

Table of Contents

Preface

v

Preparation of Ag-C Core-Shell Structure Composite Functional Materials

J.W. Zheng, Z.L. Wang, L. Qiao, W. Cai, L.Q. Jiang, Y. Ying and S.L. Che..... 1

Degradation of Toluene Using Modified TiO₂ as Photocatalysts

Y. Yang, S.H. Zhan, X.C. Gao, S.S. Yang, G.Y. Ren, Y. Li, J. Jing and H.B. Yu 7

C (4×4) Reconstruction on Arsenic-Rich GaAs (001) Surface after Phase Transition

Z.J. Luo, X. Zhou, J.H. Wang, X. Guo, Q. Zhou, K. Liu, M.Z. Hu and D. Zhao..... 19

Preparation of Polyaniline-Modified TiO₂ Nanoparticles by *In Situ* Chemical Oxidative Polymerization and their Photocatalytic Activity for the Degradation of Methyl Orange under Natural Light

Z.P. He, Y.C. Shi, L.B. Sun, B. Li and H.J. Nie..... 24

Study on Magnetic Mn_{0.2}Co_{0.8}Fe₂O₄/Silicalite-2 Catalyst and its Electro-Catalytic Property

Y. Cheng, S.L. Pan and Y. Zhou 30

Experimental Research of Mineral Processing on a Certain Lead-Zinc Oxidize Ore

W. Deng, H. Zhao, D.B. Jiang and Y.Z. Lan..... 34

A DFT Study of the Effect of Natural Impurities on the Electronic Structure of Sphalerite

D.B. Jiang, W. Deng and Y.Z. Lan..... 39

Structural and Magnetic Properties of Ho₃Fe_{29-*x*}T_{*x*} (*T*=V and Cr) Compounds

Y.N. Han, X.F. Han and H.L. Liu..... 46

The Application Research on Electrical Deposition Method for Preparing Pt-Ni Alloy Nanotubes and its Modified Sensor in the Detection of Dopamine

Y.B. Chang, X.L. Yang, Y.L. Liu, Y.J. Feng and Q. He..... 51

Self-Assembly of Aligned Multi-Walled Carbon Nanotubes in Polypropylene-Coated Multi-Walled Carbon Nanotubes Composites

Y.N. Xiong, X.H. Chen, Q. Huang and L.S. Xu..... 55

Preparation and Property of a Superhydrophobic Glass Sealant

M.M. Jiao, B. Yu, H.L. Cong, S.J. Yang, S.M. Huang and S.P. Wang..... 63

Preparation and Characterization of Broad-Spectrum Sunscreens Loaded Nanostructured Lipid Carrier

Y.L. Chen and Q. Xia 67

Electrochemical Deposition and Properties Research of ZnO Thin Films

G.M. Wu, Y. Ding, D.W. Gao, G.J. Xing, Y. Zhou and T.L. Yin..... 72

Ammonia Gas Sensor Based on Aniline Reduced Graphene Oxide

X.L. Huang, N.T. Hu, Y.Y. Wang and Y.F. Zhang..... 79

Fabrication of Silver Nanostructures by Microwave-Assisted Method

Y.R. Hu, Y. Yang, Y.Y. Hu, C. Lai and T.F. Xi..... 85

Friction Coefficient of Nano-Ceramic Polished by Oxide Film on ELID Grinding Wheel

