperature Z.Q. Tian, Y.K. Zhu and W.J. Huang	974
Anisotropic Magnetoresistance Effect: General Expression of AMR Ratio and Intuitive Explanation for Sign of AMR Ratio S. Kokado and M. Tsunoda	978
Synthesis and Characterization of CdSe Nanocrystal Quantum Dots by Solution-Liquid-Solid Method H.Y. Chen, Y.K. Shan, Y.Y. Qin, Y.M. Chuan and M.L. Yuan	983
The Effect of the Horizontal Distance between the Permanent Magnets on the Levitation Force in Hybrid Magnetic Levitation System J. Ma	987
Photoluminescent Characteristics of ZnS Quantum Dots Synthesized in Non-Aqueous-Phase J. Liu, M. Ying, Y.L. Tan and B. Xi	991
Polarization Properties of a Nano-Particle Array Grating on GaN-Based LED H. Xing, B. Cao, G.J. Zhang, C.H. Wang, Q. Yu, S.Y. He, J.C. Zhang, J.F. Wang and K. Xu	995
Performance and Design of an SRM with Amorphous Stator Q.W. Xiang, X.F. Ji and Y.K. Sun	999
The PTCR Effect Induced by Grain Boundary Segregation in Acceptor C. Fang and L.Y. Chen	1003
Enhanced Luminescence of Terbium Complexes with 2,3-Pyrazinedicarboxylate by Y(III) Doping A.L. Wang, H.X. Zhang, K. Kong, H.H. Li, H. Wang, H.B. Chu and Y.L. Zhao	1007
High Density Formation of Iron Nanodots on SiO₂ Induced by Remote Hydrogen Plasma H. Zhang, R. Fukuoka, Y. Kabeya, K. Makihara and S. Miyazaki	1011
Thermodynamic Performance Characteristics of a Regenerative Brayton Refrigeration Cycle Using Gd_{0.45}Tb_{0.55} and Gd as the Working Substance S.H. Su, Z.C. Xu, G.X. Lin, G. Diguët and J.C. Chen	1016
Microwave Dielectric Properties of Eu₄Ti₃O₁₂ Ceramics via Sol-Gel Method Z.F. Li, D.P. Li, W.J. Wu, F. Liu, Y.X. Li, P.Z. Si and H.L. Ge	1020
Surface Morphology and Magnetic Properties of CoFe₂O₄ Thin Films Prepared via Sol-Gel Method W. Rao, Y.B. Wang, Y.A. Wang, J.X. Gao, W.L. Zhou and J. Yu	1024
Effect of the Conduction Type of Si (111) Substrates on the Performance of GaN MQW LED Epitaxial Films C.D. Zheng, C.L. Mo, W.Q. Fang and F.Y. Jiang	1029
Effects of Mg-Doping on Resistance Switching Property of Mg_xZn_{1-x}O Thin Films Prepared by Sol-Gel Method H. Wang, S.M. Gao, J.W. Xu, L. Yang and W. Qiu	1034

Effect of Mn Doping on Structural and Optical Properties of ZnO Thin Films Prepared on Glass Substrates by Sol-Gel Method P. Liu, Q.Y. Shen, H. Hu and B. Yang	1038
Study on the Crystallization Behavior of Ge₂Sb₂Te₅ and Silicon Doped Ge₂Sb₂Te₅ Films Y.F. Jiang, L. Xu, J. Chen, R. Zhang, W.N. Su, Y. Yu, Z.Y. Ma and J. Xu	1044
Phase Transition of GeSbTe Thin Films Induced by Thermal Treatment and Laser Irradiation J. Chen, F. Yang, L. Xu, L. Tong, J. Xu, W.N. Su, Y. Yu and Z.Y. Ma	1048
Initial Surface Reactions Mechanisms of Atomic Layer Deposition TiO₂ on H/Si(100)-2×1 Surface G.F. Zhou, J. Ren and S.W. Zhang	1052
Preparation and Performance of Silver Coated Copper Powder H.P. Sun, K.J. Wang, X.L. Cai, G. Yue and Y.G. Chen	1057
Improved Efficiency in Organic Light Emitting Device with a Excton Confining Structure H.S. Yang, L.S. Wu and Y.Z. Pan	1063

Chapter 8: New Functional Materials

Preparation of Fe₃O₄-Coated Microsilica Composites via Chemical Reduction Method H.X. Feng, B.Y. Chen, D.Y. Zhang, J.Q. Zhang and H.M. Luo	1071
Study on Synthesis and Characterization of Styrene-Maleic Anhydride Random Copolymer by Xylene T.T. Li, Z.M. Zhang, H.T. Li and J. Cao	1075
The Status-Quo and Prospect of the Self-Cleaning Glass H.L. Gu, R.F. Chen and S.J. Xie	1079
Palladium Supported on Functionalized Mesoporous Silica: Synthesis, Structure and Catalytic Properties in Suzuki-Miyaura Coupling Reactions G.H. Zhang, P.Y. Wang and X.F. Wei	1083
Synthesis and Characterization of Melamine Halogen Acid Salts and its Application as Flame Retardant Y.L. Tan, L. Sun, S.C. Shao, J.P. Fu and Z.H. Peng	1087
Preparation, Characterization and Photocatalytic Properties of Ag-Loaded Bi₂WO₆ X.M. Gao, F. Fu, F.X. Niu and L.P. Zhang	1091
Synthesis of Mesoporous Polyaniline-TiO₂ Composite Microspheres for Gas Sensing Application X.L. Song, C.Y. Yan, S.T. Huang, M.W. Zhang, B.Y. Geng and R.B. Meng	1098
Syntheses, Characterization and Crystal Structure of Zn (II) Complex Constructed from Ferrocenedicarboxylic Acid F.R. Lang and L.Y. You	1104
Preparation and Properties Investigation of Gadolinium Arylate/Hydrogenated Nitrile-Butadiene Rubber Composites Y.H. Hou and X.P. Zhang	1109
Effects of Process Parameters on the Particle Size Distribution of Graphene Oxide Aqueous Dispersion X.B. Hu, Y. Yu, J.E. Zhou and L.X. Song	1113
SiO/C Composite Materials for Lithium-Ion Secondary Batteries J. Wang, J.C. Wei, C.M. Wang and Q.Q. Zhao	1117
Preparation and Growth Characteristics of Mesocarbon Microbeads Z. Wang and C.H. Yu	1121
Novel Copolymers of N-[(4-bromo-3,5- difluorine) phenyl] acryl- amide with Methyl Methacrylate: Synthesis, Characterization and Thermal Properties X.D. Yao, R.N. Fang, H.J. Pang, Z.W. Wang and G.J. Liu	1125
Effects of <i>In Situ</i> Formation of Magnesium Aluminate Spinel on Performance of Modified Sizing Nozzle G.L. Yuan, Q.H. Xue, X. Li and Y. Yang	1130
Effects of Propargyl Alcohol on Electrochemical Behaviors of AZ91 Magnesium Alloy Anode in 3.5% NaCl Solution Z.X. Yu, S.X. Hao and Q.S. Fu	1137

