

Table of Contents

Preface and Organizing Committee

Chapter 1: Non-Ferrous Metal Material

The Study about Microstructure Characterization of AlCoCrTiNiCu_x High Entropy Alloy System with Multi-Principal Element C.W. Wang, Z.Q. Mo and J.J. Tang	3
Preparation and Properties Research of Cu-2.3Ni-0.24Si Alloy R.Q. Liu, P. Ma, Z.Q. Hu and S.L. Yang	8
Numerical Simulation Software of Casting Process used for Computer Aided Instruction J.M. Zeng, J. Liang, Z.L. Hu, P. Chen and L.H. Liang	13
Precipitate and Age Hardening Response of As-Cast Mg-8Yb-0.5Zr Magnesium Alloy W.B. Yu, Z.Q. Chen, M. Zhang and Z. Yu	17
Relative Activities of Deformation Modes in AZ31 Magnesium Alloy Predicted by Mesoscopic Crystalline Model D.L. Yin, J.Q. Liu and X. Chen	21
Effects of Ca on Microstructure and Properties of Spray Deposited RE Mg-Al-Zn Alloy T.L. Wang, Z.L. Li, H.P. Ren, Y.F. Wang and W. Chen	26
Isothermal Section of the Zr-Sn-Nb System at 450°C in Zirconium Rich Corner $Zr \geq 55$ at. % Y.Y. Tang, F.H. Ma and H. Jiang	32
Passivator Composition of Rich of Phytic Acid Used for Brass-Strip W. Cai, L. Li, R.H. Liu and Z.Z. Wan	36
Effect of Rolling Process on the Microstructure of AlMgSi Alloy H.L. Li, X.G. Yuan, M.F. Wu and H.J. Huang	40
Fractography Analysis on the Fracture Behavior of High Strength Aluminum Alloy H.G. Jian, X.E. Xie, F. Jiang and J.L. Li	46
Preparation and Characterization of PbO₂ on Aluminum Substrate B.M. Chen, Z.C. Guo and H. Huang	50
Effect of Ultrasonic Cavitation Acting on Solidified Structures of 7050 Aluminum Alloy L.H. Zhang and Q.Q. Hu	55
Effect of Additives on the Expansion Behavior of Alumina-Spinel Castables Q.L. Jia, Y.C. Zhang and F.B. Ye	62
Effect of Ultrasonic Field on Centerline Segregation of Cast Aluminum Alloy 7050 Ingots X.Q. Li, D.X. Chen and R.P. Jiang	66
Long-Time Thermal Structural Stability Study on NiCr20TiAl Alloy Q.Y. Yu, Z. Shen, M.C. Zhang, G.Q. Jia and X.S. Xie	71
Effects of Homogenization Treatment on Microstructure and Properties of Mg-Zn-Nd-Cd-Zr Alloy X.L. Liu, C.M. Liu, W.Y. Zhang, H.Z. Li and S.M. Zeng	76
Behaviors of the Zr-1.0Sn-0.39Nb-0.31Fe-0.05Cr Alloy at High Temperature Y.Y. Tang, J.L. Meng, K.L. Huang and J.L. Liang	80
Thermodynamic Analysis of the Reduction of Na₂WO₄ through the Mechanochemical Reaction Y.H. Gao, J.G. Yang, B.T. Su and L.P. Chen	85
Experimental Study on Solidification of Copper-Iron Alloys during Wedge-Mold Casting H.T. Zhang, B.M. Li and J.Z. Cui	90
Corrosion Behavior of Anodic Films Formed on Aluminium 7A04 Alloy in Boric/Sulphuric Mixed Acid and in Chromic Acid S. Deng, L. Xu, Q.Z. Li, X.M. Huang, S.L. Liang and G.Z. Dai	95
The 3d Electrons and Microdefects in Binary Ti-Al Alloys Studied by Positron Annihilation W. Deng, X.L. Guo, B. Xie, D.K. Xiong and Y.Y. Huang	99
Research of Mo Powder's Densification during Sintering R.Z. Liu, K.S. Wang and Y.J. Sun	103

Chapter 2: Iron and Steel

Mechanisms for Enhancing Strip Flatness in Temper Mill and their Application W.H. Ding	111
Analysis on Primary Recrystallization Characteristics of High Permeability Grain-Oriented Silicon Steel by Inherent Inhibitor Method and Acquired Inhibitor Method J.X. Yang, J. Liu and S.D. Li	119
The Electrochemical Behavior of Electrolytic Tinplate H.P. Bai, Y.Q. Tu and C.F. Liu	126
Effect of Deformation Degree and Diameter Ratio on Performance of Hadfield Steel during Cold Asynchronous Rolling Y.F. Wang, C.M. Qiu, L. Deng and X.H. Sun	130
Effect of Stress on the Corrosion Behaviors of X70 Steel in NaHCO₃/NaCl Solution C. He, X. Chen, Y. Xu and Z.Y. Liu	134
Microstructure and Mechanical Properties of X80/X100 High Deformability Pipeline Steel D.X. Xia, D.L. Meng, S.Y. An and Y.L. Kang	139
Ageing Precipitate Strengthening of Cu-Containing Structural Steels H.Y. Wang, H.P. Ren and Z.C. Liu	144
Determination of Optimal Coiling Temperature and Cold Reduction Ratio of 260MPa Grade High Strength Nb-IF Steel M.L. Wang, Z.W. Zheng and L. Xiao	148
Effects of Zn(OH)₂ on Corrosion Behavior of Hot Dipped Zn Coating in Freshwater H.Y. Sun, B.N. Zang, S. Liu, L.J. Sun and H.J. Fan	152
Effect of Texture on Secondary Work Embrittlement of IF Steels Q.S. Wu, H.C. Zhu, J.T. Zhao, F.Y. Sun and K.H. Hu	156
Microstructure Evolution in Low-Carbon Bainitic Steel during Tempering C. Sun, S.W. Yang, M.X. Lin and X. Wang	160
Characteristics of Rust Layers Formed on Carbon Steel in Seawater Q. Bai, Y. Zou, J. Wang, L.L. Zhang and X.F. Kong	166
The Effect of Mechanical Properties of 2.0% Vanadium Ductile Iron after Double Quenching Method M.F. Idham, B. Abdullah, A. Jaffar, M.H. Ibrahim and A. Ramli	172
Analysis on Tensile Properties of Stainless-Steel Fiber and Yarn Quality Y.C. Sun, Z.H. Cheng and Y.M. Zhang	176
650°C Long-Term Structure Stability Study on 18Cr10NiNb Heat-Resistant Steel H.Y. Yu, C.Y. Chi, J.X. Dong and X.S. Xie	180
Effect of H₂S/CO₂ Pressure on the Corrosion Behaviors of L360QCS in the Environments Containing Elemental Sulfur S.Q. Zheng, C.F. Chen, L.Q. Chen and C.Y. Li	185
Effects of Electric Pulse on Solidification Process of Fe-C-S Alloy Treated with RE H.C. Wang, X. Li, Z.Y. Liao, M. Li, Z.X. Qian, J. Li and G. Wang	189
Effect of Solution Treatment Time on Microstructure and Martensitic Transformation Point of C250 Steel X.Z. Hua, Z.W. Wei, X.Y. Peng, X. Cui and X.L. Zhou	195
Influence of Allotriomorphic Ferrite under Different Growth Modes on the Variant Selection of Bainite in a Low Carbon Steel H. Guo, Y. Bai, Y. Deng, S.W. Yang and X.L. He	200
Researches on the Behavior of Carbon and Sulfur Segregations of 82B Billet H.Y. Tang, H.B. Wang, H.S. Li, J.S. Li and Q.G. Wang	206
The Influence of Heat Treatment on Microstructure and Properties of 00Cr15Ni7Mo2Cu2 Supermartensite Stainless Steel Y.H. Zhou, K.Y. Zhao, X. Liu, D. Ye, W. Jiang, Q.L. Yong and J. Su	211
Inclusion Removal at the Free Surface of Steel Bath by Bubble Flotation F. Jiang and G.G. Cheng	216
High Temperature Mechanical Property and Microstructure Study of Micro-Alloyed Q345B Structural Steel F. Dong and C. Su	223

Microstructure and Mechanical Properties of 60Si2Mn Steel after Austenite Inverse Phase Transformation by Sub-Temperature Quenching A.M. Li and M.J. Hu	228
Study on Microstructure and Mechanical Properties of Newly Developed High Carbon Fe-Mn-Cu-C TWIP Steels W.T. Song, D.Y. Zhu, H.J. Liu and F.F. Huang	233
High Temperature Deformation Behavior of 25Cr5MoA Nitriding Steel Y. Zang, S.X. Li, Y.K. Yang and X.P. Ren	240
Influences of Microstructure and Texture on Toughness of Acicular Ferrite Pipeline Steel M.W. Zhou and H. Yu	245
Study on Damping Capacities of Nodular Cast Iron Dense Bar Produced by Horizontal Continuous Casting Z.M. Zhang, J.C. Wang, C.J. Xu, W.M. Li and G. Wang	250
Effects of Different Manganese Content on Microstructures and Properties of TWIP Steel L.H. Wang, D. Tang, H.T. Jiang, J.B. Liu and Y. Chen	254
The Processing, Microstructure and Mechanical Properties of Low Alloy Wear Resistance Steels X.M. Wang and P.Z. Li	259
Microstructure and Texture Comparison of an Acicular Ferrite Pipeline Steel with Different Hot Rolling Process H.Y. Wang, H.P. Ren, L. Han, Z.L. Jin and H. Sun	264
Orthogonal Test on Heat Treatment Parameters of Modified Low Chromium White Cast Iron E. Liu, F.L. Wei and L.C. Qiu	268
Mechanical Properties and Microstructure of SS400 Friction Stir Welds Pursuant to Welding Distance K.J. Lee, H.K. Park, S.H. Kim, H.K. Park and I.H. Oh	273

