

Table of Contents

Preface

Symposium A: Energy Related Composites and Nano-Materials

Recent Advances in Graphene Preparation Methods C. Zhou, S.H. Chen, J.Z. Lou, Z.C. Chen, G. Xu and C.Y. Yang	3
Controlled Growth of ZnO with Different Morphologies on Zn Foils by a Simple Aqueous Solution Method Q.L. Sun, Y.Q. Chang, C.J. Shao and Y. Long	13
Morphology of Nanotube Governs the Photoelectric Performance X.G. Shi, A. Tian, H. Yang, C.W. Liu and X.X. Xue	19
Preparation and Electrochemical Properties Research of Vanadium-Sol Modified LiFePO₄ Cathode Material for Lithium Ion Batteries L.Q. Ye, D.J. Fu, J.J. Chen, Q. Ma, W.L. Zhang, M.L. Tan and D.S. Li	25
Efficient Visible-Light Photocatalysts from Sensitized TiO₂ Nanospheres X.Y. Xu, M. Wang, L. Lin and D.N. He	31
Structural and Optical Properties of Cu₂MnSnS₄ Thin Film Fabricated by Sol-Gel Technique L.L. Chen, H.M. Deng, K.Z. Zhang, L. Huang, J. Liu, L. Sun, P.X. Yang and J.H. Chu	39
Study of Structural and Optical Properties of Cu₂ZnSnS₄ and Cu₂ZnGeS₄ Thin Films Synthesized by Sulfurization of Stacked Metallic Layers L. Huang, H.M. Deng, J. He, L.L. Chen, P.X. Yang and J.H. Chu	44
Lithiation/ Delithiation Process of Silicon-Carbon Composites Prepared by Mechanical Alloying Y.F. Ang, X.Y. Ren, Z.B. Dou and X.Y. Jiang	49
Defect-Controlled Gas Sensing Property of Nanostructured ZnO Films Y.Q. Chang, C.J. Shao, N. Jiang, Y.J. Ma, S.Q. Wang, B. Zou and Y. Long	54
Preparation and Heat Transfer/Thermal Storage Properties of High-Temperature Molten Nitrate Salts H.T. Zhang, Y.J. Zhao, J.L. Li, L.J. Shi and M. Wang	60
Sintering Properties of Apatite-Type Lanthanum Silicate Electrolytes Q.L. Shi, H. Zhang, T.J. Li, F.L. Yu, H.J. Hou and P.D. Han	65
Characterization of Si/Artificial Graphite Composite Made by Mechanical Alloying for Li-Ion Cells Y.N. Guo, X.Y. Jiang and Y.F. Ang	71
Fabrication of Silica Monoliths with Hierarchically Porous Structure from Freeze-Drying L. Lu, Y.L. Wei, J. Lin and L. Qian	76
Preparation of NiO Microspheres by Hydrothermal Method and its Electrochemical Capacitive Properties Q.Q. Li, R.H. Fan, K.L. Yan, K. Sun, X.A. Wang, M. Chen and P.T. Xie	81
Preparation of Nickel and Manganese Dioxide by Co-Precipitation and its Electrochemical Capacitive Properties Q.Q. Li, R.H. Fan, Y.J. Bai, C.B. Cheng, G.F. Liu, L. Lu and P.T. Xie	86
Preparation of Polyvinylidene Fluoride (PVDF) Triboelectric Nanogenerators with Different Polymer C. Wang, H. Yu, T. Huang and C. Tan	91
Size Dependence of Evaporation Temperature by Bond Number Calculation J. Wang, H.J. Xiao, H.X. Zhang, X.H. Liang and H. Li	96
Influence of Surface Chemical Groups and Content of Carbon Nanotubes on Electrical Property of Epoxy Resin Composites S.F. Lin, C. Jiang, J.W. Zhang, D.Z. Jiang and S. Ju	101
Design and Simulation of a Bending Actuator Based on Super-Aligned Carbon Nanotube/Polymer Composites W. Zhang, M.C. Weng and L.Z. Chen	107

