Table of Contents

Preface

Chapter 1: High Performance Structural Alloys, Properties and Processing Technologies

Effects of the Delivery Tube Diameter on the Qualities of Cu-9.7Sn-0.2P Alloy Powder Produced by Gas Atomization	
Y.W. Cheng, Z.Y. Xiao and H.P. Zou	3
Effect of Cold Rolling Reduction on Recrystallization Behaviors of AA5754 Sheets in a Short Annealing Time Z.S. Liu, P.Z. Zhao and J.W. Zhao	11
Property Requirements and Research Progress of Aluminum Alloy Sheets for Automotive Closure	
M.T. Ma, J.P. Zhang, J. Zhou and H.Z. Lu	18
Thermal Deformation Behavior and Processing Map of Al-Mg-Er Alloy R. Liu, H. Huang, Y. Liu and L. Rong	30
Bake Precipitation Behavior in AA5182 Sheet for Can End Stock Y. Yang, P.Z. Zhao, L.Y. Zou and R.H. Fan	37
Hot Compression Deformation Behavior and Microstructural Evolution of Al-7.5Zn-1.5Mg-0.2Cu-0.2Zr Alloy	
J.L. He, D.T. Zhang, W. Zhang and C. Qiu	43
Effect of Cold Deformation and Annealing on Microstructure and Mechanical Properties of 5083 Aluminum Alloy Sheets J.X. Wu, C. Gao, R.Y. Huang, Z.S. Liu and P.Z. Zhao	49
Microstructural Changes and Thermal Stability of A201, 319s and 2618 Aluminum Alloys	.,
during Thermal Exposure J.Z. Gao, Q. Zhu, D.Q. Li and Y.L. Kang	55
Deformation Behavior and Microstructure Evolution of 6063 Alloy during Hot	
Compression Z.H. Yu, D.T. Zhang, W. Zhang and C. Qiu	63
Trace Al-Ti-C-Ce on Solidification Structure Transformation and Fracture Properties of	
Al-Cu-Mn Alloy T.B. Guo, C. Wang, Q. Li, F. Zhang and W.W. Ding	69
Effect of Equal Channel Angular Pressing on Microstructure and Mechanical Properties of ZL205A Alloy	
T.B. Guo, Q. Li, C. Wang, S.R. Wei and Y.B. Wu	77
Effects of Mechanical Vibration on Double Curvature Creep Aging Forming of 2124 Aluminum Alloy	
Y. Wang, Y.L. Deng, J. Zhang, Y. Zhang and X.M. Zhang	83
Aging Behavior of A356.2 with Yb Modified S.C. Zhang, Z.B. Wang, Y.F. Dong, K. Wang, Q. Wang and J.F. Leng	90
An Experimental Platform for Controlled Solidification and Heat Treatment and its	, ,
Application in TiAl Alloys G. Yang, H.C. Kou, J.S. Li and H.Z. Fu	96
Superplastic Deformation Behavior and Cavity Formation of Ti55 Titanium Alloy Z. Liu and P.J. Li	102
Effects of Heat Treatment on Microstructures and Mechanical Properties of Ti-38644 Alloy for Aerospace Fasteners	
Q.Y. Zhao, S.R. Cheng, L.D. Wang, L.M. Dong and F.L. Liu	109
Characteristics and Evolution Mechanism of Solidification Microstructure for Laser Additive Manufactured Ti ₂ AlNb-Based Alloy Y.J. Tang, Y.Z. Zhang, Y.T. Liu and W. Pan	118
On the Partial Pressure Measurement and Activity Calculation of Mn in the Ni-Cr-Co-Mo	110
Alloy Melt Y.Q. Yang, B. Chen, M.S. Zhang, Y.C. Ma and K. Liu	126

Microstructure Analysis and Creep Behaviour Modelling of Powder Metallurgy Superalloy W.Y. Xu, Z.C. Peng, M.Z. Li and M.S. Pham	134
Effects of Phosphorus on Microstructure and Mechanical Properties in NiCr Alloys X.T. Lian, W.R. Sun, X. Xin, D.D. Zheng and S.R. Guo	141