Chapter 3: Composites

Characteristics of NEPE Propellant with Ammonium Dinitramide (ADN) W.Q. Pang, H.X. Xu, Y. Li and X.B. Shi	279
Self-Supporting Electrode Based-on SWNT Paper for Supercapacitors X. Xu, L.M. Qian, L. He and J.F. Che	284
Optimisation of Manufacturing Conditions of Carbon Fibre Reinforced Polyetherketoneketone (PEKK) Composite M. Hou and D. De Weger	289
Effect of Hot Rolling Deformation on Superplastic Deformation Behavior of TiN_p/2014Al Composite	294
Preparation and Characterization of Monocrystal Nano-Silver Lamella H.L. Fan, Z.P. Liu and S.Y. Chen	300
The Physical and Mechanical Behavior of Hot Press Mould WPCs Z.Y. Zhu and X.G. Zhou	305
Ni-Coated Carbon Nanotubes/Mn-Zn Ferrite Composite as Viable Microwave Absorbing Materials W.J. Wang, C.G. Zang and Q.J. Jiao	310
Microstructure Modeling for Prediction of Thermal Expansion Coefficient of Plain Weave C/SiC Considering Manufacturing Porosities S.L. Lv, Q.N. Zeng, L.J. Yao and X.Y. Tong	315
The Research on Polyxymethylene Silicon Oxide Whisker Polybasic Thermal Stabilizes Composite Material C.C. Han, S.L. Lin and Y. Li	320
Synthesis and Characterization of Hybrid Polymer PAFC-CPAM G.H. Wang, W.M. Liu, W.B. Li, J. Li, X.S. Wang, Q. Liu, S.Q. Yang, K. Chen and L. Li	327
Effect of Sintering Temperatures on the Reaction-Bonded Si₃N₄/SiC Composite Ceramics J. Li, W.J. Yuan, S. Wang, H.X. Zhu and C.J. Deng	331

Formation of Decarbonization Layer and its Effect on Corrosion Resistance of Zirconia Graphite Materials	
F. Qian, H.X. Li and G.Q. Liu	336
Synthesis and Structural Characterization of Oleic Acid Embedded Layered Magnesium Borate	
A.M. Chen, P. Gu, S.F. Xu and Z.M. Ni	343
Preparation of AlN-ZrO₂(Ca) Composites by Hot Pressed Sintering	
X.T. Chen, J.L. Bu, R.L. Wang and J.X. Chen	347
A Study on the Tensile Strength of the Layer Splice Laminates	
L. Wang, P.R. Jia and G.Q. Jiao	351
Preparation and Recognition Properties of Levodropopizine Molecularly Imprinted Composite Membranes	
S.P. Xu, Y. Liu, L.Q. Sun and A.Q. Luo	355
Synthesis and Characterization of Temperature-Sensitive TSPU/PNIPAAm Semi-IPN Polymer	
Y.C. Wang, Z.W. Dai and Y. Xue	359
Anodic Surface Treatment on Carbon Fibers - The Effect on Microstructure of Pyrocarbon Matrix during Chemical Vapor Deposition	
J. Chen, S. Yu and X. Xiong	363
Study on the Reinforcement of Aluminum Alloy A356 Using SiC Particles by Mechanical Stirring	
H.X. Gao, Y.H. Zhang, J.X. Liu and G.Y. Yang	368
Mechanical Properties of Sandwich Structure Composites	
J.S. Zhang, D.H. Li, C.L. Liang, J.S. Jia, D.X. Zhang, Y. Tian, H.Y. Xiao and J. Jia	372
Preparation and Properties of CNTs-Ti₃Al/B₄C Composites	
Y.H. Fan, L.H. Dong, B.Y. Liu and Y.S. Yin	377
Preparation and Properties of Bagasses Cellulose Microcrystal Reinforced Poly(Vinyl alcohol) Composite Film	
C.G. Li, B.G. Zheng, W.G. Peng, W. Tian and R. Zhang	381
Experimental Investigation on Rubberized Concrete Mixed Proportion Design	
Z.C. Li, X.Y. Huang and J.F. Liang	385
Research of Aluminum Sheet Encapsulated by Organic Silane Acrylate Resin and Tetraethyl Orthosilicate	
A.H. Gao, P.H. Pi, J. Cheng and Z.R. Yang	390
Ar Plasma Modified Multiwalled Carbon Nanotubes/NiFe₂O₄/Polyimide Nanocomposites	
L. Zhang, J.J. Li, C. Shi, E.Z. Liu and N.Q. Zhao	394
Effects of Alloys on Microstructure and Properties of Mo₂FeB₂-Based Cermets	
Q.F. Wang, Y.J. Pan, B. Hu and L. Zhou	399
Mechanical and Ablative Properties of Polyacrylonitrile(PAN)/RTV Silicone Internal Insulating Composites	
D. Li, H.X. Chen, Z. Chen, Y. Li, S.X. Wu and J.G. Wang	403
Preparation and Properties of Polyvinylpyrrolidone / Zinc Oxide Composite Nanofibers	
G.Q. Xu, L.G. Sun, S.H. Wang, Y. Xie, C. Wang, P.F. Yan, J. Zhang and K. Fu	407
Performance of Polypropylene Composites Filled by Calcium Carbonate Whiskers	
Q.J. Sun, G.Z. Zhao, S.G. Xin, S.W. Wu, J. Lu, Z.L. Jiang, M.H. Sun and W. Li	415
Microstructure Evolution and Mechanical Properties of Mg₂B₂O₅ Whiskers Reinforced AZ31B Magnesium Composites Extruded at Elevated Temperatures	
Y.P. Zhu, P.P. Jin, P.T. Zhao, W.D. Fei, J.H. Wang and L. Han	419
Study on Microstructure of Vanadium and Chromium-Carbide Reinforced Fe Matrix Surface Composite	
J. Wang, S.J. Fu, Y.C. Ding and Y.S. Wang	425
Influence of Dispersant on the Dispersion Stability of Nano-CoFe₂O₄ Refrigeration Oil	
G.N. Li, M.B. Xing and R.X. Wang	430
Research on the Fiber Breakage Damage in Fiber Reinforced Polymer Laminate	
T.F. Zhang, X.H. Yang, Y. Zhang and Y. Li	439
Preparation and Characterization of a Novel Flame Retarded MCA-PA6 Resin by <i>In Situ</i> Polymerization	
J.Q. Mu, Y. Yang and Z.H. Peng	444

Effect of Sintering Temperature and Particle Size on Porous SiC/Si₃N₄ Composite Ceramics S. Wang, J. Li, W.J. Yuan, H.X. Zhu and C.J. Deng	449
Effect of Surface Treatment on the Mechanical Property and Micro-Structure of Polypropylene/Attapulgite Composites L.L. Xu, T. Long and S.P. Liu	453
<i>In Situ</i> Polymerization Approach to Magnesium Hydroxide-Reinforced PA6 Composites L.L. Xu, Y.H. Deng, Y. Wang, C.H. Liu and S.P. Liu	457
Effects of Accelerated Aging Period of Time at 150°C on Tensile Strength of 3-Dimension-4-Direction Braided/Epoxy Resin Composites W. Geng, L.L. Song and J.L. Li	461
Investigation of Phase Composition and Microstructure Characterization of the B₄C/BN Composites Fabricated by Hot-Pressing Process T. Jiang	465
Effect of High-Temperature Heat Treatment on Mechanical Property of Cr-Geopolymer Composite M.R. Wang, Y. Zheng, D.C. Jia and Y. Zhou	469
Properties of Jute Fibers Reinforced Friction Materials Y.H. Ma, S.Q. Jia, B.G. Wang, W. Ye, J. Tong, H.L. Jia and S. Wen	474
Generic Geometric Model for 3D Woven Interlock Composites A. Mahmood, X.W. Wang and C.W. Zhou	478
The Influence of Clay-Like Sepiolite on the Structure and Properties of Polyurethaneurea/Sepiolite Nanocomposites H.Z. Lu, D.L. Yi, H.X. Chen, Y. Zhou and J.L. Zhang	486
The Application Finite Element Analysis with the Temperature Field Simulation of Flame-Retardant Effect on OMMT and APP for PP/PA6 Composts S.L. Long, Y.J. Wu and S. Wu	493
An Experimental-Numerical Approach of the Metallic Insert in CFRP/Honeycomb Sandwich Structures under Normal Tensile Load P. Bunyawanichakul, P. Kumsantia and B. Castanié	500

Chapter 4: Micro/Nano Materials

A Novel Nonionic, Multi-Surfactant System and Separation Method for the Synthesis of Active Carbonic Anhydrase Nanoparticles G.C. Nie, D. Si, G.S. Kim, Z.Y. Shi, T.S. Ratani, Y.E.K. Lee and R. Kopelman	509
Low Temperature Combustion Synthesis and Characterization of Pr-CeO₂ Doped with Zr Red Ceramic Pigments L.D. Yang, M.Q. Ye and A.J. Han	514
Influences of Tm and N Doping on Surface Properties and Photoactivities of Anatase-TiO₂ Nanoparticles Z.Y. Lu, H.Q. Jiang, P.P. Yan, J.S. Li and Q.Y. Wang	519
Controlled Synthesis of Water Soluble Silver Nanoparticles and the Molluscicidal Effect X.H. Yang, J.J. Wang, J.Y. Ge, J.S. Wang and F.Q. Dong	527
Fabrication and Characterizes of TiO₂ Nanomaterials Templated by Lyotropic Liquid Crystal L.H. Liu, Y. Bai, F.M. Wang and N. Liu	532
Fabrication, Optical Properties and SERS Spectra of Silver Semishells Arrays Y. Fan and S.Q. Man	538
Agglomeration Eliminating Antimony Doped Tin Oxide (ATO) Nanoparticles by Different Drying Methods Z.L. Liu, Q.W. Dai, S.Z. Chen and Z. Guo	543
Morphology Evolution during Annealing and Electrical Conductivity of Titania Nanotube Films J.Y. Xiong, Y. Wang, Y. An, M. Wen, Y.F. Ding, Y.C. Li and P. Hodgson	548
Synthesis and Microwave-Absorbing Properties of Ni-Carbon Sphere Composites Y.G. Zhang, H.Y. Xia and Y.G. Zhao	552
Micromechanical Analysis of Single-Fiber Pull-Out Test of Fiber-Reinforced Viscoelastic Matrix Composites D.S. Zhu and B.Q. Gu	556