Structure and Electrochemical Properties of $\text{La}_{1-x}\text{Ba}_x\text{CoO}_3$ Powders as Negative Electrode Materials for Ni/MH Batteries	
P. Liu, J.Y. Hu, Q.R. Yao, J.Q. Deng, Z.M. Wang and H.Y. Zhou	113
Fluoride Adsorption Properties of CeO_2 Powders and Al Foam Loaded CeO_2	
J.Q. Chen, D.H. Yang, Y. Wei, J.H. Jiang, A. Ma and D. Song	118
Preparation of Bead-on-String Nanofibers and its Application for the Removal of Bisphenol A	
F. Qiu, M.L. Peng, Z.M. Wei, G. Zhang, S.R. Long, X.J. Wang and J. Yang	125
Preparation and Characterization of Polylactic Acid Coating on the Surface of Magnesium Alloy	
X.Y. Hua, M.F. He and X.Q. Zhou	132
Effect of the Difference in Dielectric Constant of the Phases on Dielectric Property of the Composites	
H. Zhou, Q.M. Zhang, Q. Tang, H. Cui, Y.H. Xu and J. Du	137
Influence of Electron-Phonon Coupling Coefficient on Properties in Femtosecond Laser Ablation	
R. Xiang, X.Y. Tan and H.L. Wei	144

Symposium B: Photocatalytic Materials and its Applications in the Field of Energy and Environment

Entanglement of CeO_2 Nanorods and Graphene Nanoribbons and their Properties Studies of Nanocomposites	
B. Zhang, X.C. He, M.J. Gao, X.F. Ma and G. Li	153
Enhanced Photocatalytic Properties of Ag-Modified Mg-Doped ZnO Nanocrystals Hybridized with Reduced Graphene Oxide Sheets	
L.Q. Wang, Y. Wu and X. Yang	161
Preparation and Photocatalytic Property of Dendritic TiO_2/VO_x Nanofibers	
L.T. Teng, K. Zhao, Y.F. Tang and X. Chen	167
Effect of Sputtering Power on Photocatalytic Activity of Thin TiO_2 Films	
Z.H. Luo, J.F. Leng, W.S. He and D.J. Hu	173
Synthesis of TiO_2/RGO Nanocomposites by Hydrothermal Method and their Photocatalytic Activity Research	
J.F. Leng, Y.Z. Wang, X.Y. Teng and D.J. Hu	178

Symposium C: Minerals and Resources, Materials for Oil-Gas Field Engineering, Structure Building Applications

Effect of Particle Size of Natural Flake Graphite on the Size and Structure of Graphene Oxide Prepared by the Modified Hummers Method	
H.Y. Xian, T.J. Peng and H.J. Sun	185
Development of Functional Polymer as Oil-Well Cement Retarder	
X.J. Xia, J.T. Guo, S.Q. Liu, J.Z. Jin, Y.J. Yu and Y.K. Feng	191
Structural Features of Fibriform Silica from Short Chrysotile Fibers by Acid-Leaching	
P.C. Song, T.J. Peng, H.J. Sun, Y.C. Yu and H.Y. Xian	199
Seawater Corrosion Resistance of Low Heat Portland Cement Concrete	
N. Wang, X.W. Cheng and Y.X. Yang	207
Study on Microwave-Assisted Grinding of Low-Grade Ludwigite	
Y.J. Liu, T. Jiang, Z. Deng, X.X. Xue and P.N. Duan	214
Modified Mechanism and Properties of Water-Soluble Sodium Silicate for Oil and Gas Field	
H.X. Zhang, Y.J. Zhao, J. Zhuang, H.Y. Qin and H.L. Zhang	220
Preparation of Al_2O_3 from the Nepheline Ore of Nanjiang County, Sichuan Province of China	
Y.C. Qiu, K.H. Qiu, J.H. Li and P.C. Zhang	230
Biomass Reduction Roasting-Magnetic Separation of Low Grade Goethite	
Q.Y. Wang, Y. Wu, Y.H. Li and X. Yang	235