Segregation and Precipitation Behavior of Phosphorus in a Ni-Fe-Cr Base Wrought Superalloy S. Zhang, A.W. Zhang, W.Y. Wang, X. Xin and K. Zhang	150
Effect of Extrusion Texture on Mechanical and Electrochemical Properties of Aluminum Alloy Drill Pipe	150
X.H. Wang, Z.W. Peng, G.X. Li, Y.H. Lin and H.L. Wang Numerical Simulation of Combustion Resistant Titanium Alloy Wear Behavior at High	157
Temperature Fields X.Y. Liang, G.B. Mi, L.J. He and P.J. Li	168
Effects of Extrusion-Shear and Direct Extrusion on the Plastic Deformation of AZ31 Magnesium Alloy H.J. Hu, Z. Sun and D.F. Zhang	176
Effect of Welding Parameters on Defects and Fracture Behavior of Friction Stir Welded 2195-T8 Al-Li Alloy Joints Y. Wu, H. Mao, Q.B. Yang and Z.Q. Zhang	182
Effect of Planar Anisotropy and Tension-Compression Asymmetry of CP-Ti on its Deep Drawing Behavior at Room Temperature	102
Y.G. Hao, P. Lin, B.Y. Zhang, X.L. Cui, C.J. Zhang and C.Z. Chi Effects of Solid Solution and Aging Treatment on Texture Evolution and Properties of Cu-	190
Ni-Si Alloy Z.J. Xu, Y.L. Chen, L. Su, H. Wei and Z.S. Liu A Comparative Study on the Friction and Wear Properties of Three Different Copper	196
Alloys D.M. Liu, Q.S. Wang, W. Yuan and X.J. Mi	205
Experimental Study and Numerical Simulation of Microstructure Evolution in Al-Si Eutectic Solidification Process B. Wu, A.L. Jiang, H. Lu, H.L. Zheng and X.L. Tian	212
Influence of Silicon on Nucleation and Growth Process of Spherical Graphite in Ni-C Alloys Solidification Structure	220
D. Meng, X.T. Wang, H.L. Zheng and X.L. Tian Effects of Process Parameters on Morphologies and Microstructures of Laser Melting	220
Deposited V-5Cr-5Ti Alloys L.R. Bai, G.M. Le, J.F. Li, X. Liu and X.Y. Li	227
Chapter 2: Steels and Structural Metals, Properties and Processing Technologies	
Rate Theory for Dislocation Loops Evolution in AL-6XN Austenitic Stainless Steel under Proton Irradiation	
Y.X. Yu, L.P. Guo, Z.Y. Shen, Y.X. Long, Z.C. Zheng and R. Tang Fatigue Mechanism of Domestic 316LN Stainless Steel in Simulated AP1000 First-Loop	237
Water Environment W.H. Zhong, Z.F. Tong, Z. Wang, J.X. Li and W. Yang Influence of Wayer Defauration on Studie Induced Mantancite Releasing of 21(I. Steinless	247
Influence of Warm Deformation on Strain-Induced Martensite Behavior of 316L Stainless Steel D. Zhang, H.B. Wu, G. Niu, D. Tang and N. Gong	254
Formation of Face Centered Cubic Titanium Thin Films on MgO(111) Single Crystal Substrate	264
L. Li, Y. Liu, X.N. Mao and V. Ji Effect of Annealing Temperature on Microstructure and Properties of Ultra Purified Ferritic Stainless Steel Containing Copper	
H.X. Yin, Y. Wu, A.M. Zhao, Z.Z. Zhao and Q.Q. Fu Microstructure Evolution of Copper Strip during Continuous Extrusion and Rolling	270
Forming X.B. Yun, T. Tian, H. Zhan, C. Wang and Y. Zhao	277

Effect of Copper and Annealing Dew Point on Oxidation Behavior of C-Si-Mn Steels G.R. Jiang, H.Q. Wang and L.B. Liu	286
Bare Spot Defect on a Hot Dip Galvanized DP Sheet Strip Q.W. Wu, A.M. Zhao, S. Yao and Z. Li	294
Effect of Slab Centerline Segregation on DWTT Properties of 22mm Thick X80M Hot Rolled Steel Strip	204