Study of Thermodynamic Properties of Superhard w-BC₂N A.L. Ding, F. Li, C.M. Li, J. Ao and Z.Q. Chen	1141
Physical and Electrochemical Properties of Lithium Iron Phosphate Synthesized by Gel-Solid State Reduction Method H. Xie and J.Z. Liu	1146
Synthesis and Characterization of a Novel Phase Change Luminescence Materials Q.S. Shi, L. Cao, L. Wang, X. Feng, X.Y. Jin and M.C. Zhang	1150
Preparation and Properties of Fluorinated Poly-Acrylate Emulsion with TPG as Co-Solvent C.Y. Deng, G.L. Xu, J. Yang and J. Hu	1155
Synthesis of F-TiO₂ Nanosheets and its Photocatalytic Oxidation of Benzene to Phenol H. Qin, W. Lin, Z.C. Zhang, J.Y. Cheng and Y. Kong	1160
Synthesis and Characterization of a Novel Flame Retardant 1,2-Bis (dimelaminium of 1-nitro-3,5-diphospha-4-oxa-3,5-dihydroxy cyclohexane) Ethane and its Application in PP S.C. Shao, Y.L. Tan, L. Sun, L.H. You and Z.H. Peng	1164
Studies on Magnetorheological Elastomers for Isolators X. Yang, C.G. Shuai and S.L. Yang	1168
Study of the Acoustical Mechanism of Nonwovens by Rank Method S. Yang	1172
Relationship between Fractal Dimension and Structure of Nonwovens S. Yang	1176
The Application of Thermal Analysis to Research on Energetic Materials T. Zhang, M.H. Chen, X.B. Jia, H.N. Jia and Y.K. Chen	1180
Research on Appropriate Additives of Recycling Ladle Lining Materials for Al₂O₃-SiC-C Iron Runner Castable L.R. Wang, R.L. Wang, D.M. Zhao, Y. Cui and J.L. Bu	1184
The Research Status of Spongy Composite in the Wound Dressings C.R. Liu, S.H. Chen, Q.J. Yang, C. Zhou, D.P. Huang, T.H. Zhu, S.Y. Ge, J.H. Whang, J.Z. Lou and J.C. Wang	1188
N-Allyl-N-Methyl Piperidinium Bis(Trifluoromethanesulfonyl) Imide as a Co-Solvent in Li-Ion Batteries J.H. Zhou, C.H. Li and B.B. Yang	1194
First-Principles Calculation of the Electronic Structure of SrTiO₃ J.N. Yun, T. Yin and Z.Y. Zhang	1199
Syntheses and Characterization of Chiral Branched-Arm Liquid Crystals-Basing on Isosorbide as Chiral Core X.Z. He, L.J. Zhang, G.Y. Li, M. Tian and Y.G. Jia	1203
Thickness-Modulated One-Dimensional Periodic Phononic Crystal Y.Z. Xie, H.F. Qi, M. Zhao, H. Fang, J. Gao and X.G. Zhang	1207
Phase Change Materials Applied in Thermal Design S. Yang	1211
High Temperature Proton Conductors and its Preparation H.Y. Zhao, C.B. Bi, Y. Li and X.D. Zhu	1215
High Temperature Proton Conductors Research and Application H.Y. Zhao, Y.L. Wu, Y. Li and C.B. Bi	1219

Chapter 9: Environmental Friendly Materials and Environmental Engineering

Catalytic Synthesis of Benzyl Acetate by Anion Exchange Resin Supported Waugh-Type (NH₄)₆[MnMo₉O₃₂] • 8H₂O S.H. Liu, L.X. Wang, L.L. Guo, H. Yuan and F.Z. Yang	1227
Catalytic Synthesis of Isoamyl Acetate by Ion Exchange Resin-Supported (NH₄)₆[MnMo₉O₃₂] • 8H₂O with Waugh Structure L.X. Wang, S.H. Liu, H. Yuan and L.L. Guo	1231
Green Preparation of an Environment-Responsive Polymer Q. Hou, Z. Zhang, T.T. Yang and Y. Zhang	1235

The Composition of Biomass Cushion Packaging Material and the Study of its Influence on Product Performance	
G. Li, F.Y. Li, N. Xie, K.K. Guan, P. Liu and J.F. Li	1239
Plant Treatments of EAF Slag for its Use as Construction Materials	
Q.X. Yang, B. Haase, F.L. Han, A.J. Xu, F. Engström, J.L. Li and B. Björkman	1244
Elution Efficiency of Herbicides Polluted Soil Samples	
L. Chen, Y.H. Quan, Z.Y. Li and Y. Song	1254
Effect Parameters of Ozonation of Dicamba in Aqueous Solution	
Y.H. Quan, L. Chen, Y. Song and D.D. Zou	1258
Characteristics of Cr (VI) Adsorption in Aqueous Solution by Wheat Straw	
L.X. Peng and Q.A. Lin	1262
Effect of Different Parameters on Particle Diameters of Magnesium Salt Flame Retardants	
X. Zhang, D. Li and H. Xie	1267
Synthesis and Characterization of Novel Degradable Responsive Polyurethane Microsphere	
L.H. Shan, Y.Y. Cui, S. Huang and Z.B. Zhang	1271
Preparation and Photocatalytic Activity of Fe-Ce-N Tri-Doped TiO₂ Catalysts	
Y.Y. Wang, H. Xie, W. Zhang, Y.B. Tang and F.Y. Chen	1276
Kinetics Study on Catalytic Hydrolysis of CCl₂F₂ over Solid Acid MoO₃/ZrO₂	
T.C. Liu, Y.J. Guo, P. Ning, S.P. Ji, B. Li, Z. Yang and H.B. Wang	1283
Comparison of Cu-Co-Mn Mixed Oxides and Hopcalite as Support in Synthesis of Diphenyl Carbonate by Oxidative Carbonylation of Phenol	
H.X. Guo, J.D. Lü, H.Q. Wu, S.J. Xiao and J. Han	1287
Synthesis of Diphenyl Carbonate by Oxidative Carbonylation of Phenol with Pd-Co/Hopcalite	
H.X. Guo, J.D. Lü, H.Q. Wu, S.J. Xiao and J. Han	1292
Study on the Adsorption Characteristic of Steel-Making Slag Haydite for Phosphorus	
X. Liu, X.L. Li, G.P. Cao and S.Q. Han	1296
Solvothermal Synthesis of Carboxyl Functionalized Mesoporous Resins in Microfluidic Chip for Water Treatments	
B.L. Huang, L. Ren, J. Zhao and L.S. Liu	1300
Acceleration of the Degradation of Leachate with Introduced Microbes in Bioreactor Sanitary Landfill	
Y. Liu, Z.P. Qiu and G.C. Wang	1304
Thermal Treatment of Coal-Gangue Activation and Influential Factors	
X.D. Zhu, S. Chen, B.W. Chen and S.J. Gao	1309
Synthesis and Crystallization of Poly(butylenes succinate-block-butylene sebacate)	
Z.H. Kang and C.L. Wang	1313
Biodegradability of Poly (butylene succinate) under Enzymatic Degradation	
B.X. Sun, C.Z. Chuai, S. Luo, Y. Guo and X.Q. Feng	1318
Study on Thermal Analysis Kinetics of Carbon Support	
J. Song, W.L. Jian and L. Wang	1322
Solvent Recovery of Silica Aerogel Monoliths Synthesis and Adsorption of Trivalent Chromium Ions	
J.J. Zhu, W. Wei, Y.Y. Wu, J.M. Xie and M. Chen	1326
PVP-Assisted Synthesis and Enhanced Photocatalytic Activity of Ag/Ag₃PO₄ Composites	
D.L. Jiang, M. Chen and J.M. Xie	1331
Environment-Friendly Dry Vibration Refractories Used for Continuous Casting Tundish	
J.C. Wei, J.B. Tu, Y.L. Wang and L.J. Zhang	1335
Factors Influencing Coking Waste Water by Three-Dimensional Electrode	
Y.N. Jia, S.J. Hao, W.F. Jiang, Y.Z. Zhang and L. Zhang	1339
Fast Removal of Cu (II) from Aqueous Solutions by PET Nanofibrous Membrane Modified with Acryamide	
X.C. Dong, D. Cao, Y. Shi and Z.F. Fu	1343
Effect of Gelatin on Secondary Structure, Crystallinity and Swelling Behavior of Silk Fibroin - Gelatin Hydrogels and its Application in Controlled Release of Nitrogen	
A. Rattanamane, H. Niamsup, L. Srisombat, R. Watanesk and S. Watanesk	1347