Research on Fatigue Failure of Steel E4330 for Fluid Cylinder B.S. Huang and J. Lu	241
Pitting Behavior of 304 Stainless Steel in Simulated Condensate in Refining High Sulfur and Salt Heavy Oil X.H. Wang, X.H. Guo, Y.H. Lin, Y.Y. Li, S.L. Wang and H.L. Hu	249
Synthesis and Properties of the Poly(methyl methacrylate-acrylamide) Y.P. Wu, C.Y. Zhu, Y.H. Lin, Z. Yan, H. Yang, C.L. Zhou and A. Singh	256
Synthesis and Properties of the Poly(styrene-acrylic acid) Y.P. Wu, C.Y. Zhu, Y.H. Lin, Z. Yan, H. Yang, C.L. Zhou and A. Singh	262
Effect of Heat Treatment on Corrosion Resistance of 0Cr18Ni9Ti Stainless Steels H.W. Li, D.G. Guan, G.L. Xu, Y. Sun, F. Tang, T. Chen, H. Yan, Y. Xu and C.M. Sun	268
Study on the Gold Leaching Process by Potassium Ferricyanide P. Tang, J. Liu, M.W. Song, H.P. Yu and X. Zhang	273
Formation and Mitigation of BaSO₄ Scale in Oil Fields M. Zhu, C.Q. Ren, Y.Y. Meng, L. Liu and Y.P. Zheng	278
Preparation and Characterization of Microporous Activated Carbon from Raw Petroleum Cokes B.T. Wang	286
Preparation and Characterization of Microporous Activated Carbon from Raw Anthracite B.T. Wang	292
Preparation of High Purity Spherical Silica Powder from Silica Fume N. Sun, P.C. Zhang, K.H. Qiu, J.F. Li, X.F. Liu, Y.C. Qiu, J.C. Yang, X. Wang and L.J. Xian	298
Changes of Microstructure and Properties of G105 Drill Pipe in H₂S Environment B.S. Huang, X. Chen and L.P. Huang	303
Thermodynamic Study of Ag-Au-Gd, Tb Ternary Systems J.L. Li, S.L. Wang, L.J. Zhou, X.H. Wang, Y.H. Lin and X.J. Liu	313
Research on Corrosion Rate of Sucker Rod Steel 20Ni2Mo in Wet H₂S Environment W.T. Qu, S.Y. Liu and Z.S. Xu	319
Microstructure and Properties of X100 High Strength Pipeline Steel Y.X. Tian, B. Wang, J.L. Li, B.L. Chen and Q. Feng	325
Process of Salicylic Acid-Type Composite for Rare Earth Ions Y.Y. Yao, J. Liu, Y.Q. Wu, M.M. Zheng and C.M. Tang	333
Application of Ultrafine Weighting Materials in High-Density Oil-Based Drilling Fluid Technology Y. Ye, W.H. An, D. Yin, Q.W. Zhang, L. Li and L.L. Ren	338
Research and Preparation of High Quality Polysilicon Ingots and Multicrystalline Silicon (mc-Si) Cells D.W. Luo, J.F. Li and J.P. Long	345
Effects of Synthesis Temperature and Holding Time on the Electrochemical Properties of LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ Cathode Material Using Rheological Phase Method H. Peng, Z.H. Zhu, P.X. Huang and X. Li	351
In Situ Synthesis of Graphitized-Carbon Coated Li₄Ti₅O₁₂/C Anode for High-Rate Lithium Ion Batteries P.X. Huang, S.H. Tang, H. Peng and X. Li	358
Preparation of New Multi-Component Nanometer Manganese Dioxide/Carbon for Air Electrode Q. Lu, J.P. Long and S.J. Li	365
Removal of Nickel (II) Ion from Wastewater by Modified Maifanite W.X. Zhou, D.G. Guan, Y. Sun, C.M. Sun, G.L. Xu, T. Chen, Z.S. Yu, Y. Xu and H. Yan	371
Preparation and Optical Property of ZnS:Mn/XO₂ (X=Ti, Si) Nanoparticles with Core/Shell Structure Y.L. Wang, W.T. Zhang, J.P. Long and P.C. Zhang	376
Combustion Synthesis and Luminescence Properties of Li₂Ca_{1-x-y}SiO₄: xEu³⁺, ySm³⁺ Phosphors C. Zhao, K.H. Qiu, X. He, G.Y. Yan and S.Z. Chen	384
Corrosion Behavior of P-Coated Biomedical Pure Magnesium S.J. Zhou, J.F. Li, J.P. Long and H.Q. Du	389