H. Wang, Y.P. Bao, M. Wang, H.H. An and C. Su Effect of Ultra-Fast Cooling Rate on the Microstructure and Mechanical Properties of High Strength Cold-Rolled Sheet under Continuous Annealing K. Zhang, R.B. Song, F. Gao, W.J. Niu and C. Chen	304
Microstructure and Properties of HAZ in Low-Carbon Bainite E550 Steel during Double-Pass Welding Thermal Cycle Y. Zong and C.M. Liu	317
Nondestructive Evaluation Method of Average Grain Size in TWIP Steel by Laser Ultrasonic Y.J. Zhang, X.C. Wang, Q. Yang, R.J. Xue and A.M. Yin	324
Strain-Hardening Properties of High Grade Line Pipes L.K. Ji, H. Feng, J.M. Zhang and H.Y. Chen	331
Transfer Welding Process and Microstructure and Properties of Titanium/Steel Clad Pipe Z.Y. Bi and J. Yang	340
Simulation Study on Heating Process of Hot Rolled Steel Strip for X80M Pipeline Steel J.G. Wang, H. Wang, Y.P. Bao, M. Wang and G. Jing	349
Development of Domestic CT80S Sulfur Resistance Coiled Tubing Z.W. Yang, H.B. Li, J.L. Wang and Z.Y. Bi	355
Chapter 3: Functional Coatings, Claddings, Surface Treatment and	
Corrosion Behavior of Structural Materials	
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr- Ti-Al Alloy	
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr-Ti-Al Alloy J.H. He and X.P. Guo Bio-Inspired <i>In Situ</i> Fabrication of 11-Mercaptoundecanoic Acid Coating on Stainless Steel 304 for Corrosion Protection	365 375
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr- Ti-Al Alloy J.H. He and X.P. Guo Bio-Inspired <i>In Situ</i> Fabrication of 11-Mercaptoundecanoic Acid Coating on Stainless Steel	365 375 384
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr-Ti-Al Alloy J.H. He and X.P. Guo Bio-Inspired In Situ Fabrication of 11-Mercaptoundecanoic Acid Coating on Stainless Steel 304 for Corrosion Protection S.T. Sun, Y.H. Lei, T. Liu, R.H. Fan and S.B. Sun A Thick Al-Based Composite Coating Cladded by the Amorphous Powder Y.T. Wang, L.L. Tao and J.W. Mo Wear Resistance of a Large Thick Fe Based Amorphous Composite Coating Deposited by Laser Cladding	375 384
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr-Ti-Al Alloy J.H. He and X.P. Guo Bio-Inspired In Situ Fabrication of 11-Mercaptoundecanoic Acid Coating on Stainless Steel 304 for Corrosion Protection S.T. Sun, Y.H. Lei, T. Liu, R.H. Fan and S.B. Sun A Thick Al-Based Composite Coating Cladded by the Amorphous Powder Y.T. Wang, L.L. Tao and J.W. Mo Wear Resistance of a Large Thick Fe Based Amorphous Composite Coating Deposited by Laser Cladding Y.T. Wang, J.W. Mo and L.L. Tao Electrodeposition and the Optimization of Molybdenum Layer on Nb-Ti-Si Based Ultra-High Alloys from Aqueous Solution	375 384 390