Enhanced Cu (II) Adsorption from Aqueous Solutions by Sawdust (<i>Quercus mongolica</i>) Pretreated by Ionic Liquid-Water Mixture	
N.N. Ma, P. Wei, L.G. Wei, Y.C. Ma, K.L. Li, K. Feng and Y.Q. Wang	1354
The Preparation and Characterization of ABC-Shaped Star Copolymer of MPEG-PCL-PBLG	
D.G. Geng, Y.M. Chuan, L.L. Li and M.L. Yuan	1358
Preparation and Characterization of Mesoporous Carbon Materials Based on Hard Coal-Tar Pitch	
G.Y. Xu, J.F. Bai, J. Zhang, L.H. Zhang, R. Ni and W. Dai	1363
Overview on the Treatment Technology of Wastewater from Copper Mineral Processing (WCMP)	
S. Zhao and J.Z. Pan	1369
Research on the Technology and Mechanism of Inhibiting Stickies of Blanket by Enzyme Treatment	
J. Ren, C.S. Zhao and D.M. Yu	1373
A New Green Process for Synthesising High Quality PLLA Materials	
H.L. Shao, X.J. Zhou and X.C. Hu	1377
Isolation and Characterization of a <i>Bacillus flexus</i> Strain Used in Alkaline Wastewater Treatment	
X. Wang and H. Zhao	1381
Alkali Lignin as a Carbonization Agent on the Thermal Degradation and Flame Retardancy of Intumescent Flame Retardant Coating	
L.Y. Jiao and Z.J. Wu	1385
Application of Biochar for Phosphate Adsorption and Recovery from Wastewater	
T. Zhang, C. Fang, P. Li, R.F. Jiang and H.Y. Nie	1389
DSC Studies on the Dyeing Properties of PLA Fiber	
Z.J. Fu, H.F. Huang, L.S. Yu and Y.F. Sun	1393
The Preparation and Sunlight Activity of Nanocomposite Photocatalysts for Degradation of Methyl Orange Solution	
L.M. Duan, J.H. Liu, X.T. Xu, L. Xu and Z.R. Liu	1397
The Application of Modified Nanometer Titanium Dioxide in Degradation of Methyl Orange Solution	
X.Q. Shu and Z.Q. Shan	1401
Synthesis and Identification of Heavy Metal Lead Artificial Antigen	
H.Q. Ye, J.B. Liu, J.X. Wei, M.L. Xu and Y.S. Li	1405
Orthogonal Optimization of Preparation of Aquasorb with Naked Oats Straw Fiber and Performance Research	
Y.L. Wang, L.H. Wang, F.F. Wang and X.S. Zhao	1410
Synthesis and Swelling Behaviors of Wheat Straw Cellulose-g-Poly (Potassium Acrylate)/PDMDAAC Amphoteric Semi-IPNs Superabsorbent Resin	
Y. Su, J. Liu, Q. Li, Q.Y. Yue and B.Y. Gao	1415
The Preliminary Exploring on the Factors Affecting the Performance of Adsorption and Degradation Formaldehyde in Cotton Fabric Treated with Nano-TiO₂ and Activated Carbon	
H. Zhang and L.P. Shen	1420
Removal of Methyl Red from Aqueous Solution by Adsorption onto Mg-Al HTLc	
Y.B. Zang	1426
The Study of Denitration and Mercury Removal from Flue Gas by Biomass Semi-Coke Absorbents	
C.Y. Tang and S.C. Wang	1430
Feasibility Study on Coking Waste Water Treatment by Three-Dimensional Electrode	
Y.N. Jia, W.F. Jiang, S.J. Hao, Y.Z. Zhang and L. Zhang	1437
Evaluation the Influence of Soil Solution Chemistry on Soluble Nickel Toxicity to Bok Choy	
X.Q. Zhang, J.M. Li, B. Li, Y.B. Ma and Z.B. Huang	1441
Color Removal from Dyeing Wastewater by the Polymer of Epichlorohydrin-Ethylenediamine	
C.Z. Sun, X.R. Zhang, Z.B. Zhang and Y.H. Zhang	1448
Removal of As (V) from Drinking Water by Attapulgite Loaded with Fe (III) Adsorbent	
W.P. Zhang, H.B. Xu, J. Wang, J. Wang and B.B. Wang	1452

Test Study on Combined Process of <i>Clarification-Adsorption-Membrane Separation</i> for Chemical Agent VX Polluted Surface Water Treatment	
X.J. Wang, H.W. Zhang, E.F. Chen and Y.Z. Ji	1457