Preparation and Electrical Conductivity of Polythiophene/Microcrystal Muscovite Layered Composites	
Y. Ling and J.P. Long	392
Effects of Current Density on the Properties of Microarc Oxidation Coatings Formed on Aluminum Alloy in Silicate-Na_2MoO_4 Electrolyte	
P. Wang, T. Wu, X.Y. Guo and Y. Peng	398
Effects of Sr^{2+} Doping on the Luminescent Properties of CaTiO_3: Pr^{3+}	
G.Y. Yan, K.H. Qiu, S.Z. Chen and C. Zhao	404

Symposium D: Environment Technologies and Functional Materials, Environmental Emission and Protection

Life Cycle Analysis on Carbon Emission Reduction and Energy Saving by Using Slag as Alternative Materials in Cement Production	
Y. Li, Y. Liu, F.F. Shi, Z.H. Wang and X.Z. Gong	411
Analysis on the Global Warming Potential of Cement Concrete Pavement in China	
L.L. Zhao, Z.H. Wang, Y. Liu, X.Z. Gong, F. Gao, J.P. Cui, Q. Jiang and L.P. Ma	418
Scenario Analysis of Denitration for Chinese Coal-Fired Power Generation	
X.C. Meng, C. Li, S.P. Cui, L.L. Zhao, X.Z. Gong and Z.H. Wang	425
Research Progress on Ecological Design Methods of Materials	
X. Liu, X.Z. Gong, Y. Liu and Z.G. Peng	430
Life Cycle Assessment of Cement Clinker Production Using Coal Gangue as Alternative Raw Material and Fuel	
J.P. Cui, Y. Liu, Z.H. Wang, X.Z. Gong, F. Gao, L.L. Zhao and L.W. Hao	435
Removal of Metal Ions from Aqueous Solutions by Microcapsules Prepared by 8-Hydroxy-Quinoline with Polystyrene	
W.X. Chen, X.F. Gao and A.J. Ma	441
Research on Life Cycle Energy Consumption and Environmental Emissions of Light-Duty Battery Electric Vehicles	
W.X. Shen, B. Zhang, Y.F. Zhang, X.C. Wang, Q. Lu and C. Wang	447
Preparation of Fly Ash/CeO_2 Composite and its Adsorption Kinetics for Congo Red Dye from Aqueous Solution	
B.G. Li and L. Ding	458
Multi-Scale Polyimide/Carbon Fibers Hybrid Filters for Hot Gas Filtration	
Q.N. Wang, Y.Y. Bai, J.F. Xie, Y.P. Qiu and Q.R. Jiang	464
Potentials for Denox in Chinese Cement Industry with the Life Cycle Assessment Method	
C. Li, S.P. Cui, X.C. Meng, Z.G. Peng, X.Z. Gong and Y. Liu	470
Influence of Process Conditions on the Structure and Hydraulic Activity of Air-Cooling Blast Furnace Slag	
H. Wang, S.P. Cui and Y.L. Wang	476
Immobilization of Hydroxyapatite Particles onto PET Filter Fabric via Heat Treatment	
Z. Jiang, X. Wang, L.H. Lv, Y.Z. Cui and J. Hao	483
Adsorption Properties of the Macro/Nano-Clay in Crystal Violet Solution	
H.H. Bai, R. Jin, Q.S. Zhang, G. Zheng and D. Guo	488
Development of Chinese Exergy-Based Characterization Factors for Emissions in Life Cycle Impact Assessment	
Y.F. Zhang, X.Z. Gong, Z.H. Wang and Y. Liu	498
Selection of Green Building Materials for Energy-Saving Exterior Windows	
C.Z. Zhao, Q. Jiang, L.P. Ma and P. Zhao	504
Energy Saving Property of Heat-Reflective Coatings on Temporary Buildings	
Q.R. Lv, Q.J. Mao, Y.L. Wang, Z.M. Wang and S.P. Cui	519
Evaluation and Selection Research on External Wall Insulation Materials Based on Green Building Energy Conservation	
L.P. Ma, Y. Wang, Q. Jiang, C.Z. Zhao and P. Zhao	524
Life Cycle Inventory of Gangue as Alternative Raw Materials	
Z.G. Peng, X.Z. Gong, Y. Liu, C. Li and X. Liu	533
Analysis of Cobalt Substance Flow through China in Year of 2012	
K. Yan, X.Y. Guo, Q.H. Tian and D. Li	539