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr-Ti-Al Alloy J.H. He and X.P. Guo Bio-Inspired In Situ Fabrication of 11-Mercaptoundecanoic Acid Coating on Stainless Steel 304 for Corrosion Protection S.T. Sun, Y.H. Lei, T. Liu, R.H. Fan and S.B. Sun A Thick Al-Based Composite Coating Cladded by the Amorphous Powder Y.T. Wang, L.L. Tao and J.W. Mo Wear Resistance of a Large Thick Fe Based Amorphous Composite Coating Deposited by Laser Cladding Y.T. Wang, J.W. Mo and L.L. Tao Electrodeposition and the Optimization of Molybdenum Layer on Nb-Ti-Si Based Ultra- High Alloys from Aqueous Solution G. Yue and X.P. Guo Efficient Micro-Arc Oxidation Technology for As-Cast AZ80 Magnesium Alloy	375 384 390 396
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr-Ti-Al Alloy J.H. He and X.P. Guo Bio-Inspired In Situ Fabrication of 11-Mercaptoundecanoic Acid Coating on Stainless Steel 304 for Corrosion Protection S.T. Sun, Y.H. Lei, T. Liu, R.H. Fan and S.B. Sun A Thick Al-Based Composite Coating Cladded by the Amorphous Powder Y.T. Wang, L.L. Tao and J.W. Mo Wear Resistance of a Large Thick Fe Based Amorphous Composite Coating Deposited by Laser Cladding Y.T. Wang, J.W. Mo and L.L. Tao Electrodeposition and the Optimization of Molybdenum Layer on Nb-Ti-Si Based Ultra-High Alloys from Aqueous Solution G. Yue and X.P. Guo	375 384 390
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr-Ti-Al Alloy J.H. He and X.P. Guo Bio-Inspired In Situ Fabrication of 11-Mercaptoundecanoic Acid Coating on Stainless Steel 304 for Corrosion Protection S.T. Sun, Y.H. Lei, T. Liu, R.H. Fan and S.B. Sun A Thick Al-Based Composite Coating Cladded by the Amorphous Powder Y.T. Wang, L.L. Tao and J.W. Mo Wear Resistance of a Large Thick Fe Based Amorphous Composite Coating Deposited by Laser Cladding Y.T. Wang, J.W. Mo and L.L. Tao Electrodeposition and the Optimization of Molybdenum Layer on Nb-Ti-Si Based Ultra- High Alloys from Aqueous Solution G. Yue and X.P. Guo Efficient Micro-Arc Oxidation Technology for As-Cast AZ80 Magnesium Alloy Y.F. Chen, J.X. Zhou, X.C. Song, H.T. Liu and Y.S. Yang Morphology and Microstructure of Tungsten Films by Magnetron Sputtering J.G. Yu, W.J. Han, Z.C. Sun and K.G. Zhu Understanding the Inhibition Mechanism of a Supramolecular Complex as the Corrosion Inhibitor for Mild Steel in the Condensate Water	375 384 390 396 406 416
Microstructure and Oxidation Resistance of Y Modified Silicide Coatings Prepared on Zr-Ti-Al Alloy J.H. He and X.P. Guo Bio-Inspired In Situ Fabrication of 11-Mercaptoundecanoic Acid Coating on Stainless Steel 304 for Corrosion Protection S.T. Sun, Y.H. Lei, T. Liu, R.H. Fan and S.B. Sun A Thick Al-Based Composite Coating Cladded by the Amorphous Powder Y.T. Wang, L.L. Tao and J.W. Mo Wear Resistance of a Large Thick Fe Based Amorphous Composite Coating Deposited by Laser Cladding Y.T. Wang, J.W. Mo and L.L. Tao Electrodeposition and the Optimization of Molybdenum Layer on Nb-Ti-Si Based Ultra- High Alloys from Aqueous Solution G. Yue and X.P. Guo Efficient Micro-Arc Oxidation Technology for As-Cast AZ80 Magnesium Alloy Y.F. Chen, J.X. Zhou, X.C. Song, H.T. Liu and Y.S. Yang Morphology and Microstructure of Tungsten Films by Magnetron Sputtering J.G. Yu, W.J. Han, Z.C. Sun and K.G. Zhu Understanding the Inhibition Mechanism of a Supramolecular Complex as the Corrosion	375 384 390 396 406