Microwave Synthesis of Nano-Titanium Carbide P.A. Liu, Q.S. Yang, A.Z. Shui, H. Wang, X.S. Cheng, L.K. Zeng and Y. Liu	561
Study of Oxidation Behavior of Zn Nanoparticles M. Wang	565
Hydrothermal Synthesis and Property of Rare Earth of Fluoride $\text{NaYF}_4:\text{Er}^{3+}$ Materials Z.M. Chen, X.R. Chen and D.Y. Hu	569
Discussion on Micro-Structure and Transport Properties of Carbon Micro-Coil F.Y. Wu, Y.Y. Wang, W.J. Li, Y.W. Zhou and J.W. Zhang	573
Preparation of Nanometer Ferric Oxide Powders from Ferrous Sulfate by Improved Hydrolysis Method X.R. Chen, Z.M. Chen and D.Y. Hu	577
Morphology and Optical Properties of Nickel Oxide Nanostructure from Aqueous Solution M.A.A. Hamid, M. Abu Bakar, A. Jalar, R. Shamsudin and I. Ahmad	581
Controlled Synthesis of Two-Dimensional Networked Gold Nanowires and Microkites by Sodium Carboxymethyl Cellulose-Surfactant Soft Template C.R. Wang, X.Z. Yan, L.L. Yu and H. Zhou	585
Stability of the Vanadium Oxide Films Formed by Reactive Sputtering and Ion Beam Enhanced Deposition Methods C. Liu, M.P. Jiang, J.H. Li and S.K. Wang	589
Preparation for Nano-NiO by Electrolysis of Nickel in $\text{HOCH}_2\text{CH}_2\text{OH}$ Solution C.G. Zhu and F.W. Wang	593
Study on the Preparation and Performance of Epoxy Resin/AlOOH Nano-Composite Materials H.D. Liao, W.P. Zhang, X.M. Sun, J.F. Qin and Y.D. Hang	597
Effect of Polyacrylamide Hydrogels on Synthesis of Hollow Sodalite Spheres L. Han, Q. Wang, C.B. Guo, L. Zhao, S.L. Guo, Y.L. Chen and R. Zhang	602
Study on the Preparation and Properties of Copper Nanoparticles and their Nanofluids Y. Li, H.Q. Xie, J.F. Wang and W. Yu	606
Purification of Carbon Nanotubes by Microwave Technology Y.Q. Wu and S.K. Sun	610
The Antifriction Properties of Ultra-Fine Serpentine Powders as Lube Oil Additive on Iron-Based Friction Pair N. Pang and Z.M. Bai	616
Magnetoresistance and Exchange Bias Effect of $(\text{Co}_2\text{MnSi})_{1-x}(\text{NiO})_x$ Nanocomposites X.L. Cai, S.D. Li, M.M. Liu, J.P. Wu, Y. Hu, J. Qiu and J.H. Lin	620
Synthesis of Mesoporous Nickel Phosphate with Long Hollow Nanotubes J. Tan, X.Y. Li, F. Yang and J. Liu	625
Optical Properties Characterization of InGaN/GaN near UV Photodetector with Surface Nano-Structure Fabricated by Nano-Imprinting J. Zhang and S. Sakai	629
Hydrothermal Synthesis of Neodymium Orthophosphate with Controlled Structure and Morphology J.R. Bao, X.W. Zhu, R.B. Yu, J.Y. Zhang and X.R. Xing	635
Effect of Characteristic Size on the Effective Thermal Conductivity of Anodic Aluminum Oxide (AAO) Porous Thin Films C.H. Huang, X.H. Sun and Y.H. Sun	641
Synthesis of Lipid-Quantum Dots and the Fluorescence Resonance Energy Transfer of Quantum Dots in Lipid Bilayer C. Ye, C.G. Li, Y.Q. Wang, J. Yu, F. Zhou and Y.Z. Hu	646
Research Progress in Application of the Functional Ordered Microstructures H.Y. Wei and Z.N. Guo	650
Electrochemical Corrosion Behavior of Cu-20Fe-12Cr Alloys with the Different Grain Size in Solutions Containing Chloride Ions Z.Q. Cao, R. Xue, J. Bian and Y.J. Fu	655
Preparation and Photocatalytic Property of TiO_2/C L.H. Tian, X. Liu, H.T. Liu and Y. Gao	662
Synthesis with Microwave-Assisted Sol-Gel Method and Photocatalytic Activity of Quantum-Sized TiO_2 under Solar and Ultraviolet Irradiation S.X. Lu, L. Dai, W.G. Xu and C.X. Ma	666

Preparation of High-Purity α-Alumina by Oil-in-Water Microemulsion J.J. Ma and B.L. Wu	673
Preparation of Ordered TiO₂ Macroporous Membrane Using PBMA Colloid Crystal as Template H.Z. Zhang, F. Dong, S.N. Zhai, X.J. Kang and S.M. Fang	677
Preparation and Microstructure of Al-Intercalated Vermiculite C.F. Wang, F. Zhou, H.Z. Gu, H.X. Zhu and Y.W. Li	683
Fabrication and Performances of Titanium-Grafted Microencapsulated Phase Change Materials M.Y. Xu, S.L. Lin, S.Z. Gong and Z.R. Yang	688
Hydrothermal Synthesis of Calcium Borate Whiskers S.J. Song, X.Y. Nai, W. Li, C.C. Zhu and Q.F. Meng	693
Preparation of Nanometer-Sized Nickel Oxide by Hydrothermal Decomposition Y. Song, C. Wei, C.X. Li, H.S. Xu, Z.G. Deng and D.Q. Liu	698
A Novel Gold Nanoparticle/Poly(AMPS-co-HEMA) Composite Hydrogel for Selective Catalysis K.P. Wang, S.B. Lin, N.N. Wang and A.R. Ke	704
Effect of Stacking Fault Energy on the Mechanical Properties of Cold-Rolling Cu and Cu-Al-Zn Alloys L.P. Cheng, X.G. Liang, X.Y. San, Y.L. Gong and X.K. Zhu	708
Uniformly-Sized, Molecularly Imprinted Polymers for Naproxen by Precipitation Polymerization X.H. Jiang and Z.M. Liu	713
Preparation and Thermal Stability of Micro/Nano Silicone Rubber Particles F. Wang and X.L. Wang	718
Study on Preparation and Photocatalytic Performance of Co-Doped TiO₂ with Cu and Ce J.P. Zhao, X.N. Yang and H. Zhang	722
Gas Response for Ethanol of SnO₂ Nanorods as Sensing Materials Y.H. Li, Y.J. Liu, X.C. Xiao, H.E. Kan and H.Y. Zhao	727
Prepare Uniformity Superfine WO₃ by Spray Drying J.H. Liu, T. Huang, H.R. Zhang and R.X. Wang	731
Morphological and Magnetic Characteristics of Strontium Ferrite Micro- and Nanofibers Y. Lu, X.C. Yang, J.L. Zhu, F.Z. Song and X.Q. Shen	736
Microwave Assisted Electroless Copper Plating on Carbon Nanotubes Y.Q. Wu and S.K. Sun	741
Syzygium Samarangense Leaf Mediated Biosynthesis of Gold Nanoparticles and its Application in Catalysis X. Yang, W.J. Yang, L.J. Weng, Y.Y. Han and D. Geng	747
Molecular Dynamics Simulation of Nanoindentation on Diamond Crystal [100] Surface J. Liu, J.X. Kong, D.J. Lei, Y.L. Zhang, H.F. Li and X.P. Zhao	751
Preparation and Characterization of Titania Porous-Nanotube Arrays with a High Growth Rate on Flexible Stainless Steel Substrate X.T. He, J. Tao, H.J. Tao and Z.G. Bao	760
Shape Modification of Net Shaped CuO and Cu Nano Particles for a Percolation Threshold Using a Chelating Agent J.H. Hwang, J.M. Ucol, K.W. Lee, A. Ortega and N.S. Kim	766
Dealloying Behavior of Al-Cu-Sn Ternary Alloy in an Alkaline Solution Y.F. Feng, S.C. Zhang, Y.L. Xing and W.B. Liu	774

Chapter 5: Ceramic

Effects of Doped Cu, Mn on Electrical Properties of SrTiO₃-Based Varistor Ceramics N.Z. Wang and Z. Wen	783
Synthesis of Al₄SiC₄ Powders from Kaolin Grog, Aluminum and Activated Carbon as Raw Materials W.J. Yuan, J. Li, C. Pan, C.J. Deng and H.X. Zhu	788
The Influence of Cu on the Electrical Properties of Ti(C, N)-Based Cermets L.J. Pang, G. Deng, X.F. Zhang, H.R. Li, M.X. Fang, Y.H. Li and S.L. Liu	792

Effects of Ion Doping at Different Sites on Electrical Properties of Ferroelectric $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ Ceramics	
Y.Y. Wu, L. Wang, Z.Q. Hua, T. Li, X.T. Yuan and X.D. Lv	796
Effect of Ferric Oxide Addition on the Performance of $\text{MgO-Al}_2\text{O}_3$ System Materials	
J.S. Wang, Z.F. Wang, J.L. Bu and J.X. Chen	805
Fabrication of MgO-SiC Refractory Composite Powders by High-Silicon Magnesite and Carbon Black Powders	
H.X. Zhu, Z.J. Lv, C.J. Deng and W.J. Yuan	809
Synthesis of $\text{Al}_4\text{SiC}_4\text{-Al}_8\text{SiC}_7$ Composite Powders by Carbothermal Reduction Process	
C. Yu, W.J. Yuan, J. Li, H.X. Zhu and C.J. Deng	813
Preparation of Al_4SiC_4 by Solid-State Reaction	
X.H. Liu, H. Wang, L.K. Zeng and C.J. Deng	817
Influence of Heat Treatment Process on Properties of Polycrystalline Alumina Fiber	
J.F. Xu, S.D. Fu and K. Zhang	822
Process Factors Using Centrifugal Spray Drying to Prepare Bauxite Microspheres	
X.S. Cheng, M.Q. Peng and Y.F. Zhong	828
Research on the Sinterability of $\text{MgAl}_2\text{O}_3/\text{SiC}$ Composites in Air Atmosphere	
C.H. Cao, J.C. Wei, J.K. Huang and J.B. Tu	834
Synthesis of $\text{MgAl}_2\text{O}_4\text{-SiC-C}$ Refractory Powders by Using Forsterite, Alumina and Carbon Black	
H.J. Duan, H.X. Zhu, P. Liang, W.J. Yuan and C.J. Deng	838
Effect of Sintering Atmosphere on the Dielectric Properties of BaTiO_3 via Boron-Addition Liquid-Phase Sintering	
Z.Q. Zheng and X.P. Zhou	842
Effect of Praseodymium Salt on Properties of Anodic Aluminum Oxide Films	
X.Z. Liu, Z.X. Liu, A.B. Yu, G. Wang, L.L. Song and L.Q. Ding	847
Preparation and Hydration Resistance of $\text{MgO-MgAl}_2\text{O}_4$ Composite Refractory	
J. Ding, W.J. Yuan, J. Li, H.X. Zhu and C.J. Deng	851
Preparation of the System of $\text{BaO-MgO-Al}_2\text{O}_3\text{-TiO}_2$ Acid-Resistant Fracturing Proppants	
T.T. Wu and B.L. Wu	855
Synthesis of $\text{Ce}_{0.8}\text{Nd}_{0.2}\text{O}_{1.9}$ Nanocrystalline Powders by Low Temperature Combustion Process	
Y.F. Huang, Y.B. Cai and H. Liu	860
Effect of Processing Parameters on the Properties of Glass–Ceramics from Arc-Melting Slag of Incineration Fly Ash	
H.Q. Liu, G.X. Wei, Y. Liang and J.L. Yang	864
Magnetite and Anti-Microbial Properties of $\text{Ag}_2\text{O-CaO-Fe}_2\text{O}_3\text{-SiO}_2$ Glass-Ceramic by Sol-Gel Method	
B. Li, H.F. Chen, L.H. Wen and C. Ma	869

