

Table of Contents

Preface

Research Progress of Europium Complexes Luminescent Materials H.R. Ye, X.Y. Dong, M. Xu, X. Cheng, J.G. Dai and J. Zhang	1
The Effect of Mixed Chain Extender on the Hydrogen Bonding, Thermal and Mechanical Properties of TPUs J.J. Sun, H.R. Wang, L. Cao and T.K. Sinha	16
The Adsorption of NH₃ on the FeS₂ (100) Surface: A First-Principles Investigation C. Liang, X.L. Liu, L. Che and K. Yang	22
Efficient Iron Removal to Produce High Purity Quartz Sand by Micro-Inclusion Bursting Using Microwave Pretreatment Combined with Different Acid F.F. Li, X.S. Jiang, J.W. Li, B.Y. Ban and J. Chen	28
Measurement of High Strain Rate Indentation-Induced Deformations in Al₂O₃/SiC_p Composite Ceramics Y.F. Gao, Z.X. Si, X.Y. Wang and M.Y. Zhao	35
Effect of Chromium on Microstructure and Wear Resistance of Fe-Cr-C Hardfacing Alloys X. Jin, B. Chen and K. Feng	41
Analysis of Mechanical Properties of Fiber Reinforced Polymer Mortar H. Zhang, Y. Gao and C.H. Huang	47
Magnetic Properties and Crystal Structure of (Fe,Ni)₂(P,Si) Quaternaries of Fe₂P-Type T.Y. Ren, R.H. Wang and T.L. Wang	53
Thermal Behavior Analysis of Melamine Modified Urea-Formaldehyde Resin with Different Molar Ratios S.F. Xu, S.S. Xia, Y.Z. Chen, H. Xiao, M.W. Jing and Q.L. Feng	61
Research on Multifunctional Characteristics and Application of Ultralight Porous Metal Materials Based on Structured Q.F. Du and X.G. Huai	67
PEO/Graphene Composites Prepared by a Green Method L. Hua	73
Preparation of Ni/ZrO₂/SiO₂ Catalyst and its Application in Hydrogenation of CO₂ to Methane Z.X. Han, S.X. Guo, K.M. Li, B. Yao, M. Song, J. Li, W.Y. Zhu, J. Zhu, Y. Xu and X.H. Du	79
Experimental Study on Compression Strain of Polyurethane Rubber for Isolation W. Huang	84
Synthesis and Crystal Structures of Dibromo-Triazoles and their Amination Z.X. Wang, Y.C. Li, H.X. Niu, H.X. Yu and S.P. Pang	93
Influence of Working Temperature on the InSb/Si Heterojunction Photodetectors Performance X.X. Li, K. Zhou, X. Hong, W.L. Feng and D.P. Wei	104
Preparation and Research of Oil in Water Microemulsion X.Q. Chen, M.M. Zhou, Z.Z. Wang, H.J. Zhou, S.L. Yang, X. Li, X.W. Qu and Y.T. Li	110
Effect of Pattern-Less Forming Process on Quality of Sand Mold Surface L.J. Guo, Z.D. Shan and E.B. Jiang	115
Equivalent Research on Main Components of FRP Fishing Boat X.C. Liu, D.Z. Wang, L. Mei and Q. Ma	121
Crystal Plasticity Finite Element Simulation of Aluminium Deformation H.Y. Li, S. Yu and J.H. Li	127
Microstructure Characteristics of Resistance Spot Welded High Al-Added Light Weight Steels Y.H. Jiang, S.W. Ye, Y. Han, Y.Q. Zhang and B. Chen	133
The Effects of Acidic Medium on the Sodium Contents Determination by FAAS Y. Li, B.T. Li, G.Y. Sun, H. Huang, C. Gong, X. Liu and Y. Shen	139
Research on Mechanical Properties of a New Fabricated Wall Material in Building with Light Steel Structure C.L. Wang, S. Jiang, B.C. Li and S. Li	145

Effect of Tool Rotation Speed on the Microstructure and Mechanical Properties of Al-12.7 % Si Alloy by Friction Stir Processing C.X. Wang, S. Chang, G.C. Sun and Z.Q. Zhang	155
Measurement of Complex Permeability of Thick Film Materials in the 0.1 GHz~0.6GHz Band Y.L. Yuan, D.F. Liang and W.J. Li	161
Friction and Wear Performance of the New Ceramic Anti-Wear Agent Containing N-B-Mo under Various Loads X.G. Huai and X.W. Fan	169
Performance of Photoelectrochemical Sensors Based on Doped QDs under Various Bias Voltage L.P. Tu, X. Yu and G.W. Xu	175
Effect of Na Doping or Substitution on the Structural and Electrochemical Properties of Cobalt-Free Li-Rich Mn-Based Cathode Materials W.W. Li, L. Yao, J.J. Si, J. Yang, W.K. Lang and S.N. Blegoa	181
Preparation of TiO₂ Powder and the Study of Photocatalytic Activity D. Fu and C. Mildred	191
Research on the Long-Lasting and Remelting Properties of Nd Modification Effect on Cast Al-Mg₂Si Metal Matrix Composite Y. Si and D.S. Kevluzov	196
Preparation and Quantitative Analysis of Programmable Polyester Fiber L.Y. Liu, C.Q. Xu, Y.Q. Liu and W. Pajeshwatt	202
Modeling of Annealing Heat Treatment Parameters for Zr Alloy Tube by ANN-Ga X.X. Tong and X.W. Tong	207
Leaching Kinetics of Gold Involved in the System S₂O₃²⁻-EDTA-Cu²⁺ P.Z. Xiang, C. Deng, H. Yao, L.J. Liu and S. Mogdal	212
Effect of β-Cyclodextrin and Ammonium Polyphosphate on Flame Retardancy of Jute/Polypropylene Composites M. Gao	219
Study on Preparation and Properties of PA6/TiO₂-GO Composites D. Liu	224
Effect of Surface Treatment on XPS Test of Graphene Films Q.S. Wang, Z. Liu, W.J. Su, Y.Q. Yang, W.F. Zhao and X.B. Cheng	229
Discussion about the Cr-Mo Steel Materials Using in CNG Cylinders S. Huang, S.T. Xiong and Z.G. Zhao	235