Chapter 4: Functional Ceramics and Composite Materials

Effect of WC Additive on Microstructural Evolution and Properties of TiC Steel-Bonded Carbide	
H.W. Li, G.P. Li, L.B. Guo, F.H. Luo, X.B. Wang and S.T. Wang	453
Effects of Lanthanum Substitution on Dielectric, Ferroelectric and Electro-Optic Properties of Slim-Loop PLZT Ceramics X. Zeng, W.X. Cheng, P.S. Qiu and X.Y. He	459
Preparation and Characterization of Mechanical Properties of Hydroxyapatite/Carbon Nanotube Laminated Ceramic Composites Consolidated by Spark Plasma Sintering Y. Meng, W.J. Qiang and J.Q. Pang	466
Raman/Infrared Spectra and Microwave Dielectric Properties of 0.22CaTiO ₃ -0.78(Li _{0.5} Sm _{0.5})TiO ₃ Ceramics with MgO Additive F.F. Ning, J. Jiang and T.J. Zhang	473
Effects of Different Matrix on Interface and Compression Fracture Behavior of WC Particles Reinforced Iron Matrix Composites F.R. Chen, Z.L. Li, Q. Shan, Y.H. Jiang, Y.F. Zhang and F. Zhang	480
The Structural Evolution of Al-6Y-2P Master Alloy and its Influence on the Refinement of Mg ₂ Si Phase in Mg ₂ Si/Al Composites L.Y. Pan, H.Q. Yu, S. Jiang, L.Y. Wang and M. Zuo	490
Establishment of Processing Maps for 25vol.% B ₄ C _P /AA6061 Composite and its Application in Hot Pack-Rolling Process	
S.P. Liu, D.F. Li, S.L. Guo and P. Du A Facile Method of Preparing Core/Shell Cu@Mo Powders	498
D.Z. Wang, Y.Q. Zhang and B.H. Duan	509
In Situ Synthesis and Structural Design of Ti/TiC Functionally Graded Materials Q. Jin, X.P. Ren, H.L. Hou, Y.L. Zhang and H.T. Qu	515
Microstructure and Mechanical Properties of AlN Particle Reinforced Mg-Al Matrix Composites with Different Particle Contents Y. Wang, K.M. Cheng, J.X. Zhou, W.H. Li and J.H. Xia	522
Effect of Carboxylic CNTs Filling on Mechanical Behaviors of Basalt Fiber/Epoxy Composites	
Z.M. Yang, J.X. Liu, X.Y. Feng, S.K. Li, X.L. Wang and Y.J. Gao	529
Machinability for C/SiC Composite Material by Electrical Discharge Machining Y.F. Zhang, W.W. Chen, H.W. Cheng and Y.P. Zhang	536
Interfacial Microstructure and Formation Mechanism of Zirconia Ceramic and Nb Brazed with Ag-Cu-Ti Powder without and with Mo-Particle-Reinforced N. Wang, D.P. Wang, Z.W. Yang and Y. Wang	542
Effect of Modified Diatomite on Crystallinity and Mechanical Properties of Polypropylene Y. Zhao, M. Du, K.X. Zhang and L. Gao	551
3D Printing of Carbon Fiber Reinforced Plastics and their Applications W.D. Zhou and J.S. Chen	558
Interfacial Effect on Mechanical Properties of Polypropylene Ternary Nanocomposites W. Wang, W. Wang, D. Lv and J.S. Wu	564
Chapter 5: Computational Procedures in Materials Science	
Structures, Mechanical Properties and Band Structures of Pentagonal $\mathbf{B}_x\mathbf{N}_y$ Monolayers L.Z. Liu, Q.T. Pang and Y. Liu	573
First-Principles Study of the Effect of Cr Content on Interstitial Oxygen Solution Behavior in Nb-Cr Alloys J. Wang, L.M. Yu, Y.C. Liu, C.X. Liu, H.J. Li and J.F. Wu	582
Thermodynamic Calculation of Liquidus Projection of Multiple Aluminum Alloys	