Chapter 10: Biomaterials, Microbiology and Biotechnology

Research of Key Techniques to Improve Quality and Yield in Inositol Production Process	
L.C. Zhao and M.P. Zhu	1463
Methods of Porous Biomedical Material Fabrication	
H.L. Yang, H. Xu, Y.K. Wu, G.Z. Tang, Y.Z. Zhang and Y.G. Li	1468
Effect of Camptothecin on the Embryonic Development and Angiogenesis of Zebrafish Embryos	
C.X. Song, S.L. Song, H. Liang and X. Liu	1472
A Tunable pH-Responsive Nanomaterials for Cancer Delivery	
B. Liu, G.H. Gao, P. Liu, H.Q. Yi, W. Wei, Z.C. Ge and L.T. Cai	1476
The Basically Study on Arenga Engleri Fiber	
X. Liu, Z.H. Wu, C.Y. Cai and F.C. Kuang	1480
Bioactive Component Extraction from <i>Antrodia camphorata</i> Fruiting Body on Artificial Agar Media	
W.L. Weng, H.M. Lo, S.J. Chan and W.H. Liu	1485
Selective Breeding of Oxygen-Tolerant and Oxalate-Degrading Lactic Acid Bacteria by Protoplast Fusion	
S. Chen, Y. Li, W.B. Jin, Y. Chen, X.G. Liu and F.P. Lu	1489
A New Host-Guest Biomaterial Apply for DNA Sequence Electrochemical Detection	
H. Fan, C.H. Feng and Y. Lin	1495
Optimization of Determination Conditions for Protease in Landfill	
H.T. Jiang, Z.P. Qiu, Y. Liu, Z.J. Gong and Y.Y. Liu	1499
New Integration Technology on Preparation of Natural Seleniferous Rice Protein Peptide with Enzyme and Ultrasonic-Microwave Synergistic Technology	
J.W. Hu, X.H. Li and H. Xiong	1505
Parameter Optimization of Biodegradable Polymer Materials Degradation Model Based on ACO Algorithm	
Y. Zhang, Y.H. Zhang and H. Zhang	1511
Expression and Purification of His-chIFN-α and its Antiviral Activity Assay	
Y. Ma, M.H. Long and A.P. Diao	1515
Application of Chelating Agents as Cooking Aids in Bamboo Pulping	
H.X. Gao, W.H. He, X.Q. Guan, C. Liu and B. Yuan	1520
Anti-Fatigue Activity of Pecan Oil in Mice	
W. Zhang, J.J. Xu, Y. Li, X.Y. Zhao and Y.C. Wang	1524
Salidroside Inhibits Endogenous Hydrogen Peroxide Induced Cytotoxicity of Endothelial Cells	
X.Y. Zhao, L.H. Jin, D.J. Wang, B. Xu, W. Zhang and Z.L. Luo	1529
Improvement of Impaired Memory in Mice by Schisandrin	
Y.C. Wang, K. Ren, N. Shen, X.D. Huang and H.Y. Fan	1533
Novel Microwave Carbonization System for Coconut Shells	
P. Payakkawan, S. Areejit and P. Sooraksa	1539
Protective Effect of Schisandrin on Hydrogen Peroxide-Induced Damage in PC12 Cells	
K. Ren, Y.C. Wang and H.Y. Fan	1545
Effects of Radix Platycodonis Polysaccharide on Expressions of IFN-γ, IL-4 and IL-5 in the Bronchoalveolar Lavage Fluid and Nf-κB in the Lung Tissue of Asthmatic Rats	
X.D. Huang, X.Y. Zhao, Y.C. Wang and J. Ying	1549
Study on Purification of Tea Saponin by Foam Separation Method	
J. He, L.F. Cao, Q.Q. Yao, P.F. Xu, N. Yu, Y. Zhou, F. Zhao, Z.W. Hu and Z.Q. Peng	1555
Solid-Liquid Extraction Kinetics of Flavonoids from Okra (<i>Abelmoschus esculentus</i> L. Moench) Pods with Applicability Analysis	
C.S. Zhou, X.J. Yu, H.L. Ma, Z. Zhang, L. Lin, A.E.A. Yagoub and W.Z. Xu	1560
How to Represent Respiratory System take Pathology into Account	
Z.H. He, C.X. Li, N. Yang and Z.H. Ma	1567

Chapter 10: Biomaterials, Microbiology and Biotechnology

Effects of Selenium Application in Soil on Formation of Iron Plaque outside Roots and Cadmium Uptake by Rice Plants	
H. Chang, X.B. Zhou, W.H. Wang, Y.X. Zhou, W.C. Dai, C.M. Zhang and S.H. Yu	1573
A New Rice Husk-Plastic Composite Powder Preparation Process for Selective Laser Sintering Fabrication	
W.L. Zeng, Y.L. Guo, Y. Liu, Y.P. Gong, P.F. Zhao, C.L. Li and J.W. Zhao	1577
Effects of Zein on Film-Forming Ability and Properties of Wheat Gluten Films	
C.H. Zhang, N. Chang, C. Li and X.H. Li	1582
Water Prehydrolysis of Moso Bamboo Dissolving Pulp	
T. Gu, L.Q. Weng and G.X. Xue	1586
Extraction and Antioxidant Property <i>In Vitro</i> of Cordycepin in Artificially Cultivated Cordyceps Militaris	
Y.T. He, X.L. Zhang, Y.M. Xie, Y.X. Xu and J.R. Li	1593
Modified Octyl-2-Cyanoacrylate Tissue Adhesive for the Closure of Long Surgical Incisions	
M.W. Yuan, Y.Y. Qin, M.L. Yuan and H.L. Li	1597
Comparison of Porosity Improvement of Silk Fibroin Membrane Using Polyethylene Glycol and Glutaraldehyde for Increasing Oxygen Permeability	
P. Ratanasongtham, R. Watanesk and S. Watanesk	1601
The Characterization of a New Antibacterial Polyurethane	
Y. Ti, J.R. Wu and D.J. Chen	1609
Determination of Polyphenols in <i>Lycopus lucidus</i> Turcz by Capillary Electrophoresis with Electrochemical Detection	
Y.Y. Peng	1613
Study on Capillary Electrophoresis–Amperometric Detection Profiles from Propolis and its Medicinal Preparations	
Y.Y. Peng	1617
Isolation and Biological Activities of Citral from Sweet Orange Oil	
X.L. Xu, Q. Zhu, H. Lv, W.H. Wu, M. Lv and K.H. Liu	1621
The Formation of Plasma Acid at Atmospheric Pressure and its Application in Hydrolysis of Microcrystalline Cellulose	
B. Yuan, Y. Wang, Y.C. Ji and Q.H. Wang	1626
Dynamic Self-Assembly Process of a Designed Peptide	
L.P. Ruan and Z.H. Xing	1630
The Microstructure and Swelling Properties of Laminated HAp/CS Hydrogels	
G.F. Zuo, H.D. Lun, G.J. Gao and Y.H. Song	1635
A Modified Hydrothermal Synthesis and Luminescence of Hydroxyapatite Doped with Ce³⁺ and Tb³⁺ Ions	
S.H. Wang, Z.G. Liu, Q. Wang, L.R. Yang, F.F. Li, S.W. Yu, X.Q. Liu, P. Zhou and X.X. Feng	1639
PEG-PLGA Nanoparticle Modified by Transferrin Loading Doxorubicin: <i>In Vitro</i> and <i>In Vivo</i> Studies for Glioma	
G.D. Liu, J.N. Mao, T. Sun, Z. Jiang, J. Dong, Q. Huang and Q. Lan	1643
The Primary Investigation on Biological Effect of Mesoporous Bioactive Glass <i>In Vivo</i>	
B.Y. Sui, C.T. Wu and J. Sun	1651
Cu Ion Release and Cell Damage Effect of Cu-Containing IUDs with Different Surface Areas of Copper	
X.M. Zhang, T.T. Ding and J. Sun	1656
Viscosity of Gelatin Solution Containing Cationic Crosslinker	
X.J. Meng, Y.Z. Cui, C.D. Qiao, T.D. Li and J. Xu	1660
Decomposition of Hydroxyapatite in Hydroxyapatite/Zirconia Composites for Dental Applications	
C.H. Leong, K.F. Lim, A. Muchtar and N. Yahaya	1664
Study on Corrosion Property of Fluoride Treated Biodegradable AZ31 Magnesium Alloy	
C.Y. Zhang, Y.L. Ma and C.L. Liu	1669
Synthesis of Poly(ethylene glycol) Derivatives	
H.Y. Chen, Y.K. Shan, Y.Y. Qin, G.X. Zhou and M.L. Yuan	1674