Chapter 6: Optical/Electronic/Magnetic Materials

Effect of Annealing Atmosphere on Structure and Properties in Chemically Deposited PbS Thin Films	
F. Liu, H. Deng, A.P. Zhao and X.R. Deng	875
Microwave Absorbing Performance and Infrared Emissivity of Co-Doped ZnO	
S.Y. Zhang and Q.X. Cao	880
Optical Properties of Two Novel Terbium Thermo-Sensitive Poly(<i>N</i>-Isopropylacrylamide) Gels	
Y.H. Zheng, C.L. Tan and Q.M. Wang	886
Magnetization Reversal in Ferromagnetic Thin Films	
J.L. Sun and J.G. Hu	890
Syntheses, Crystal Structures and Luminescence of Two Coordination Polymers Based on Isophthalic Acid and 2-(3-Pyridyl)benzimidazole Ligands	
K.F. Yue, S. Zhao, R.L. Zhao and Y.Y. Wang	896
Synthesis and Fluorescence Switching of a New Purple Photochromic Diarylethene	
M. Liu, G. Liu and S.Q. Cui	900

Mixed-Phase Crystallization and Visible Fluorescence in Rare-Earth Ions Doped Germanate Glass-Ceramics	
Y.H. Li, X.L. Zhang, C.X. Fan, M. Liu, B. Zhai and H. Lin	904
Studies of 3d Electrons and Hyperfine Interactions in Ordered and Disordered Fe₅₀Al₅₀ Alloys	
Y.Y. Huang, L.Y. Qin, Q.G. Tian, Y.X. Li and W. Deng	908
Gamma Irradiation Effect on Load-Deflection Curve of Semiconductor Package	
A. Jalar, W.Y. Wan Yusoff, N.K. Othman, S. Abdullah and I. Abdul Rahman	912
Molecular and Crystal Structure Analysis of an Oxalate-Bridged Sodium 2D Polymer: [Na($\mu_{1,1,2,3}$-Oxalato)(di-$\mu_{1,1}$-H₂O)]_N	
J.M. Li, S.Q. Xu and Z.F. Shi	916
Synthesis and Luminescent Properties of Y₂O₃:Eu³⁺ Nanocrystal by the Ultrasonic Method	
H.Q. Yu, H.D. Wang, T. Li and B.J. Chen	921
Highly C-Axis Oriented Barium Titanate Ferroelectric Films Deposited on SrTiO₃ Substrate Using an Off-Axis Sputtered Conductive Oxide Layer as Bottom Electrode	
W. Zhang, M.L. Yuan, X.Y. Wang and J. Ouyang	926
Effect of Eu³⁺ on Spectroscopic Properties and Energy Transfer in Er³⁺/Eu³⁺-Doped Ga₂O₃-GeO₂ Glass	
Y.G. Zhao, D.M. Shi, J. Liu and X.F. Wang	930
The Research about the III-Nitride Compounds Epitaxially Grown on Si Substrate	
A.P. Zhao, H. Deng, F. Liu and X.R. Deng	935
Synthesis, Photochromism and Optical Storage of a New Type of Diarylethene Compound	
L.Q. Wang, S.Z. Pu, L.S. Yan and S.Q. Cui	945
Preparation of Magnetic Fe₃O₄ Nanoparticles by Microbial Reduction Combining Natural Oxidation Method	
Z.G. Liang, J. Mu and J.C. Shi	949
Investigation on the Morphologies of Dislocations in Sapphire Crystals	
Y. Sun, H.J. Chen, W.B. Yan and C.C. Liu	954
The Dielectric Tunability of Fe-Doped Pb_{0.3}Sr_{0.7}TiO₃ Thin Films Prepared by Sol-Gel Method	
X.H. Sun, S. Hou, X.L. Li, T.Y. Peng and X.Z. Zhao	958
Synthesis and Photoluminescence Properties of Doped Europium Complexes with 2-Pyrazinecarboxylate	
H.X. Zhang, R.J. Ma, H.B. Chu, M.Y. Zhao, Y.N. Chen, K. Kong and Y.L. Zhao	963
Photoluminescence Properties of Sm³⁺-Doped La₂O₃ Powders	
Q. Xiao and G.Y. Zhu	967
Electrochemical Synthesis and Photovoltaic Properties of Polythiophene/CdSe Double Layers Electrode	
L.P. Hao, H.J. Niu, L.N. Hao, X.D. Bai and W. Wang	973
Synthesis and Luminescent Properties of M₂P₂O₇:Eu³⁺ (M = Ca, Sr, Ba) Phosphors	
F.W. Mo, R.F. Wang, Y.W. Lan, L.Y. Zhou, T. He and X.M. Xu	978
Luminescence Properties of Er³⁺/Tm³⁺-Doped Ga₂O₃-Bi₂O₃-PbO-GeO₂ System Glasses	
J. Liu, D.M. Shi, Y.G. Zhao and X.F. Wang	982
Synthesis, Characterization, Room Temperature Fluorescence and Phosphorescence Properties of Complex Gd(C₅H₈NO₃)₂(C₃H₅N₂)₂Cl₃•3H₂O	
Y. Wang, D.T. Tian and Y.X. Yang	987
Influence of Al Substitution on Magnetocaloric Effect in La_{0.8-x}Al_xCe_{0.2}Fe_{11.4}Si_{1.6} Compounds	
Y. Hu, S.D. Li, M.M. Liu, J.P. Wu, X.L. Cai, J. Qiu and J.H. Lin	992
Spectroscopic Properties of Er³⁺-Doped Ga₂O₃-GeO₂-Bi₂O₃-PbO Glass	
D.M. Shi, Y.G. Zhao, J. Liu and X.F. Wang	997
Electrochemical Synthesis of POT for Electrochromic and Solar Cell Materials	
B. Li, H.J. Niu, L. Zhang and X.D. Bai	1002
Influence of Fabrication Process on Magnetic Properties of Co-Finemet Nanocrystalline Powder Core	
Z. Wang, J. Liu, R.W. Wang, J.K. Min, Z.H. Lu, Z.H. Gan and L.X. Fan	1008
Effects of C Addition on Glass-Forming in FeCPSiBMoMn Bulk Metallic with Good Soft-Magnetic Properties	
J.P. Wu, S.D. Li, M.M. Liu, X.L. Cai, Y. Hu, J. Qiu and J.H. Lin	1012

Structure and Luminescence of Ba₃MgSi₂O₈: Eu²⁺, Mn²⁺ Phosphors Y. Li, D.W. He, Y.S. Wang, F. Ming, Y. Wu and F. Miao	1016
Blue Upconversion Luminescence Properties of La₂(WO₄)₃:Yb³⁺/Tm³⁺ Phosphor J.S. Liao, H.Y. You, Q.X. Wu, H.R. Wen, J.L. Chen and R.J. Hong	1020
A New Fluorescent Material of Zn (II) Complex with 1-Acetyl-2-Naphthol-4, 4'-Diaminodiphenylmethane L.H. Wang	1026
Preparation and Characterization of Light-Color Conductive Composite Based on Talc Z.X. Xu, F.Z. Lv, X. Feng and Y.H. Zhang	1030
Study the Effect of Junction Temperature on the Peak Wavelength in GaN-Based High-Power Green Light Emitting Diodes R.R. Zhuang, P. Cai and J.L. Huang	1034
Efficient Synthesis and Properties of a Photochromic Hybrid Diarylethene Bearing a Isoxazole Moiety H.L. Liu, S.Z. Pu, S.Q. Cui and H. Li	1039
Synthesis and Magnetic Properties of Poly(Schiff Base) Complex Containing 4,7-Disubstituted-1,10-Phenanthroline R.H. Zheng, H.J. Jiang, Q. Shen and H.C. Guo	1043
Hardness Variation of Ball Bond Wire Bonding M.N. Zulkifli, A. Jalar, S. Abdullah, R. Shamsudin and Z. R.	1048

Chapter 7: New Functional Materials

Synthesis, Properties and Application in Optical Memory of a Novel Photochromic Diarylethene Bearing an Anthracene Ring S.H. He, G. Liu and S.Q. Cui	1055
The Effect of Hyperbranched Polymers on the Dyeing Properties of Polypropylene Fibers X. Huang, W.D. Zhang and S.B. Ma	1059
Study on the Wear Properties and Wear Mechanism about TC4 and G3 Alloy Tubing Steel in Dry Condition W. Tian, F.Q. Xie, X.F. Yao and X.H. Zhao	1063
The <i>In Vitro</i> Degradation Kinetics of Polyurethane Prodrug Materials C.Y. Li, C.C. Hu, Z.G. Wen and S.X. Dong	1067
Study on the Properties of Mesogenic Monomer Exhibiting Blue Phase and Synthesis of Side-Chain Liquid-Crystalline Polysiloxanes Y. Li, G.C. Zhang and S.Y. Shao	1071
Effects of Coal on the Structure and Properties of Coal/LDHs Composites A.N. Zhou, B. Liu and W. Xu	1075
The Best Solution for Removal of Iron and Oil from Hot Condensed Water C.Y. Leng	1079
The Research on the Surface Topography of Diamond Crystals at High Pressure and High Temperature Q.C. Su, J.H. Zhang, L.W. Yin and M.S. Li	1084
A Novel Method for Preparation of Antimicrobial Cellulose Textile by Surface Carbamatization and N-Chlorination L.Y. Wang, F.Y. Wang and B.B. Wang	1088
Simulation of GaAs/Al_xGa_{1-x}As/In_yGa_{1-y}As Double-Barrier Resonant Tunneling Structures Y.M. Zhou	1093
Ordered Langmuir-Blodgett Films of Novel Sandwich-Type Heteroleptic (<i>Porphyrinato</i>) (<i>Phthalocyaninato</i>) Europium Complex Q.Y. Liu, Q.R. Zhao, H.G. Liu and Y. Li	1097
A-Fe /Nd₂Fe₁₄B Nanocomposites for Electromagnetic-Wave-Absorber in GHz Microwave Frequencies L.X. Lian, Y. Liu and L.J. Deng	1102
Synthesis, Photochromic Properties and Application in Optical Memory of a Diarylethene Based on Pyrrole Ring R.J. Wang, G. Liu, S.Q. Cui and H.Y. Xia	1107