J.R. Zhao, K.M. Cheng, Y. Du and L.J. Zhang Stability, Mechanical Properties and Electronic Properties of X ₃ Si (X=V, Nb, Cr, Mo and	589
W) from First Principles Calculations H. Wei, Y.L. Chen and L. Su	596
Tensile Properties of Carbon Nanoring Linked Graphene Sheets: A Molecular Dynamics Investigation	
G. Shi, Y.L. He, J.W. Zhang and D.Z. Jiang	607

CRSS of Mg-X(X=Zn, Y) Binary Solid Solution via First-Principles Study S.Q. Luo, A. Tang, B. Jiang, R.J. Cheng and F.S. Pan	614
Design of New Weathering Steels through Thermodynamic Model of Nitrogen Solubility and CALPHAD	
J. Cheng, Y.H. Guo, M. Liu and H.F. Shen	620
Influence of Initial Defects on the Mechanical Properties of Single Crystal Copper: Discrete Dislocation Dynamics Study M.Y. Zhang, M. Zhong, S. Yuan, J.S. Bai and P. Li	627
CBED and EELS Measurements of Post-Irradiated Aluminum Specimen Thickness R.G. Jia, C.H. Zhang, X. Fu and T.D. Ma	636
Cascade Collision near the Grain Boundary of Fe-Cr Alloy by MD Simulation D. Mo, J. Cai, Y.L. Li and Y.D. Wang	642
Chapter 6: Advanced Functional Materials	
Magnetic Properties of Pure Iron with Respect to Different C/Si Ratios and Grain Sizes Q. Liu, Z.Y. Chen, S.F. Yang and J.S. Li	653
Iron-Based Amorphous Magnetic Properties by Ni Content Tuning and Isothermal Treatment	
P.F. Liu, W.J. Chen, J.J. Li, R.L. Zhou and B. Zhang	661
A Centimeter-Size High Toughness Zr-Cu-Al-Nb Bulk Metallic Glass with Nano-Crystallization and Phase Separation C. Chen, X.D. Jia, H. Zhang, R. Wei and F.S. Li	668
Effect of Service Environment on Mechanical Properties of FeCoNiCrAl _{0.1} Alloy Y.X. Chen and X.N. Qiang	674
Y-Ray Shielding Performance and Mechanical Properties of Mortar Strengthened by Amorphous Alloy Fibers P.H. Cao, H. Wang, Y. Wu, X.J. Liu and Z.P. Lu	682
Effect of Annealing Time on the Magnetic Properties of FeNiCuNbSiB Dual-Phase Alloys Z. Li, K.F. Yao, D.R. Li, X.J. Ni and Z.C. Lu	691
Preparation and Sorption Properties of Zr-Co-Ce Getter Films H.T. Wu, J.D. Cui, Y.H. Xu and X.Q. Xu	700
Easy Preparation of Bacterial Cellulose/Triamcinolone Acetonide Composites and their Inhibition for Fibroblasts M.Y. Jin, S.Y. Chen, B.X. Wang and H.P. Wang	707
Glucose-Responsive Hydrogels Based on Phenylboronic Acid Y.Y. Ma, H.T. Liu, J.H. Ma and J.H. Gong	714
Synthetic Comb-Like Phase-Change Material Poly(Acrylonitrile-co-Lauric Acid) Copolymer for Low Temperature Energy Management W. Chen, H.X. Xiang, Y.M. Jiang, W. Xia and M.F. Zhu	722
Preparation and Characterization of Flame Retardant PET Fiber via Melt Blending H.L. Xu, H.K. Bao, C.S. Wang and H.P. Wang	729
Evaluation of Foaming and Nucleation and Growth Mechanism of Soy-Based Polyurethane Foams	
X. Zhang and X.X. Zhou	738
A Metal Coordination Crosslinking Novel High Performance Thermoset P. Yang, J.X. Yang and G.J. Chang	746
Investigation on the Dealloying Process of Mn _{75-x} Ni ₂₅ Al _x (x=0, 5, 10, 15, 20 at. %) Alloy Ribbons H.Y. Chi, Y.W. Bai, L.Y. Wang and M. Zuo	752
Phase Transition Behavior and Magnetocaloric Effect in a Heusler Ni ₅₀ Mn ₃₇ Sn ₁₃ Unidirectional Crystal	