Chapter 11: Chemical Materials and Engineering

Research and Evaluation of High Temperature Plugging Agent P.F. Shen, Y.S. Chen, L. Li, Y. Ni, N. Zhao and W.J. Luo	1685
Carbonization Regime Process of Coal Tar Refined Soft Pitch L.J. Gao, X.F. Zhao, S.Q. Lai and Y.X. Liu	1689
TiO₂ Nanotube Film as the Support of Platinum Electro-Catalyst with Enhanced Electrochemical Activity for Methanol Oxidation Y.P. Luo, S.J. Xu, W. Zhong and Z. Xiao	1696
Effects of Carriers on Amination of Ethanol to Acetonitrile over Catalysts Loaded with Cu J. Deng, H.S. Zhang, Y.F. Hu, Y. Liu and D.D. Wang	1700
Numerical Simulation on the Preparation of Vinyl Acetate Catalyst in Fluidized Bed P. Zhang, K. Cui, N. Xu and G.J. Wang	1704
Synthesis, Structures and Properties of Two New Three-Dimensional Ce(III) Coordination Polymers with 2,2'-Bipyridine-4,4'-Dicarboxylic Acid R.P. Zheng, H.Y. Chen, J.J. He and H.P. Zeng	1708
Experimental Investigation on Coking Characteristics of China RP-3 Kerosene under High Temperature and Long-Duration Conditions N. Wang, J. Zhou, Y. Pan and H. Wang	1712
Modelling of a Monolithic Solid Oxide Fuel Cell G.J. Williams, Y.K. Chen and F.S. Bhide	1718
Analysis of Nitrogen Oxides Formation in CH₄/Air Laminar Premixed Flame J.X. Zhang and B.B. Yang	1734
Adsorption Property of MgAl-NO₃ Layered Double Hydroxides to Methyl Orange J.H. Yan, L.H. Zhang, Y.G. Tang and L. Zhang	1738
Study on a Novel Prerrefining Catalyst for Hydrocracking Process R. Tian, F.C. Wang, W.Y. Liu and X.G. Li	1742
The Research of Mineralizers of the Silicon-chrome-Green Pigment H.Y. Zhang, J.H. Wang, L.L. Wang and J. Du	1746
Synthesis, Characterization and Properties of Arylamine-Acetylene Bridged Tetrahedral Cobalt and Iron Carbonyl Clusters R. Jia, H.Y. Xu, Q. Feng, W.B. Li and B.H. Zhu	1750
Study on the Control of Super-Fine Aluminum Hydroxide Particle Size from Sodium Aluminate Solutions C. Qian, X.Y. Liu, S.X. Hao, T.T. Tang, Y.J. Lan and S. Luo	1754
Experiment Investigation on Spontaneous Combustion of Iron Sulfides' in Oil Tank W.H. Wang, Z.S. Xu, B.J. Sun and D. Liang	1758
Synthesis and Crystal Structure of a Novel 3D Sm(III) Coordination Polymer with Mixed Ligands S.J. Wang, Y.W. Tian, L.X. You and Y.G. Sun	1765
Synthesis and Characterization of 4-Phenylethynylphthalic Anhydride X.L. Meng, Z.Y. Zhao and X.B. Chen	1769
High Active Cu/SiO₂ Catalyst Prepared by Hydrolysis-Polymerization Method for 2-Butanol Dehydrogenation Y.F. Hu, J. Cai, G.S. Jiang, F.P. Ye, Z.Y. Wei and J. Deng	1773
Dehydrogenation of Sec-Butanol to Methyl Ethyl Ketone over Cu-ZnO Catalysts Prepared by Different Methods: Coprecipitation and Physical Mixing Y.F. Hu, G.S. Jiang, J. Cai, J.S. Liu and J. Deng	1778
Structural and Elastic Properties of Antimony Triiodide from First-Principles Calculations X.X. Sun, C.L. Wu, W.W. Chen and H.S. Liu	1782
Preliminary Study on the New Dual-Bed Photocatalytic Hydrogen Production System H.R. Liang, L.J. Guo, W. Yan and Y.L. Liu	1786
Electrochemical Performances of Li₄Ti_{5-x}Al_xO₁₂ (x=0.03, 0.05, 0.10) as Anode Materials for Lithium Ion Battery F. Gu	1791