Cation-Exchange Membranes Prepared by Pre-Irradiation Grafting of Acrylic Acid and Sodium Styrene Sulfonate onto ETFE Membranes J.H. Zu, M. Xia, F.X. Shi and R.Q. Liu	1111
Synthesis and Optical Property of an Asymmetric Photochromic Diarylethene Derivative Bearing Benzofuran H. Li, S.Z. Pu and S.Q. Cui	1115
Synthesis and Properties of a New Photochromic Compound Bearing Isoxazol Moiety Z.P. Tong, S.Z. Pu and S.Q. Cui	1119
The Surface Modification of Silica with Vinyltriethoxysilane L. Zhang, Z.X. Chang and D.L. Li	1123
Synthesis and Photophysical Properties of Red-Emitting Iridium Complex Bearing Benzothiazole G.Y. Xiao, X. Li, H.J. Chi, Y.H. Lu, Z.Z. Hu and J.L. Yu	1131
Synthesis and Adsorption Properties of Ethylenediamine Modified Chitosan/Nano-Iron Magnetic Microspheres S.Q. Hu, H.P. Wang, Y.H. Chen and P. Liu	1135
Preparation, Characterization and Photocatalytic Activities of ZnO/TiO₂ Nanotube Composites J.G. Li, G.C. Liu and H. Dong	1139
Effects of Hydrolyses on Lanthanide Inorganic-Organic Luminescent Materials W.S. Cai, Z. Zhou, Y.F. Yu, X.X. Peng, Y.L. Lei and Q.M. Wang	1143
The Research on Microstructure of Catalyst and Growth Mechanism of Boron-Doped Diamond Q.C. Su, J.H. Zhang, L.W. Yin and M.S. Li	1147
Non-Dopant Electroluminescent Devices Based on Benzoxazinone Derivative as Strong Fluorescence in Solid Film H. Pang, W.G. Zhang and S.M. Zhao	1151
Preparation of RHA-Paraffin Phase Change Materials J. Wang, B.G. Ma, J.L. Zhang and W. Yang	1156
Effect of Rare Earth Composite Refiner Agent on Decolorization and Fining of the Floating Glasses Y.H. Hu, M. Li, Z.G. Liu, M.T. Wang, L. Wang and J.X. Wu	1160
Drug Release Characteristics of P(AA-co-DMAA)/SA Interpenetrating Polymer Network Hydrogels N.N. Wang, S.B. Lin, K.P. Wang and A.R. Ke	1165
The Luminescence and Energy-Transfer of Ce³⁺, Tb³⁺ Activated Sr₃B₂O₆ H.H. Lin, Y.Y. Wu and H.Y. Chen	1169
Study on the Perfect Dislocation in Cd_{0.9}Zn_{0.1}Te Single Crystals by HRTEM J. Sun and L. Fu	1175
Synthesis, Photochromism Properties of a Novel Hybrid Diarylethene Based on Hydroxyl Group D.H. Jiang, G. Liu, W.J. Liu and C.B. Fan	1180
Research on Thermal Conductive and Insulating Material Based on Phosphoric Acid Adhesive Y.D. Hao, H.K. Liu and X. Xiong	1184

Chapter 8: Environmental Friendly Materials

Influence of Lime Dust on Chloride Binding Capacity of Fly Ash-Cement Paste X.H. Wu, S.S. Yang, C.K. Zhang and P. Yuan	1191
Study on the Optimal Formula of Lubricant with Uniform Design Z.J. Chen, L.L. Feng and B.L. Li	1196
Evaluation of Relationship between Initial Current, Conductance, Chloride Diffusion Coefficient and Charge Passed of Concrete Y.J. Hu, Y.L. Du and W. Zhang	1200
Synthesis of Cordierite from the High-Alumina Fly Ash and Talc Powder Mixtures J.F. Chen, G.P. Guo and L.Y. Shao	1204

A New Ecofriendly Cold Ramming Paste for the Aluminum Electrolysis Cell Y.M. Zhou, L. Tian, G. Xie, R.X. Li and X.H. Yu	1208
Influence of Foaming Agent on the Properties of High Density Foam Concrete X.G. Yu, Y.N. Gao, L. Lin and F. Li	1214
Thermal Characteristics of PCMs - TH29 in Building Energy Storage L. Qiu, Z. Tan and M. Yan	1218
Different Constructed Wetland Substrates and their Applications S. Sheng, J.L. Rui, C.Y. Chen, Y.L. Wang, R.J. Tao and J. Wei	1222
Preparation and Adsorption Properties of PDMDAAC Modified Bentonite H. Shao, N. Cao and D.W. Wang	1226
Effect of Polymer Content to Mechanical Properties of Fly Ash Slurry Y.Z. Lin	1230
Real-Time Monitoring of Rebar Corrosion in Concrete H.Z. He, Y.L. Cui and M.L. Shi	1234
Study on the Heterojunction Photocatalyst Nb₂WO₈/ZnO Prepared by Ball Milling Method J.F. Zhang, X.L. Yu, W. Liu and S.F. Chen	1241
The Effect of Surfactant and Alkali on the Surface Tension of Simulated Solutions of Alkali Activated Slag Cement System X.F. Liu, J.H. Peng, C.H. Yang, Y.Y. Shu and D.C. Wu	1246
Properties of Concrete Containing Scrap-Tire Chips W.C. Tang, H.Z. Cui and Y. Lo	1251
Preparation and Characterization of PP-PVA Blends and Controlled Release System Comprising Bensulfuron-Methyl L.M. Tai	1257
Study on Properties of Cottonseed Protein Plastics Y.R. Chen, X.J. Chen and C.S. Wang	1261
Numerical Analysis Programming on the Concrete Elastic-Plastic Behavior H. Wang, C. Jin, X.Z. Xia and Z.P. Wang	1268
Study on Stability of AgI/TiO₂ Visible Light Photocatalysts in Solutions of Various pH Values L. Feng, K.F. He and W.P. Chen	1272
Effect of Stone Dust Content in Manufactured Sand on Chloride Diffusion Coefficient of Various Strength Grade Concretes P.P. Li, J.B. Xiong and Z.H. Fan	1276
Study on the Effect of Amphoteric Bagasse Hemicellulose on Heavy Metal Adsorption L.J. Wang, X.L. Liu, M.L. Weng, S.X. Li, F.S. Wu, Z.J. Li and S.F. Wang	1282
Study on Preparation and Near-Infrared Reflective Properties of NaZnPO₄ M.F. Zhong, W.X. Fu, W. Da and D.G. Su	1289
A New Fiber Reinforced Composite Material Properties and Engineering Application L.X. Yin, J. Yan, G.W. Li and W.Q. Xu	1294
Grinding Aid Effect of Different Siliceous Material for Quick Lime T.Q. Ni, C.J. Ke, H. Wang and W.Z. Wu	1298
Effect of the Additive on Thermal Conductivity of the Phase Change Material W.H. Li, J.F. Mao, L.J. Wang and L.Y. Sui	1302
Preparation and Cement Fluidity of Slow-Release Polycarboxylate-Type Superplasticizer X. Lv, C.B. Yu and W.Y. Qi	1307
Synthesis of Polythiophene Nanoparticles by Microemulsion Polymerization for Photocatalysis Y. Cheng, J. Wang, Y.C. Bao, Y.L. Ma and G.H. Wang	1312
Effect of Electric Field on Cation Migration and Electrode Reactions of Mortar with Different W/C Ratios C.C. Liu, W.T. Kuo and S.W. Hsu	1320
Sol-Gel Transition Kinetics of Konjac Glucomannan Dilute Solution by Fluorescence Technique D.Y. Xu, Z.F. Liao and H. Wang	1326
The Influence of the Combustion Atmosphere on the Desulfurization Characteristics Z.Y. Liu, J.L. Xie and H.L. Guo	1330

Study on Photocatalysis Degradation of Phenol by Using Tourmaline/ TiO₂ System as Catalyst L.B. Liu, D.L. He and D.M. Zhao	1337
Microwave-Assisted Synthesis of Corn Starch-Graft-Poly(AM-DADMAC) G.H. Wang, Q. Liu, W.B. Li, Y. Chen, Y.M. Liu, W.M. Liu, M. Long and T.T. Huang	1342
Research on the Performance of an Eco-Friendly Nitrogen Organic Boric Acid Ester Antirust Additive H.G. Yang, J. Zhang and M. Ye	1348
Influence of the MB Value of Manufactured Sand on the Mechanical Property of Concrete W.J. Zhou and S. Lin	1352
Study on Phenolic Resin Modified Magnesium Oxychloride Cement Z.J. Zhang, H.K. Li and P.A. Liu	1358
Adsorption of Dyes from Acidic Wastewater by Crosslinked Chitosan Resin Z.H. Huang, Y. Zou, F. Yuan, W.J. Li and X. Pu	1363
Preparation and Mechanical Properties of Cotton Stalk Bast Fibers Reinforced Polylactic Acid Biodegradable Composites Z. Wu, C.Y. Wei and Z.F. Tian	1367
Preparation and Flame Retardancy of Unsaturated Polyester Resin Containing P-Toluenesulfonate-Pillared Layered Double Hydroxide X.L. Xie, L.J. Wang and G.W. Zhang	1372
Study on the Synthesis and Characterization of a Novel Phosphorus-Nitrogen Containing Intumescent Flame Retardant L.H. You, Y.Y. Hui, X.N. Shi and Z.H. Peng	1376
1 Year Long Term on Strength Properties of Pozzolanic Local Soil Bricks W. Namboonruang, R. Rawangkul, W. Yodsudjai and N. Suphadon	1381
Preparation of Activated Carbon Fiber Supported Nanoscale Fe⁰ for Simultaneous Adsorption and Dechlorination of Chloroform in Water Y.Y. Wang, Q. Huang, Q.M. Xian and C. Sun	1386
Fenton-Like Mineralization of Anion Surfactant by Fe₂O₃/Attapulgite Catalyst T. Zhang, S.R. Yu and H.X. Feng	1392

Chapter 9: New Energy Materials

Influence from Covering TiO₂ Nanoparticles with Dense Films upon Electron Transport in Dye-Sensitized Solar Cells Y.D. Hao and S.S. Song	1399
Investigation of Ni-Mo-P Coating Electrodeposition under Stabilized Magnetic Field and its Hydrogen Evolution Activity J.X. Han, Y.X. Bian, X. Su, J.B. Liu, B.L. Wang, T.Q. Peng and Z.D. Yang	1403
Study on Pt-SnO₂/C Electrode Prepared by Different Content of Nafion for New Direct Ethanol Fuel Cells H.J. Ni, C.C. Lv, X.H. Wang, Y. Zhu and M.Y. Huang	1408
Electrochemical Performance of Polypyrrole/Multi-Walled Carbon Nanotubes Composites for Supercapacitors Electrodes J. Li, H.Q. Xie and Y. Li	1415
Enhanced Hydrogen Storage Kinetics of Melt Spun Nanocrystalline and Amorphous Mg₂Ni-Type Alloy by Substituting Ni with Co Y.H. Zhang, G.F. Zhang, X. Li, Z.H. Hou, Y. Zhang and D.L. Zhao	1419
Fabrication and Photocatalytic Performance of Bi₂O₃ Doped with Fe³⁺ J. Zeng, F.C. Zeng, J.B. Zhong, J.Z. Li, S.H. Wang and W. Hu	1425
Study on Photoelectrochemical Performance of ZnO Nanotube /CdSeQuantum Dot-Sensitized Solar Cell P.F. Tao, J. He, C.J. Liang, J.P. Han, L.Q. Qin and Q. Pang	1429
An Excess Heat Phenomenon Triggered by Pressure in a H-Pd Gas-Loading System J. Tian, X. Lu, L.H. Jin, B.J. Shen, L.Z. Zhu, X.L. Zhao, H.Y. Wang, X.H. Zheng and H.Y. Zhang	1433
Effect on Hydrogen Evolution Properties of PtCuLaO_x Membrane Electrode by Oxygen Flow and Acid Treatment B. Yang and N. Huang	1439