J.C. Kuai..... 91

Fabrication of Organized Mesoporous TiO₂ Films Assembled via Different Template and Characterization of their Photocatalytic Activity	
D. Li, B. Du, Z.H. Zhao, W.H. Jing and W.H. Xing	95
Thin Film Nanofibrous Composite Ultrafiltration Membrane for Oil Removal from Oilfield Wastewater	
X. Li, L.L. Wang, Y. Yang, H. You, W.C. Zhang, X.H. Qin and X.F. Wang.....	99
The pH Influence on the Preparation of Hollow Fe₂O₃ Spheres by Hydrothermal Method	
L. Qiao, J. Chen, L.Q. Jiang and J.W. Zheng	103
Nano-Coating Texture on the Shear Slip Surface in Rocky Materials	
Y. Sun, S.Y. Jiang, Z. Wei and X.C. Lu	108
The Synthesis of Lithium Aluminate Materials and its Performance of CO₂ Absorption	
Y.J. Wang, J.P. Liu, M.X. Kan and Z.Q. Liu.....	115
The pH Influence on the Preparation of Hollow Fe₂O₃ Spheres by Hydrothermal Method	
L. Qiao, J. Chen, L.Q. Jiang and J.W. Zheng	119
Hydrothermal Synthesis and Characterization of Cu-Saponite	
X.M. Xie, L. Duan, X.Y. Cui, J.M. Zhang and J. Xing.....	124
Synthesis and Electrorheological Properties of SiO₂/Polyaniline Nanocomposites Prepared by <i>In Situ</i> Polymerization	
T.T. Wang, X.H. Liu, J.J. Guo, Y.C. Cheng, G.J. Xu and P. Cui.....	131
Lattice Vibration, Heat Capacity and Vibration Entropy of Single-Layer Hexagonal-BN	
M. Zhao, F. Ma, H.B. Zheng, D. Yang and K.W. Xu.....	138
Geometrical and Electronic Structure Investigations of S-Doped Graphene	
D.M. Bi, L. Qiao, X.Y. Hu and S.J. Liu	144
Research the Preparation of SiC/Al Composites by High Energy Ball Milling	
X.L. Cai, Z. Li and Q.J. Wang.....	149
Interface Constraint Effect and Stress Relaxation in Nano-Sandwiched Thin Film	
G.R. Chang, F. Ma, D.Y. Ma and K.W. Xu.....	154
Precision Machining Based on Elastic Waves in Solids	
X.J. Chen, F. Wu and J.M. Jin	161
Preparation and Properties of Conductive Epoxy Resin Composites	
X. Ding, H. Wang, X.Y. Tian and K. Zheng	171
The Performance Investigation of BaFe₁₂O₁₉.ZnFe₂O₄ which is a Composite Nano Powder	
W.J. Feng, R. Fan, H.L. Liu, P.F. Hui and H. Yang.....	176
The Preparation of the Highly Preferred Orientation of AlN Thin Films on ZnO Substrates	
N. Ding, L.M. Xu, B.J. Wu and G.R. Gu.....	181
Fabrication of PAN Hollow Fiber Ultrafiltration Membrane with Salt Porogen	
J.S. Tan, X.M. Liu, B. Yu, H.L. Cong, Z.J. Li, Y.C. Zhao, Y.C. Lian and X.Y. Guo	185
Atmospheric Pressure Synthesis of ZnO Nanotubes by Aqueous Solution Route	
J. Huang, X.J. Lv, M. Ouyang, B. Hu and C. Zhang	189

Distribution of Electromagnetic Field and Energy Flux in the Thin Film Solar Cell with Silver Nano-Disk Array	
H. Zhou, X.P. Huang, L. Zhong, S.K. Ji, Y. Pang, S.J. Bi, Y.L. Liu, K. Chen and F.Z. Song.....	194
Study on the Preparation and Properties of Piezoelectric Glass-Ceramic $\text{Sr}_{0.5}\text{Ba}_{0.5}\text{Nb}_2\text{O}_6$	
S. Jiang, J.W. Lv and T. Zheng.....	204
Interaction between Cationic Nano Microsphere and HPAM	
Y.L. Liu, J.W. Shen, G.H. Li and G.C. Zhang.....	208
AFM Characterization of PS Prepared in Different Concentration of Hydrofluoric Acid	
S.Y. Li, W.H. Ma, Y. Zhou, X.H. Chen, M.Y. Ma, Y.H. Xu and Y.Y. Xiao.....	217
Fabrication and Characterization of Ag@C Nanocables with High Aspect Ratios by Hydrothermal Process	
Y.H. Li, Y.J. Li, H.Y. Fu, Y.F. Zhang, L.Z. Yang and Q. Chen	221
Two-Photon Selective Reflection Spectroscopy of Confined Atomic Vapor at the Interface with a Ferroelectric Layer	
Y.Y. Li, L. Li, Y.X. Lu and X.W. Zhang	226
Synergistic Effect of Nano Fe_2O_3 on Intumescent Flame Retardant Polypropylene Systems	
W. Zhao and J.P. Liu.....	233
Well-Defined Amphiphilic Polymer-Si(100) Hybrids via Surface-Initiated Atom Transfer Radical Polymerization	
J.W. Peng, R.H. Mo, Z.F. Liu, Y.W. Zhong, Q. Jie and W.X. Deng	239
Photonic Crystal Biosensor Using Surface Plasmon Resonance Effect	
W. Su, G.G. Zheng and X.Y. Li	246
Surface Crystalline Phase and Basicity of $\text{MgO/ZrO}_2\text{-La}_2\text{O}_3\text{-y}$ Solid Base Catalyst	
Y. Su, P. Wang and J.S. Gao	250
Characterization and Preparation of Glod Nanorods	
J.Y. Zhu, L.X. Jia, T.T. Lin, Z. Jiang, C.W. Tang, P.S. Tang and H.F. Chen.....	257
The Drag Reduction Characteristics of Hydrophobic Nanoparticles Adsorption Core Surface and the Prediction of Slip Lengths	
X.L. Wang, Q.F. Di, W. Gong, Y.C. Cheng and S. Hua	261
Mechanism of Mechanical Energy Aided Aluminizing	
X.C. Wang, J. Wei, J. Zhang, J. Ma, S. Liu and X.B. Yi.....	267
Model Identification and Dynamic Performance Analysis of Fast Tool Servo System with High Frequency Response	
K.J. Wen, G.L. Wang and F. Yang.....	273
Finite Element Analysis Route to Achieve Accurate Resistivity Measurements in Diamond Anvil Cell	
X.G. Nan, G. Peng and B.J. Wu.....	279
A Compensation Method of Abrasive Surface Error Based on the Piezoelectric Feed	
F. Wu, X.J. Chen and J.M. Jin	283
Detection of Ascorbic Acid with Microchip Electrophoresis	
B. Yu, Y.M. Ren, H.L. Cong, M.R. Zhang, L.X. Zhang and L.F. Lian	292