Synthesis, Characterization, Optical and Electrochemical Properties of Multinuclear Cobaltadithiolene Complex Derivatives Y.F. Zhao, J.H. An, X.M. Kang, Y.N. Wu and B.H. Zhu	1795
Influence of Carbonization Conditions on Mg Ion Concentration in Mg (HCO₃)₂ Solution Y.L. Wang, W.Z. Yin and W.X. Zhong	1799
Synthesis of Monolithic Macroporous Carbon Xerogels from Phenol, m-Cresol, Furfural and Phosphoric Acid by Sol-Gel Approach R. Zhang, Z.J. Hu, S.L. Jin, X. Shao and M.L. Jin	1804
Preparation of Highly Dispersed Pt Supported on γ-Al₂O₃ with Strong Electrostatic Adsorption J.J. Cheng, Y.J. Hou, J. Guo, Y.X. Cai and Y.L. Hao	1812
Preparation and Properties of Gadolinium Homoleptic Double-and Triple-Decker Complexes Containing Tetrabenzoporphyrin Ligand Q.F. Liu	1816
Liquid-Phase Oxidation of Toluene to Benzoic Acid over Manganese Oxide Catalyst X.Q. Li and L.F. Yang	1822
Methanol Dehydrogenation to Formaldehyde over Zinc Oxide-Modified Sodium Carbonate Q.S. Wang, G. Li, M.J. Huang and S.X. Zhou	1826
Preparation of Alcohol-Soluble Polyvinyl Butyral X.H. Zhang, G.L. Yang, J.Q. Hu and C.Y. Zhang	1831
Study on the Photocatalytic Properties with Different Ratio Films of ZnO:Fe₂O₃ G.Q. Hou, S.J. Gao and W.L. Zhang	1836
Synthesis, Crystal Structure and Photoluminescent Properties of a New Uranium-Containing Silicotungstate R.X. Tan, S.X. Cui, H. Wang, Y.P. Jiang and W.Z. Song	1840
Oxidation Kinetics of Magnesium Sulfite in Presence of Synthesized Solid Catalyst L.D. Wang, J.X. Guo, P.Y. Xu, X. Yang and Q.W. Li	1844
Density Functional Theory Study of Intermolecular Interaction between RDX and H₂O X.L. Zeng and X.H. Ju	1848
Study on Gasoline Combustion Dust with ASE and HPLC S.J. Liu, K. Feng, H.N. Xu and Y. Wang	1852
Kinetics of Mesophase Sphere Formation of Toluene Soluble Fraction L. Yue, X.F. Zhao, S.Q. Lai, X.X. Li, L.L. Gao, K. Hou and H.S. Wang	1855
Determination of Inductive Ignition Period and Activation Energy of Food Dust I. Turekova, Z. Szabova, I. Kasalova and T. Chrebet	1860
Characterization of TiO₂/ACF Preparation in Caprolactam Tetrabutyl Ammonium Bromide Ionic Liquid J. Han and C.J. Li	1864

Chapter 12: Thin Films and Membranes

The Magnetisc Study of the ZnO Thin Film with Defects Z.H. Lan, H.F. Zhang and C.Y. Tian	1871
Kinetic Monte Carlo Simulation of Surfactant-Mediated Thin Film Growth X.P. Zheng, P.F. Zhang and P.Y. Wang	1875
Influence of Ti Layer on the Structure and Properties of Al/Cu Thin Film A.N. Yue, K. Peng, L.P. Zhou, J.J. Zhu and D.Y. Li	1879
Effect of H₂ on Microstructures and Properties of AlN Films Deposited by Reactive Magnetron Sputtering C. Jiang, L.P. Zhou, K. Peng, J.J. Zhu and D.Y. Li	1883
Surface Modification of Parylene C Film and Application L.S. Zhang, Y.L. Zhou, Y. Guo and Y. Yang	1887
The Influences of Oxygen Content on Microstructures and Optical Properties of Al₂O₃ Films Deposited by Oxygen Ion Beam Assisted Pulse Reactive Magnetron Sputtering J.X. Wang, Z.M. Wang, Y. Wang, K. Zhao, X.M. Su, H. Wang and Y.D. Feng	1891
Preparation of SiO₂/PMMA Organic-Inorganic Hybrid Membrane via Microemulsion Situ Polymerization Technology M. Lu, Y.Y. Zhou, Y.C. Zhu, J. Lian, T.H. Lin, T. Wang, L.G. Wu and T. Fang	1897

Structure and Photoelectric Properties of Dy Doped CdS Polycrystalline Thin Films K. Zou, R.P. Li, Y.S. Liu, L. Tian and S. Feng	1901
Influence of Substrate Temperature on Properties of Transition Materials from Amorphous to Microcrystalline Silicon Prepared by VHF-PECVD W.M. Wang, H.D. Yang, J.S. Zhang, S. Li, X.R. Luo and S.L. Feng	1906
Temperature-Graded Ferroelectric Thin Films under Two Boundary Conditions H. Chen, X.Y. Bi, L.J. Zhang and Y. Shen	1910
Preparation and Characterization of Electrospun PVDF/PMMA Composite Fibrous Membranes-Based Separator for Lithium-Ion Batteries Y.Z. Liang, S.C. Cheng, J.M. Zhao, C.H. Zhang and Y.P. Qiu	1914
The Preparation and Property Research on Laponite-Poly (L-Lactide) Composite Film G.X. Zhou, M.W. Yuan, L. Jiang, M.L. Yuan and H.L. Li	1919
Impacts of N₂ Import into Reaction System on the Structures and Properties of the Graphite-Amorphous Carbon Films B. Zhang, L. Qiang, X. Ling and J.Y. Zhang	1924
The Structure and Properties Research on Poly(Lactide-Co-Trimethylene Carbonate) Film Prepared by Blow Molding J.P. Chang, H.L. Li, Y.J. Zhang, G.X. Zhou and M.L. Yuan	1930
Preparation and Mechanical Properties Study of Blown Film from Star Copolymer of Poly(Epsilon-Caprolactone-co-L-Lactide) S.Q. Liu, L. Jiang, Y.J. Zhang and M.L. Yuan	1934
Preparation of Polypropylene and Polysulfone Composite Ultrafiltration Membrane through Physical Coating Method F.F. Shao, Y.F. Zhang and L. Ni	1938
Morphology and Properties of a Series of PVDF Blend Membranes J.J. Dong, Y.F. Zhang and D.Q. Liu	1941
Study on Preparation of Nano-Sized Iron Oxide Thin Films and its Modification Y. Zhu and J. Wang	1945
Study on the Key Technology of Membrane Roof Structure of Expo Axis in 2010 Shanghai World Expo H. Song and H.B. Zhu	1949
Research on Electroless Plating of Poly (Ethylene Terephthalate) Films by a New Palladiumfree Activation Process C. Wu, W.X. Ma, Y.P. Chen, Y. Li and Y. Chen	1954

Chapter 13: Surface Engineering/Coatings

Physico-Mechanical Properties of the Cr-C and Mo-C Coatings E.A. Stepanova, I.L. Pobol and J. Rajczyk	1959
Investigation of Surface Nanocrystallization by Pre-Forceing Rolling Technology J.W. He, S.N. Ma and D.M. Ba	1963
The Microstructure Inhomogeneity of the Laser Surface Hardened Layers S. Lei, X.W. Miao, X.J. Liu, L. Huang and Y.B. Wu	1967
The Occurrence and Control of the Surface Defects of Color-Coated Sheets Y.K. Yan, X.H. Li, Y. Ge and W.C. Zhao	1973
Study on Electrochemical Corrosion Behavior Comparison between DLC and TiN Coatings under Different Corrosive Environment W. Zhu, C.Y. Nie, C.H. Ran, Y.D. Jin and Y. Zhao	1977
Improved Wear and Corrosion Resistance of Ni-P Electroless Deposited Coating with RE Added J.Y. Zhang, Z. Yu and D.S. Xiong	1982
A Novel Method for the Measurement of Slight Wear J.H. Yang, X.J. Ma, L.F. Rong, B. Liu, J.Y. Yu and J. Zhang	1987
Applications of Spraying Technology in the Converter Hood Y.H. Lu and X.M. Liu	1992
Effect of Rare Earth Cerium on the Synthesis and Wear-Resistance of Electroless Ni-P-PTFE Coatings D.Y. Liu, L.G. Li and L.S. Liu	1996