Effect of Several Reagents on Photocatalytic Decolorization of Methyl Orange in Bi₂O₃ Suspension Systems	
F.C. Zeng, J.B. Zhong, J. Zeng and J.Z. Li	1443
Effect of Synthesis Conditions on the Structure and Electrochemical Properties of LiNi_{1/2}Mn_{1/2}O₂ by Sol Gel Method	
Z.Y. Yu and H.X. Liu	1447
Facile Synthesis of New Nanocomposite Based on Cobalt Oxide and Carbon Nanotubes with Excellent Electrochemical Capacitive Behavior	
G. Luo, S.C. Zhang and H. Fang	1451
Preparation and Characterization of Three Dimensional Sn-Co Alloy Based on Porous Ni for Lithium-Ion Batteries	
L.X. Xu, S.C. Zhang and W.B. Liu	1457
Enhanced Electrochemical Hydrogen Storage Characteristics of Mg₂Ni-Type Alloy by Substituting Mg with La	
H.P. Ren, B.W. Li, Y. Zhang, Z.G. Pang, Z.H. Hou and Y.H. Zhang	1461
Preparation of Tin Nano-Spheres Film Anode Based on Copper-Nickel Nano-Pillars for Lithium Ion Batteries	
L.B. Kang, S.C. Zhang and R.X. Lin	1467
Dry Water: a Prospective Material for Methane Storage via Clathrate Hydrate Form	
C.L. Liu, G.W. Hu, Y.G. Ye and Q.G. Meng	1473
Photoelectrical and Photovoltaic Properties of n-ZnO/p-Si Heterojunction	
Y.L. Xu and J.H. Li	1477
Preparation of Tris(8-Hydroxyquinoline-5-Sulfonic Acid) Iron(III) Complex and Photocatalytic Property of Surface Modified TiO₂	
F.J. Jiang and W.D. Xue	1481
Effect of Synthesis Temperature on Structure and Electrochemical Properties of Nano-Sized Li₄Ti₅O₁₂ by Self-Combustion Method	
Z.Y. Yu and H.X. Liu	1487
Synthesis and Performance of LiCo_{1/3}Mn_{1/3}Ni_{1/3}O₂ Cathode Material for Lithium-Ion Battery	
H. Liu, Y.C. Yao, Y.M. Li, H.H. Yi and Y.N. Dai	1491
Influence of Citric Acid and Calcination Temperature on Microstructure of the Nano Precursors of La-Mg Hydrogen Storage Alloy	
D.H. Wang, J.H. Xia, S. Zhang and Y. Xia	1496
Effect of Temperature on Anaerobic Fermentation of Banana Stem Residue	
Z.L. Peng, J.L. Wang, J. Jiao, J. Zhang, Y. Zheng, G. Wang, Y.G. Deng, W.M. Gao, S.M. Qin and T. Huang	1501
Preparation of Layered K₄Nb₆O₁₇ and its Photocatalytic Activity for Hydrogen Production	
W.Q. Cui, Y.F. Liu, J.S. Hu and Y.H. Liang	1506
Controlled Crystallization Synthesis of Porous FePO₄·3H₂O Micro-Spheres for Fabricating High Performance LiFePO₄/C Cathode Materials	
W.K. Zhang, H.J. Zeng, Y. Xia, L.C. Qian, B. Zhao, H. Huang, Y.P. Gan and X.Y. Tao	1510
Surface Modification of LiCo_{1/3}Ni_{1/3}Mn_{1/3}O₂ with LaF₃ for Lithium-Ion Batteries	
Z.X. Yang and Q.D. Qiao	1515
Study on a Cd-Fe Redox Flow Battery in a Sulphuric Acid Electrolyte	
J. Cheng, H.M. Zhang, Y.H. Wen, G.P. Cao and Y.S. Yang	1519
Three Reductions Used in Preparation of the Silver Nano-Particle for Crystalline Silicon Solar Cell and its Characterization	
Q. Peng and Y.L. Zhu	1524

Chapter 10: Biomaterials

Castor Oil and Microcrystalline Cellulose Based Polymer Composites with High Tensile Strength	
S.D. Miao, Y.Y. Liu, P. Wang and S.P. Zhang	1531
Evaluation and Optimization of The Factors Affecting Enzymatic Hydrolysis of Silk Fibroin	
L. Zhong, B. Lu and A.P. Liao	1536

Appraisal about Stainless Steels for Piercing Jewelry J.P. Yuan, W. Li, C. Wang and C.Y. Ma	1540
Preparation and Morphology of SMPU/PNIPAM Semi-IPN Microporous Membrane S.M. Zhao, Z.W. Dai, H.N. Lv and Y. Xue	1547
Preparation of Cross-Linked Sodium Hyaluronate Gels with Different Molecular Weights of PEG and Research for its Viscoelasticity and Enzyme-Resistant Properties <i>In Vitro</i> W.G. Wang, Y.J. Cui, P. Li, Y.L. Zhao, Y.N. Gu and J.L. Wan	1552
Effect of Negative Poisson's Ratios of Auxetic UHMWPE on the Contact Mechanics in Artificial Hip Joint Replacement F. Xie and Z.M. Liu	1559
Effect of Pretreatment Process on Thermal Oxidation of Biomedical Grade Cobalt Based Alloy S. Izman, M.A. Hassan, M.R.A. Kadir, M.R. Abdullah, M. Anwar, A. Shah and R. Daud	1564
Experimental Investigation on the Lipid-Lowering Activity of Three Novel Antilipidemic Materials <i>In Vitro</i> S.R. Tan, S.H. Wu, B. Gao, J.R. Xiao, Z.Y. Guo, S.Y. Long, Y. Bai and Z.Q. Su	1568
Effect of Thermocycling on the Properties of Goat Skin Leather X.J. Zheng, S.H. Huo, J. Liu, K. Wang and K.Y. Tang	1573
Corrosion Behavior of Porous Ti-24Nb-4Zr Alloy in Different Simulated Body Fluids Y.X. Li, Z.D. Cui, X.J. Yang and S.L. Zhu	1577
Synthesis and Luminescence Properties of Tb³⁺-Doped Hydroxyapatites S.P. Huang, J. Zhu and K.C. Zhou	1582
Analysis of Monosaccharide Composition of Maize Pollen Polysaccharides J.B. Wang, X.J. Wang and H. Cao	1588
Mechanical Properties of Ti-Nb-X-CPP Biomaterial Fabricated by Spark Plasma Sintering K.D. Woo, S.H. Park, J.Y. Kim, S.M. Kim and D.S. Kang	1592
Research on Compound and the Best Proportion of Phase Change Materials Using in Clothes R.X. Chen and Y.C. Sun	1596
Thermal-Oxidation Degradation of Microwave Drying Nature Rubber F.Q. Zhang, M.F. Huang, M. Chen, Y.Z. Wang and J.H. Liao	1600
Preparation and Mechanical Properties of Zirconia-Mullite Nano-Composites from TiO₂-Doped Si-Al-Zr-O Amorphous Bulk X.P. Tan, S.Q. Liang and L.Y. Chai	1604

Chapter 11: Materials Forming and Machining

Effect of Low-Voltage Electric Current Pulse on Semi-Solid Microstructure of Magnesium Alloy AZ91D Q. Zhou, L.P. Chen and J. Yin	1613
Deformation Behavior of Porous Ti-6Al-4V Alloy Samples Fabricated by Hot Isostatic Pressing Y. Xue, L.H. Lang, G.L. Bu and L. Li	1620
Development and Application on Simulation System of Plate Rolling L.W. Duan, L.S. Chen, Y.Q. Tian, Y.L. Wei, X.D. Lei and Y.H. Wang	1628
Influence of Cutting Parameters on Surface Characteristics for Milling Powder Metallurgy Nickel-Based Superalloy Y. Qiao, X. Ai and Z.Q. Liu	1635
Print Parameters Influence on Parts' Quality and Calibration with 3DP-Part I: Print Parameters Influence on Parts' Surface Topography S.J. Li and S. Cao	1639
Research on Process Optimization of Thin-Wall Plastics Injection Based on Moldflow and Orthogonal Experiment F. Wang and Z.L. Chen	1646
A Study on Forming Process of Chips during Cutting Cast Iron X.B. Huang and X. Chang	1650

Effect of Controlled Rolling on Mechanical Property and Microstructure of Nb Microalloyed H Beam M. Zhu, A.C. Ren and Y. Ji	1654
Finite Element Simulations of Working Characteristics of Solid Expandable Tubular Threaded Joint J.B. Zhang, Y.L. Jia and X.H. Lv	1658
Application of Software DYNAFORM to the Tube Forming Process with Multi-Stages L. Wu and J.W. Xiang	1663
Electrode Material Effect on Electrical Discharge Machining PcBN Cutting Tool Processing Y.H. Jia	1667
Multi-Objective Optimization by Gaussian Genetic Algorithm and its Application in Injection Modeling X.P. Liao, T. Ruan, W. Xia, J.Y. Ma and L.L. Li	1672
Simulation of Drawing Process for Spring Seat of Spiral Step and Multiobjective Optimization L. Sun, W.H. Cheng and J.W. Xing	1677
Microstructure, Properties and Work Hardening Behavior of High Strength Cold Rolled Dual-Phase Steel Z.Z. Zhao, Z.G. Wang, A.M. Zhao and J.Y. Ye	1682
Print Parameters Influence on Parts' Quality and Calibration with 3DP-Part II: Print Parameters Calibration and Contour Accuracy Control S.J. Li and S. Cao	1687
Effect of Processing Parameters on the Hot Compressive Deformation Behavior of 20CrMnTiH C.L. Hu, Y. Zhang, Z. Zhao and Z.L. Zhang	1693
Effect of Tea Saponin on the Uptake of Cadmium by Corn from Soil H.L. Xia, Z.J. Yan and B. Yu	1697
Finite Element Analysis of β-Titanium during Equal Channel Angular Extrusion J.Y. Si, Z.H. Hu and L.P. Zhong	1702
Combined Effect of Electromagnetic Field and Grain Refiner on Microstructure of $\Phi 310$ Mm 7050 Aluminium Alloy Ingot Y.B. Zuo, Z.H. Zhao, H.T. Zhang, K. Qin and J.Z. Cui	1708
Effects of Electromagnetic Stirring on Morphology Evolution of Primary Phase in Semisolid Alloy Z. Liu and X.M. Liu	1712
Control of Pressure Fluctuations in Foamed Sheet Die's Entrance Z.L. Chen, X. Zhang and F. Wang	1717
Preparation of $\text{Fe}^{3+}/\text{Ag}^{+}$ Co-Doped Nanometer TiO_2 Photocatalyst with Sol - Gel Auto-Igniting Method Z.F. Shi and S. Guo	1721
Effects of Hair Fibers on Braking Friction Materials Y.H. Ma, B.G. Wang, S.L. Shen, X.Y. Geng, H.L. Jia and S. Wen	1725