Utilization of Municipal Sludge in the Calcination of Cement Clinker Q.G. Zhao, Z. Nie, H. Liu, S.P. Cui and Y.L. Wang	546
Effect of pH and Concentration of Ca^{2+} on Spherical Calcium Carbonate Crystallization by Continuous CO_2 Gas Bubbling into Phosphogypsum Leaching Solution Y.Q. Liang, H.J. Sun and T.J. Peng	552
Life Cycle Assessment of Metallic Copper Produced by the Pyrometallurgical Technology of China H.T. Wang, Y. Liu, X.Z. Gong, Z.H. Wang, F. Gao and Z. Nie	559
Theoretical Calculation and Experimental Study on the Forming Heat of Cement Clinker Made from Steel Slag Y.L. Wang, S.P. Cui, G.P. Tian, M.Z. Lan and Z.H. Wang	564
SiC/Cu Composite Prepared by Spontaneous Infiltration of Copper Alloy into Porous SiC Ceramic K. Zhang, Z.Q. Shi, G.W. Liu and G.J. Qiao	569
Preparation of Silicon Carbide Reticulated Porous Ceramics by Organic Foam Impregnation X.Z. Zhang, R.J. Wang, G.W. Liu, H.C. Shao, K. Zhang, Z.Q. Shi and G.J. Qiao	574
Influence of Fineness on Activity Index of Blast Furnace Slag with Different $\text{SiO}_2/\text{Al}_2\text{O}_3$ S.P. Cui, L.L. Liu, Y.L. Wang, H. Wang and S.J. Dong	579
Utilization of Serpentine Resources in China F.Q. Dong, Q. Zhou and T.J. Peng	583
Visible-Light Photocatalytic Performance of N/RH/TiO_2 Complex Materials Q.G. Feng, S.Y. Qin, T. Wang, X.F. Weng, B.L. Song and D.B. Wang	590
Influence of Sputtering Power on the Structure, Optical and Electric Properties of Cu_3N Films L.N. Chen, J.F. Leng, Z.X. Yang, Z.C. Meng and B. Sun	596
Influence of Substrate Temperature on the Al and Zr Co-Doped ZnO Thin Films Prepared by RF Magnetron Sputtering F. Huan, J.F. Leng, Z.C. Meng, B. Sun and W.S. He	601
Accounting Model of CO_2 and its Application in Integrated Iron and Steel Enterprises Z.J. Huang, X.H. Jiang and H.H. Sun	607
Structure and Photoelectric Properties of Cu_3N Thin Films by Reactive Magnetron Sputtering J.F. Leng, L.N. Chen, X.Z. Zhu and Z.H. Sun	620
Effects of Nutrition on Mild Steel Corrosion by Sulfate Reducing Bacteria under Aerobic Environment D.X. Duan, C.G. Lin, G.Z. Liu and P. Yao	625
Welding Performance of Tungsten Electrodes with Different Contents of Rare Earth Oxides Y. Li, J.C. Yang and Z. Liu	631