The Preparation and Microstructure of DLC Films Deposited through Plasma Electrodeposition in Water/Ethanol Solution F. Huang, B.P. Luo, Y. Xu, H.X. Yu and H. Wu	2003
Microstructure and Erosion Resistance of Hot-Dip-Aluminized 3Cr13 Steel Z.G. Zhao, X.L. Ji, H.S. Wang and S.Q. Wang	2008
Effect of Molybdate Bath Service Life on Corrosion Resistance of Conversion Coating Deposited on Hot Dip Galvanized Steel W.Q. Zhou, L. Sheng, S.G. Xin, J. Wang, Y.H. Kang and S.W. Wu	2012
Corrosion Protection of Molybdenum-Phosphorus Compounds Based Coating Formed on Hot Dip Galvanized Steel in a Cl⁻ Ione Environment W.Q. Zhou, Y.R. Liu, J. Wang, L. Sheng, S.W. Wu and Y.H. Kang	2017
Fabrication of Magnetic Cenosphere Deposited with Fe₃O₄ Nanoparticles by Hydrothermal Method H. Zhang, J.Y. Song and J.C. Zhan	2021
Hyper-Dispersant Modifier Prepared and Applied in Polyethylene Composites S.H. Wang	2026
Dynamic Simulation of Heating Situation of Spraying Powder Z.X. Yue and J.N. Che	2031
Effect of Ni on the Properties of a Laser Surface-Clad Fe-Based Alloy X.Y. Yang	2035
Effect of Calendering Conditions on the Properties of Paper P.T. Liu, X.S. Liu and J.G. Liu	2040
Coating Nano-Nickel Film on Cenospheres by Magnetic Sputtering Method Z. Xu, X.Z. Yu and Z.G. Shen	2044
Effects of Vanadium on Microstructure and Properties of a Fe-Cr-W-Mo-V Overlaying Alloy Y.F. Xiao, Z.W. Hou, F. Tang, J.X. Gong and Y.H. He	2048
The Effect of Different CeO₂ Addition on Performance of Ni-WC Composite Coating by Vacuum Fusion Sintering L. Miao, Y.N. Wang and Y.H. Li	2052
Preparation and Characterization of UV-Curable Talc/Acrylate Composite Coatings with Enhanced Flame-Retardancy X.Y. Sun, J.L. Kang, J.Z. Hang, L.J. Jin, F. Xu and L.Y. Shi	2057
Electroless Nickel Plating on ME20M Magnesium Alloys with an Environmentally-Friendly Pretreatment C.T. Guo, S.G. Xin and Q. Huang	2063
Effect of Stabilizers on Electromagnetic Property of Electroless Ni Coating on Aluminum Powder Z. Li, Z.D. Xia and X.Y. Wang	2070
Effect of Temperature Induced by Laser Irradiation Processing on Fatigue Damage Repairing for Copper Thin Film L. Wang, D.G. Shang, C.G. Ren, Y.B. Guo and T. Chen	2074
A Newly Developed Self-Bonded SiC Refractory L.G. Wan, Z.G. Huang, S.R. Song, J.P. Wang and J. Li	2078
Study of Metal Friction Materials Using Hot Press S.Y. Luo and C.Y. Bai	2084
Computational Simulation and Prototype Testing of Nanocoating on Products in Aerospace Industry J.Z. Li	2088
Microstructure and Oxidation Resistance of TiN Coatings G.Z. Nie, C.L. Zhong, L.E. Luo, R.L. Zhou and Q. Liu	2092
Electrochemical Impedance Spectroscopy Study of Nano-Materials Modified Fluorocarbon Coating of Metal Surface P.Y. Xu, X.B. Dong and Y.Q. Li	2096
Synthesis of Carbon Nanocoatings on YG8 Hardmetal Substrates in Oxygen-Acetylene Flame H.M. Zhu, S.M. Lei and T.C. Kuang	2100

Investigating the Application of Nanoscale Bilayers Assembly on Stainless Steel Plate to Evaporation Behavior	
S.C. Wu, C.T. Hsu, W.H. Yang, D. Wang, H.S. Li, Z.Y. Huang, S.J. Su and Y.M. Chen	2104
Mechanism and Experimental Research on Improvement in Conductive Performances of ZnO Coated Tourmaline Powder	
X.H. Zhang and R.H. Wu	2108
Microstructure and Wear Resistance of ZrC Reinforced Metal Matrix Composite Coating by Gas Tungsten Arc Cladding	
Z.T. Wang and J.X. Fan	2113
Effect of N₂ Flow on Microstructure, Mechanical Properties and Oxidation Resistance of CrN_x Coatings	
G.Z. Nie, C.L. Zhong, L.E. Luo, R.L. Zhou and Q. Liu	2117
Preparation of Ceramic Surface Hydrophobic Coating by Sol-Gel Method	
S. Geng, Z.S. Zheng and X.Y. Hou	2121
Effect of MgO Coating on Whisker Preform Strength of Aluminum Matrix Composite Fabricated by Squeeze Casting	
L. Zhang, R.W. Zhang, L.D. Wang, Y.J. Qiao, S.C. Xu and W.D. Fei	2126
Study on Technology of Multi-Trace Overlapping and Rapid Prototype by Broad-Beam Laser Cladding	
Y.S. Zhang, G.Y. Fu, F. Cao and J. Li	2131