Chapter 12: Physics and Numerical Simulation of Materials Process

Structure Analysis and Optimization of Precision Grinding Machine Bed W. Yang, X.H. Lin, Y.B. Guo, J. Lin and T. Jiang	1731
Simulation Analysis of Drag-Reduction Effect by Dimpled Surfaces with Quasicrystal and Crystal Lattice Arrangement Y. Zhang, X.G. Geng, M. Zhang and X.N. Wang	1736
Simulation and Experimental of Magnetron Sputtering Film Thickness Distribution J.X. Wang, Y.P. Han, X.L. Gao, M.H. Luo and S.Z. Wang	1741
Study of Solidification Microstructures of Multi-Principal High-Entropy Alloy FeCoNiCrMn by Using Experiments and Simulation G.X. Ye, B. Wu, C.H. Zhang, T. Chen, M.H. Lin, Y.J. Xie, Y.X. Xiao, W.J. Zhang, L.K. Zhang, Z.H. Zheng and C. Wang	1746
Simulation of Microstructures in Solidification of Continuous Casting Aluminum Alloy Thin Strip S.D. Chen, J.C. Chen and L.H. Lv	1750

Computational Simulation of Corrosion Perforation in the Oil-Tank Bottom with Cellular Automata	
J. Liu, Z.L. Li and Z.S. Cao	1755
Research on the Optimized Tool-Path Planning of Computer Controlled Optical Surfacing	
R. Pan, W. Yang, Y.B. Guo, F. Yang and D.X. Zhang	1763
The Twinning Modes of B2-B19' Martensitic Transformation in NiTi Alloys - A Phase Field Study	
C.B. Ke, S.S. Cao, X. Ma and X.P. Zhang	1768
Thermodynamics Analysis in the Simulation Process of $\gamma_{\text{Fe}} \rightarrow \alpha_{\text{Fe}}$ Isothermal Transformation's Grain Nucleation and Growth	
G.Y. Zhang, D.X. Lv, G.X. Zhao and F. Zuo	1773
Study on the Pretightening Assembly Moving Beam of Open-Die Forging Hydraulic Press	
R.J. Gu, H. Yang, Y.J. Zhang, Z.Y. Fang, Y.L. Fan and D.X. Feng	1779
Phase Field Modeling for Grain Growth of Static Recrystallization of Deformed Alloys	
Y.J. Gao and Z.R. Luo	1785
Crystal, Electronic and Magnetic Structure of Co and Ag Doped Rutile TiO_2 from First-Principles Calculations	
L.K. Zhang, B. Wu, M. Wang, L. Chen, G.X. Ye, T. Chen, H.L. Liu, C.R. Huang and J.L. Li	1789
The Realization of Numerical Control Machining of 2D Parts Based on MasterCam FBM	
Z.D. Yun and M.H. Dai	1793
Behavior Engineering for the Analysis and Verification of Processes	
D. Tuffley and L. Wen	1798
Numerical Simulation of Multi-Track Laser Cladding Process	
J.W. Kang, T.Y. Huang, A.F. Zhang and D.C. Li	1802
Research on the Effects of Welding Sequence on Welding Residual Stress of High-Speed Train Based on SYSWELD	
Y.H. Chen, P. Chen and A.Q. Tian	1806
Numerical Simulation of the Relation between Plasma Reflection and Keyhole Dimension in the Keyhole PAW Process	
F.L. Yin, S. Zhu and S.S. Hu	1812
Numerical Simulation of Welding for Box Beam Structure on Bogie of High Speed Train	
H.J. Liu, J.X. Liu, H. Chen, H. Ji and Z.Y. Zhang	1816
Research Materials of Chills Effect on the Solidification Process of ZM5 Shell	
S.C. Zhao, E.J. Guo and L.P. Wang	1820
Research on Methods of Sheet Blank Shape Optimization for Drawing of Complex Special-Shaped Boxes	
W. Xia, H. Yang and J.M. Zeng	1826
A Pseudo Inverse Approach with Kinematically Admissible Intermediate Configurations for the Axi-Symmetrical Cold Forging Modelling	
A. Halouani, Y.M. Li, B. Abbès and Y.Q. Guo	1832
The Effects of Mn Addition on Microstructure and Properties in 6061 Aluminium Alloy	
Y.B. Wang and J.M. Zeng	1838
Study on Infiltration Kinetics of High Temperature Self-Lubrication Composite by Pressure Infiltration	
B. Wang and Y.J. Wang	1843
The Simulation of the Influence of Honed Edge Radius on the Maximum Temperature in Drilling 42CrMo with K-Grade Carbide Drill Bit	
Y.D. Zhou and T. Wang	1848
Formalizing Manufacturing Process Modeling Using Composition Trees	
L. Wen and D. Tuffley	1852
Numerical Simulation of the Tunnel Oven with Fluent Software	
M.W. Wan and S.H. Zhang	1856
Phase-Field Simulation of Directional Solidification Microstructure Evolution in a Binary Alloy	
J.J. Tang, J.Z. Jiang, C.H. Tang, D.H. Chen, X.R. Zhu, R. Wang and Z.H. Gong	1862
Directional Solidification Microsegregation and Concentration Analysis with Different Supersaturation	
D.H. Chen, L.Q. Hou, J.J. Tang, Z. Ren, L.J. Fei and Z.Y. Kang	1866

Study on Hot Processing Maps and Flow Instability of 1235 Al Alloy Treated by Different Methods of Purification	
G.S. Fu, W.D. Yan, H.L. Chen, G.Q. Chen and C.Z. Cheng	1870

Chapter 13: Surface Engineering/Coatings

The Effect of Active Packaging Film on the Quality of Dashehari Mango Fruits	
W.C. Xu, D.L. Li, Y.B. Fu and Y.J. Wang	1881
Performance Evaluation of SHY-99 Coating for Carbon Steel Water-Cooler	
B. Chen, X. Li and Y.G. Fan	1886
Effect of Brazing Clearance on Microstructure and Strength of Welded Joint of 316L Stainless Steel	
Z.J. Chen, M. Wang and L.L. Feng	1890
Preparation and Characterization of Paclitaxel Imprinted Silica Nanoparticles	
J.H. Li, Z.J. Zheng, S.P. Fu and J.B. Zhu	1894
Effect of Negative Bias Voltage on Corrosion Resistance of TiN Coating Deposited by MAIP	
L. Yuan, Y. Gao, W. Zhang, C.L. Wang, Z.K. Ma and H.W. Cai	1898
Nb-C Alloyed Layer Prepared on TiAl Alloys by Plasma Treatments and its First-Principles Investigation	
X.P. Liu, P.L. Ce, Z.X. Wang and Z.Y. He	1903
Characteristics of Surface and Interface of Mercury-Stannum Reactive Wetting at Room Temperature	
X.M. Liao and D.Y. Zhu	1909
Synthesis and Characterization of Lamellar Nanostructured Yttrium Films Using Lyotropic Liquid Crystalline Templates	
R.J. Guo, X.J. Sha and L.L. Cao	1915
Study on the Distribution of Macro-Particles on Films Prepared by Magnetic Field Enhanced Arc Ion Plating	
	1919
Structure and Corrosion Resistance of Iron Coatings Containing Silicon Powders	
Y. Wang, G. Chen, W.D. Liu, Q.Y. Zhou and Q.D. Zhong	1926
Semiconducting Behavior of Organic Polymer Coating during its Degradation in 5% Sulfuric Acid Solution	
G. Chen, W.D. Liu and Q.D. Zhong	1932
Low Cycle Fatigue Behavior of Spray Formed Superalloy Rings	
W.Y. Xu, G.Q. Zhang and Z. Li	1937
Adhesive Bonding of Glass Fiber Reinforced Polypropylene	
J.G. Zhang and X.D. He	1942
Synthesis and Tribological Properties of MoSe₂/C and MoSe₂ Nanoflakes	
W.J. Li, C.S. Li and K.Q. Wu	1946
Effect of Phase Composition and Microstructure of Oxide Scale on the Corrosion Resistance of SS400 Hot Rolled Strip	
X.L. Zhou, M. Zhu, X.Z. Hua, Z.G. Ye, X. Cui and L. Nie	1951
Repeated Impact Resistance of Cr-Mo Surface Alloying Layers on Ti6Al4V Alloy	
L. Qin, K.K. Yang, S. Wang and B. Tang	1958
Novel Electrochemical Behavior of Organic Polymer Coating in Alkaline Solution	
L.B. Zhu, W.D. Liu and Q.D. Zhong	1962
The Study about Environmentally-Friendly Passivation Technology Process and Performance on Brass Surface	
H.Y. Xu and L. Li	1967
Study of Corrosion Behaviour of Molybdenum Series Coatings on Galvanized Steel	
H.M. Zhang, L. Wu, Z.H. Ouyang, D.L. Yi, Q. Hua, M.S. Tao, Y. Qin and D. Li	1972
Effect of Thermal Input on Finite Element Predictions of Welding Residual Stresses	
A.H. Wu, S. Syngellakis and B.G. Mellor	1976
Growth Characteristics of Pulse Electrodeposition Fe-Si Layer	
H.L. Yang, L. Wu, G.Z. Tang, Y.G. Li and Y.Z. Zhang	1984
Study on Surface Modification of Ammonium Nitrate	
Y. Wei and B.H. Cai	1989