Spectral Features of $\text{Zn}_{1-x}\text{Mg}_x\text{O}$ Thin Films Synthesized by the Sol-Gel Route F.L. Xian and X.Y. Li	296
Hydrothermal Synthesis of Well-Aligned ZnO Nanorod Arrays on Silicon T.N. Xu, Z. Lu, C.H. Sui and H.Z. Wu.....	302
A Simple, Green Synthesis of Photochromic, Monoclinic Tungsten Oxide Fiber Y.M. Xu, X.L. Cheng, L.H. Huo, H. Zhao, S. Gao, X.H. Bai, J. Ding and Z. Wang.....	307
The Effect of Lithium Source on the Electrochemical Performance of LiFePO_4/C Cathode Materials Synthesized by Sol-Gel Method Z.Q. Hu, D.X. Yang, K.J. Yin, J.X. Liu, F. Li, W.Y. Gao, Y. Qin and H. Liu	311
Oxidative Damage of Brain Induced by Nano-CdSeS in Mice S.Y. Yang, R.F. Ye, W.J. Cai, X.L. Xiang and X. Yang	316
Study on Micro-Nano Sensor System in Structure Vibration Safety Monitoring of Large Span Bridge Y. Yang, X.C. Sun and Q.M. Wang.....	325
One-Step Preparation of Polypyrrole Nanoparticles by a Reactive-Template Method T.J. Yao, J. Wu, F. Cui, K.N. Sun and T.Y. Cui.....	331
Composition Dependent Optical Properties of $\text{Zn}_{1-x}\text{Cd}_x\text{S}$ Nanostructures X.Y. Song, X.X. Wang, X.H. Zeng, Y. Zhang, Y.P. Hu and H.T. Chen.....	335
Nonlinear Optical Properties of $0.7(\text{Na}_{1/2}\text{Bi}_{1/2})\text{TiO}_3$-$0.3(\text{K}_{1/2}\text{Bi}_{1/2})\text{TiO}_3$ Thin Films Using Z-Scan Technique T. Zhang, C.H. Jia, Y. Bai and W.F. Zhang.....	340
<i>In Situ</i> Synthesis and Tribological Behavior of Copper Nanopieces in Liquid Paraffin as Additive in Mobil 1 5W- 30 Lubricating Oil X.F. Zhang, K.W. Li, Y. Zhou and X.N. Cheng.....	349
Influences of Re-Sintering on the Structure and Electrochemical Performance of $\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ L. Yuan, Y. Zhang, W.J. Liu, F. Wang and C. Lu.....	355
Synthesis of Hollow β-Phase GeO_2 in Microemulsion X. Zou, B.B. Liu, W. Wu, D.M. Li, Q.J. Li, Z.P. Li, B. Liu and H.K. Mao.....	360
Foaming of Polystyrene with Supercritical Carbon Dioxide W.H. Ma, J. Ding and Q. Zhong	366
The Effect of Double-Element Doping on the Photocatalytic Property of Nano-TiO_2 S. Huang, F.Y. Li, Y. Li and L.Z. Yang	371
Recovery Germanium from Pulverized Fuel Ash through the Method of H_2SO_4-NH_4F-NaClO_3 - Leaching-Tannin Precipitation S.K. Pu, Y.Z. Lan, Y.J. Li and Z.H. Zhang	377
Keyword Index	385
Author Index	389