Y. Fang, Y.T. Dai, Z.S. Xu and H.X. Zheng Effects of Zr Content on the Bending Property and Crystallization Behavior of Ductile Zr-	759
Based Bulk Metallic Glasses N.B. Hua, W.Z. Chen and Z.L. Liao	765

Chapter 7: Materials and Technologies for Energy Storage Devices, Alternative Energy Production and Electronics

Chemical Modification Graphene as a High Performance Anode Material for Lithium-Ion Batteries Z.Y. Chen, K. Ma, D.G. Zhou, Y. Liu and Y.Z. Zhang	779
Preparation of Graphene/N-TiO ₂ Nanoclusters by One Step Anodic Oxidation for Visible-Light-Driven Hydrogen Production	786
M. Lai, D. Su, C.X. Li, Y. Liu and Y.Z. Zhang Low Temperature Preparation of PbS Thin Films by Chemical Bath Deposition and the Photovoltaic Performance in Heterojunction Solar Cells Z.G. Zhang, X. Gao and F. Han	796
Enhanced Thermoelectric Properties of BiCuSeO Ceramics by Bi Vacancies W.Q. Ma, C.J. Deng, J.L. Lan, X.P. Yang and Y.H. Lin	803
Synthesis and Thermoelectric Properties of WO ₃ /Cu ₂ SnSe ₃ Composites D. Wu, J.A. Ning, D.G. Zhao, X.Z. Wang and N. Liu	811
Graphene-Carbon Nanotubes-Modified LiFePO ₄ Cathode Materials for High-Performance Lithium-Ion Batteries	01.0
Y.T. Chen, H.Y. Zhang, Y.M. Chen, G. Qin, X.L. Lei and L.Y. Liu	818
Microfluidic Synthesis and Electrochemical Performance of Ternary Metals Nanoalloy: FePtSn J.G. Ma, J.M. Wang, S. Li and Y.J. Song	831
Si-Ni Alloy as Anode Materials for Lithium Ion Batteries: A First-Principles Study Z.W. Huang, W.P. Xiao, J.Y. Li, S.J. Hu and X.H. Hou	838
Tungsten Matrix Material for Diffusion Barium Tungsten Cathode X.L. He, Z.L. Zhou, Q.J. Deng, Y. Li, Z.L. Hui and F. Wang	846
Preparation and Influencing Factors of Molybdenum Targets and Magnetron-Sputter- Deposited Molybdenum Thin Films G. An, J. Sun, Y.J. Sun and W.C. Cao	853
Effects of Rare Earth Y Addition on Microstructural and Properties of Pure Copper H.C. Liu, X.Y. Teng, W.B. Wu, Z. Xiao, X.W. Wu and J.F. Leng	862
A Charge Storage Based Enhancement Mode AlGaN/GaN High Electron Mobility Transistor	
H. Wang, L.L. Jiang, N. Wang, H.Y. Yu and X.P. Lin	870
Chapter 8: Materials and Technologies for Environmental Engineering and Waste Recycling	
Improvement Effects of Different Environmental Materials on Coastal Saline-Alkali Soil in Yellow River Delta	
F.Z. Li, Z.B. Huang, Y. Ma and Z.J. Sun	879
Effects of Ferric Salts on Sludge Anaerobic Digestion and Desulphurization R. Zhuan, G. Yang, G.M. Zhang and W. Wang	887
Denitrification Activities of Mg-Mo-V-Ti Catalysts Prepared by Dipping Method at Low Temperature	003
D.Z. Ma, J. Li, L. Zhang, P. Guo, Z.Q. Wen and L.J. Guo	893
Denitrification Activities of Mo-V-Ti Catalysts Prepared by Dipping Method at Low Temperature D.Z. Ma, J. Li, D. Yin, Y. Huang, R.M. Wang and Z.J. Wu	900
Effects of Calcination Temperature on the Microstructure and Adsorption Properties of	700
Attapulgite Microspheres S. Yan, Y.M. Pan, L. Wang, X.Y. Zhang, J.J. Liu and J.L. Yang	907
A Review of Research on Substrate Materials for Constructed Wetlands H.X. Wang, J.L. Xu, L.X. Sheng and X.J. Liu	917