Development of CVD Diamond Thin Films on Titanium Substrate and Study their Tribological Behavior S.J. Askari	1994
Microstructure and Oxidation of 55%Al-Zn-Si Hot-Dip Coatings Deposited on Low Carbon Steel at High Temperature B. Zhou, F. Jin, Q. Luo, Q. Li and K.C. Chou	1998
Single Layer Brushite Coating onto Stainless Steel Substrate Using Dip-Coating Technique A.M.H. Amiruddin, R. Shamsudin, A. Jalar and M.A.A. Hamid	2004
Effect of Pack Al Content on Growth Kinetics at 650 °C of Ni₂Al₃ Coating Layer on Nickel-Electroplated Creep Resistant Ferritic Steels D.J. Wu, W.H. Hua, Z.D. Xiang and C.Y. Zhu	2008
The Study of Acid Doped Polyaniline Anticorrosive Coatings H.Y. Xu and L. Li	2013
Coupled Magnetic Field Enhanced Arc Ion Plating: Process, Plasma and Deposited Film W.C. Lang	2018
The Tribological Characteristics of Polyimide Bonded Solid Lubricating Films under Different Lubrication Conditions Y.P. Ye, R.J. Yang, H.Q. Wan, J.M. Chen and H.D. Zhou	2026
Study on W-Mo-Dy Multi-Elements Diffusion Layer W. Zhang, Y. Gao, L. Yuan and C.L. Wang	2031
Feature-Based Volume Decomposition for Robotic Weld Deposition-Based Rapid Prototyping S. Zhu, F.L. Yin, Y.Y. Liang and J. Liu	2035
Simulation on Temperature and Residual Stress Field of Laser-MIG Hybrid Welding of A6N01-T5 Alloy D. Li, H. Ji, Y. Liu, G.Q. Gou, H. Chen, J.B. Liu and L.C. Meng	2040
Progress in Ice-Phobic Coating S.T. Zhang, H. Wang and L. Wang	2044
Electroless Deposition of Nickel on the Surface of Silicon Carbide Crucible from Alkaline Bath F.X. Xiao, X.N. Shen, J.P. Xie, D.X. Yang, F.Z. Ren and A.Q. Wang	2049
Electrodeposition and Hardness and Corrosion Resistance Propertie of Ni/Nano-B₄C Composite Coatings J.B. Jiang, W.D. Liu, L. Zhang, Q.D. Zhong, Y. Wang and Q.Y. Zhou	2055
Tribological Properties of NiCr-Cr₃C₂ - Ni / MoS₂ Supersonic Plasma Sprayed Coating under Different Temperatures X.Q. Li, H.J. Wang, Y.M. Guo, M. Liu and K.K. Zhao	2061
Electrochemical Studies on the Passivation Behavior of Cu-Ni-Fe Alloy in Borate Buffer Solution at pH 8.4 Q.Y. Zhou, Y. Wang and Q.D. Zhong	2067
Study on Corrosion-Resisting Properties of High-Speed Arc Sprayed Zn-Al Alloy Coating in Caverns M. Lou, Y.F. Lu, C.L. Ma, Y.L. Hu, M. Zhou and H. Yang	2072
Effect of Phosphating Technologies on Corrosion Resistance of Phosphate Coatings on 6063 Aluminum Alloy B.L. Lin, Y.Y. Xu and B. Tian	2079
Synthesis, Characterization and Corrosion Protection Properties of Polyaniline/TiO₂ Nanocomposite L. Zhong, Y.H. Wang and Y.H. Lu	2083
Post-Weld Oxidation Behavior of AA6061 Al Alloy N.A. Che Lah, A. Jalar and N.K. Othman	2087
Preparation of Activated Carbon from Medical Waste X.Y. Sun, H.X. Bian, M. Zhang, W.Q. Han, J.Y. Shen, J.S. Li and L.J. Wang	2091

Chapter 14: Mechanical Behavior and Fracture

Formation Mechanism of Alumina Nanostrip S.J. Hwang, C.T. Tsai and W.L. Liu	2099
---	------

Model Tests Study on the Bending Properties of the External Pre-Stressed Combination Box Girders with Corrugated Steel Webs J. Hu and X.Y. Sun	2103
Influencing Time Response of Nano Photoelectric on the Factors Films H.X. Dai	2111
Study on Mechanism of Rock Fragmentation of TBM Disc Cutter K.R. Hong, H.P. Liu and W. Zhang	2116
Study on the Thermal Degradation Kinetics of Modified Chloroprene Rubber Adhesive Dedicated to Bonding UHMWPE and 45# Steel P. Hu, Q.Q. Luo and M. Pan	2125
Study on Nano-SiO₂ Measured by Atomic Force Microscope Z. Jing, Q.Z. Cao and J.Y. Li	2130
Influence of Inclusion on Fatigue Performance Evaluation of High Strength Transmission Shaft Steel H. Xue, L.X. Kuang, R.F. Li and R. Ge	2134
Effects of Low-Voltage Pulsed Magnetic Field and Pouring Temperature on Solidified Structure of Al-4.5%Cu Alloy Q. Zhou, L.P. Chen and J. Yin	2139
First-Principles Study on Structure and Stability of YAP Crystal Q.G. Song, L.W. Liu, Y.B. Wang, H. Zhao, H.Y. Yan and Y.F. Chen	2144
Settering of SH-Waves by Interface Semicircular Debonded Cylindrical Lining and Linear Cracks Originating at Edge of Lining J.F. Nan, H. Qi and C.X. Zhao	2149
Mechanical Properties of Carbon Cathodes during Aluminium Electrolysis Q.S. Liu and H. Fang	2155
Prediction of the Tertiary Structure of α-Glycosidase from <i>Aspergillus niger</i> by Homology Modeling F.X. Wang, Q.Y. Wang, Y.L. Liu and J. Yu	2160
Critical Life Prediction of Ship-Borne Helicopter Metallic Dynamic Components Based on Corrosion Damage Y. Gao, W.L. Liu, W. Han, X.Y. Liu and D.Z. Yu	2164
Fractals and Catastrophe Analysis of Fatigue Crack Propagation for Sample by Plastic Deformation Y.X. Yao	2169
The Cycle Measurement of Sulfur Blank Value with the CS-444 Infrared Ray Carbon Sulfur Analyzer J.H. Wei, H.F. Sun and S.J. Yang	2173
Study on Surface Stress Measurement of Laser Cladding Fe-Based Alloy Coating Based on Rayleigh Wave Signal Analysis B. Liu, S.Y. Dong, B.S. Xu and P. He	2177
The Tribological Behaviour of Beryllium Copper Alloy QBe2 against 30CrMnSiA Steel under Sliding Condition Z.H. Tan, Q. Guo, X. Li and Z.P. Zhao	2181
Application of GM Yield Criterion in Plastic Zone of ModeCrack and Burst Pressure for Pipeline D.W. Zhao, C.M. Li, L.Y. Lan and S.H. Zhang	2189
Influence of Solution Temperature and Time on Microstructure and Properties of A357 Alloy Y. Li, H.F. Cheng, J.M. Zeng and Y.L. Zheng	2195
Discussion of the Evaluating Criterion of 400°C Low Cycle Fatigue Life under Multiaxial Stress States W.X. Zhang, G.D. Gao and G.Y. Mu	2199
The Lattice Stability of Ti, Zr and Hf in an Ultra-Soft Pseudopotential Method of the First-Principles H.J. Tao and J. Yin	2203
Experimental Investigation of the Phase Equilibria of Al-Zn-Ti System in Al-Rich Corner at 400 °C Q. Luo, F. Jin, Y. Li, Q. Li, J.Y. Zhang and K.C. Chou	2210

The Electronic Properties of Al-, P-Doped and Al, P Co-Doped Boron Nitride Nanotubes M. Sun, G.L. Wu, T. Ye, H. Zhang, Z.D. Yang and Z.S. Li	2215
Study on the Range of Freeze-Thaw of Surrounding Rock from a Cold-Region Tunnel and the Effects of Insulation Material P. Qi, J. Zhang, Z.R. Mei and Y.X. Wu	2222
Quantitative Process Risk Analysis Based on Dynamic Simulation of Gas Gathering Process J.M. Fu, D.F. Zhao, C. Zhang and Y. Liu	2226
Quantitative Analysis of the Content of Substituent Group in Difunctional Polysiloxane C.Q. Sheng, Z.R. Qu, J.X. Jiang and G.Q. Lai	2231
Fatigue Behavior of Cast Steel ZG20SiMn under Stain Control Mode Y.Y. Li, F. Li, X. Che and L.J. Chen	2236
Thermodynamic Study on CuInO₂ Preparation by Solid Reaction Method Y. Yao, G. Xie, N. Song, X.H. Yu and R.X. Li	2241
The Studies on the Thermophysical Properties of Binary Systems of Neopentylglycol and the Derives X.W. Wang, Y.E. Wang and C.Q. Zhao	2245
The Cracks in the Residential Dwellings and their Treatment J.G. Luo, J.Y. Zhang and S.J. Xu	2250
Strengthen Mechanism of Hard-Drawn Cobalt-Base Elastic Alloy X.H. Zheng, G.M. Liu and J.H. Du	2255
Hydrogen Atom Adsorption on α-Al₂O₃(0001) Surface from First Principles J.G. Hu, Y.S. Zhang, L.C. Jia, B. Zhu, H.G. Yang and Q. Zhan	2261
Microstructure and Mechanical Properties of TiB₂/Al Composites S. Chen, Y.T. Zhao and H. Jin	2266
Application of CAD/CAE/CAM Technology in Plastics Injection Mould Design and Manufacture M.H. Dai and Z.D. Yun	2271
Fatigue and SCC Behavior of Sensitized SUS304 Stainless Steel in Pressurized Hot Water at 7.3MPa and 288°C A. Saengsai, Y. Otsuka and Y. Mutoh	2276
Measure of the Photosynthetic Efficiency of the Cabbage Leaves by Using Photo-Acoustic Tomography Spectroscopy Technology G.H. Lie and G.W. Lie	2283
Study on Safety Assessment Methods of the Penstock of the High Head Hydropower Station Using the China Standard GB/T 19624-2004 X.G. Zhu and B.L. Lei	2288
An Optimization Method for Optimal Engineering Structure Design Combining Intelligent Optimization Algorithm and CAE Code W.J. Peng, R. Ge and M.K. Gu	2296
Recrystallization Law of Ti-IF Steel During Annealing Process Y.Q. Feng, Z.G. Gao and F.M. Wang	2301
Surplus Fatigue Life Prediction of Diesel Engine Piston by the Equivalent J-Integral Approach W.X. Zhang, G.D. Gao and G.Y. Mu	2305
Electrochemical Corrosion Behavior of Different Heat-Treatment Temperature Fe-Based Bulk Amorphous Alloy Q.J. Chen, H.Y. Yu, X.L. Zhou and X.Z. Hua	2309
Effect of PEG on Stability of Alkalinity Silica Sol J. Wang, M. Sun, B.H. Gao, R. Wang and Y.L. Liu	2314
High Velocity Impact Damage Analysis for Glass Epoxy-Laminated Plates M.T.H. Sultan, S. Basri, A.S.M. Rafie, F. Mustapha, D.L. Majid and M.R. Ajir	2318