Chapter 14: Other Areas of Materials Science

Correlative Study of the Fabric Properties and the Shrinkage of Gather	
Z. Li	2137
The Application of New High-Strength Polyester Fiber Flexible Net for the End Coal Mining Through	
Q.T. Duan, G.Y. Shang, Z.H. Xu and X.W. Zhang	2141
Analysis on Development Status and Trend of Vehicle Materials Your	
Y.Z. Li and Z.H. Ding	2145
The Research on the Friction and Wear Behavior of FKM/NBR Blends under Water Lubrication	
Y.Z. Zhang, M.Y. Yan, S.J. Wang and X.R. Lv	2150
Pressure Measurements of Aluminized Explosives Detonation Front with Different Aluminum Particle Size	
H.B. Pei, Q.J. Jiao and Z.X. Jin	2156
Failure Analysis on Boiler Industrial Extraction Steam Pipe	
X.X. Xu, Y.T. Feng, Y. Wang, H. Ke, X.G. Niu and X.J. Hao	2160
Constitutive Equation of 5Cr21Mn9Ni4N Valve Steel during Hot Compression	
Y.Q. Cheng, Z.R. Zhang, M.Y. Zheng and D.Q. Mo	2165
Corrosion Failure Analysis of a Colored Steel Plate Used as the Workshop Roof	
J.B. Shi, W.M. Guo, Y.D. Li, N. Xu, X.F. Wu and Q.S. Zang	2170
Study and Evaluation on Dispersion of Molybdenum Disulfide in Aqueous Solution	
C. Wu, S.X. Hou, H.Q. Zhang and X.M. Jia	2175
Influence of the Cathodic Charging Current on Electrochemical Behaviors of X80 Steel in an Simulated Acidic Soil Solution	
J. Zhang, J. Li, Q. Hu and F. Huang	2179
Theoretical Model Research of Metal Rubber Material	
Y. Yang, J.Y. Tian, S. Zhang and C.G. Zhang	2183
Research on Performance of the Cu-Based Friction Materials Repaired by Spark Plasma Sintering	
J.H. Du, Y.W. Liu and C.C. Jia	2187
A Preliminary Study on Preparation of MgAlON Refractory	
F. Gao, R. Liu and X.J. Wang	2191
A Nonlinear Viscoelastic and Micromechanical Damage Constitutive Model for Solid Propellant	
Z.X. Gu, J. Zheng, W. Peng, X.N. Tang and J.H. Yin	2196

Analysis of Fracture Behavior of Metal/Ceramic Functionally Graded Materials under Thermal Stress C. Fan	2200
Effect of Helium on Stabilizing Vacancy Configuration in Delta-Plutonium G.X. Ji, R.S. Li and B. He	2206
Finite Element Analysis of Thermal Stress for Femoral Prosthesis M.N. Wang	2212
The Feasibility Study on Stability of the Propellant GLQ by Testing the Content of the Centralite in with Gas Chromatography Test G.E. Lu, C. Chen and H.N. Jia	2216
The Pore Structure Multifractal Research of Low Silicon Sinter Q.J. Zhang, Q. Liu, C.L. Yan and Y.Z. Zhang	2221
Phase Difference Technique for Material Classification by Using Tuning Fork with Piezoelectric Resonator S. Areejit, P. Sooraksa and H. Aoyama	2225
Cyclic Voltammetric Studies of the Behavior of Pb-0.3%Ag-0.06%Ca Rolled Alloy Anode during and after Zinc Electrowinning H.T. Yang, H.R. Liu, Y.C. Zhang, B.M. Chen, Z.C. Guo and R.D. Xu	2232
Phase Composition Analysis of Recycled MgO-C Ladle Lining Materials J. Zhang, J.L. Bu, L.R. Wang and R.L. Wang	2236
A Study on Suizhong 36-1 Oil Field Acid Sludge Formation Influence Factors J.G. Wang, N.N. Zhan, W.X. Zhao, Z.J. Chang, Z.Z. Fan and X. Wang	2240
Jet Blast Resistance Experiment of Engineered Material Arresting System X.B. Xiao, X.J. Kong, Y.J. Shi and S.Y. Yao	2244
QSPR Study on Gross Heat of Combustion of Nitro Aromatic Compounds Based on Genetic Algorithm R. Wang, H.Y. Cao, Q.S. Kang and Z.M. Li	2248
The Corrosion Failure Analysis of Plate Pipe for Plate Heat Exchanger W.M. Song, G.R. Yang, Y. Hao and Y.F. Zhang	2252
The Effect of Corrosion Inhibitor in Hydrofluoric Acid Medium W.M. Wu, D. Li and H.Y. Du	2258
The Study on the Dynamic Response Performance of PEMFC Stack with Electrodeposited Pt/C-RuO₂·xH₂O Electrode L.B. Fu, L. Lu, H.F. Xu, H. Zhao and R.M. Ren	2263
Calculation and Analysis of Multifractal Spectrum of Sinter Surface Z.M. Cui, R.L. Sang, Y.L. Li and Q.J. Zhang	2267
Two Temperature Model Numerical Simulation and Analysis of Thermal Transport Process in Copper Film F.D. Zeng, Y.P. Han, J.X. Wang and S.Z. Wang	2271
Study on the Properties of the SPPs Self-Interference W.J. Ma, W.D. Zou and W.H. Wang	2275
Variation of Surface Tension of Water in High Magnetic Field L. Chen, C.J. Li and Z.M. Ren	2279
Research on the Relationship between Changes of Active Groups and Gaseous Products in Different Temperatures F.S. Wang, Y.N. Meng and X.R. Hou	2283
Optimization of Shot-Peening Conditions and Wave Profiles to Improve Durability of Wave Cushion Spring T.I. Seo, B.U. Song and Y.S. Jeong	2287
The Statement of Material Mix-Match in Jewelry Design H.Y. Xue and Y.Y. Jiang	2291
Development of the Woolen 48Nm Cashmere Yarn L.X. Huang	2303
The Effect of Steam Explosion Treatment on the Separation of Lotus Fiber B.Z. Yuan, G.T. Han, Y. Pan and Y.M. Zhang	2307
Research on Structure and Properties of Camel Wool H.J. Li and K.K. Guo	2313

Antimicrobial Treatment of Bamboo Blending with Cotton Carpets Using Modified Chitosan	
L.Z. He, G.Q. Shao, S. Wang and Z.H. Chen	2317
Development of Bamboo Charcoal Fiber Blended Anti-Ultraviolet Fabric	
G.F. Yao	2323
Study on Coiled Fiber Height Distribution of Variable Cashmere Surface	
L. Yang, J.Z. Yang and L. Li	2327
Production of Sugar Beet and Maize as Energy Crops in Saline Alkali Soil	
G. Geng, F.Q. Song, F.S. Yang, L.H. Yu, T.J. Wang, Z. Pi, C.X. Peng, Y. Yang, F. Sun, Z.W. Sun and H.J. Zhao	2331
Effects of 1-MCP and Controllable-Release SO₂ Packaging on Cold Preservation of Grapes (C.V. Muscat Hamburg)	
Y.R. Jiang, Y.B. Fu, D.L. Li and W.C. Xu	2335
Adhesion Properties of Pigment Dyes Using Ultrasonic Energy	
X.J. Rao, Q.Y. Hu, L.J. Li, F. Xiong and G.Y. Cao	2340
Influence of Fabric Textures on Pilling Performance of Wool Sweaters	
W. Zhang	2344
Effect of Subsoiling Cultivation on Corn in Semi-Arid Region of Western Liaoning Province	
J. Gu, G.H. Yin, L. Hao, P.F. Cong, G.F. Li and Z.X. Liu	2348
Effect of Technology Factors on the Resin Impregnation Results of Poplar	
J. Han, K.N. Liu and X.T. Gao	2352