Polyamidine as a New-Style Coagulant Aid for Dye Wastewater Treatment and its Floc Characteristics M.X. Xue, B.Y. Gao, X. Xu and W. Song	930

Kinetic Equilibrium and Adsorption Thermodynamics of Direct Dyes by Ca/CTS/FA Composite	
B.G. Li and L.W. Sun	941
Influence of Catalysts with Different Templates on Direct Decomposition of NO in Cement	
Kiln Exhaust Y.L. Gan, S.P. Cui, H.X. Guo, J. Wang and Y.L. Wang	948
Extraction of Tungsten and Vanadium from the Spent SCR Catalyst by High Pressure Alkaline Leaching Method	
J.P. Chen, L.W. Ma, M.X. Cao and X.L. Xi	954
Preparation of Tungsten Nanoparticles from Spent Tungsten Carbide by Molten Salt Electrolysis L.W. Zhang, Z. Nie and X.L. Xi	961
Effect of Cement Raw Material and Oxygen Concentration on SNCR Reaction Y.L. Wang, N. Li, S.Y. Peng, Y.N. Zhang, M.N. Chen and S.P. Cui	969
Different Precipitant Preparation of Nickel-Doped Mn/TiO ₂ Catalysts for Low- Temperature SCR of NO with NH ₃ J. Wang, G.L. Tian, S.P. Cui and Y.L. Wang	976
Energy Consumption and Carbon Emission Analysis of Natural Graphite Anode Material	
for Lithium Batteries S.W. Gao, X.Z. Gong, Y. Liu and Q.Q. Zhang	985
Life Cycle Assessment of Typical Rubber-Plastic Sponge Production in China C.Z. Zhao, Y. Liu, S.W. Ren and Y.J. Zhang	991
Life Cycle Assessment of Typical Glass Wool Production in China C.Z. Zhao, Y. Liu, S.W. Ren and Y.J. Zhang	998
Life Cycle Assessment of Nickel Production in China S.Y. Deng and X.Z. Gong	1004
Environment Impact Analysis of Natural Graphite Anode Material Production Q.Q. Zhang, X.Z. Gong and X.C. Meng	1011
Comparative Life Cycle Assessment of Autoclaved Concrete Blocks and Fired Blocks in China Y.Q. Sun, Y. Liu and S.P. Cui	1018
Synthesis and Photocatalytic Activity of Ag Doped TiO ₂ Nanofibers H.Y. Dong, Q.H. Sun, T.T. Zhang, Q. Ren and W. Ma	1027
Structure and Surface Properties of Al ³⁺ - Modified Sepiolite W.B. Liu, S.M. Jin, K.X. Cui and X.H. Zhan	1033
Chapter 9: Advanced Building Materials	
The Rheological Properties of Crumb Rubber with Different Recycled Waste Tires Modified Binders	
H. Chen, S.P. Wu, G. Liu and Y.J. Xue	1045
A Comparative Life Cycle Assessment of Typical Foam Glass Production X.Z. Gong, Y.L. Tian and L.J. Zhang	1054
Effect of Layered Double Hydroxides with Different Particle Size on Properties of Bitumen M. Wu, L. Li, B.Y. He and J.Y. Yu	1062
Effect of Different Media Aqueous Solution on Road Performance of Asphalt Mixtures X.M. Zhang, L. Pang, S.P. Wu and G.F. Zhang	1070
Rheological Model and Viscoelasticity of Crumb Rubber Modified Bitumen H. Zhang, J.Y. Yu, Z.L. Cao and F. Liu	1076
Investigation on Rheological Characteristics of Fresh Cement Mortar Z.L. Cao, L.H. Xue, S.S. Tian, J.Y. Yu and H. Zhang	1083
Mechanical Properties of Self-Healing System in Cementitious Material with Microcapsule P. Liang, Q.J. Mao, Z.M. Wang and S.P. Cui	1090
Effect on Structure and Properties of Cement-Based Materials by Polymer-Modified Metakaolin Slurry J.H. Zhang, K. Yuan, Z.H. Shui and Y.Y. Wang	1097