

Table of Contents

Preface and Committees

Chapter 1: Function and Electronic Materials

Growth Dynamics of Single Void during Czochralski Silicon Crystal Growth Using Phase-Field Modeling J. Wang, X.J. Guan, X.Y. Zhang and Q.K. Zeng	3
Electronic and Optical Properties of Sn-Doped ZnO with and without O Vacancy X.C. Lai, Y.B. Hou, Z.H. Sun and L.L. Chen	9
Enhanced Flux Pinning in $\text{La}_{1.84}\text{Sr}_{0.16}\text{CuO}_4$ Thin Film with the Ferroelectric Polarization Effect of BiFeO_3	15
Controllable Synthesis of Monodisperse Metal Oxide Nanostructures via a Solvothermal Route and Their Catalytic Properties L. Liu, X.J. Zhang, J.Z. Liu and R.Y. Wang	21
Preparation and Optical Properties of One-Dimensional Ag/SiO_x Photonic Crystal G.M. Zhang, C. Wang, Y.J. Guo, W. Wei and X.X. Song	27
Study on Fabrication and Properties of <i>In Situ</i> Si and Al_2O_3 Particulate Reinforced Composites S.L. Zhang, Z.K. Zhang and Y. Zhao	33
The Synthesis and Application of the NaCl-KCl-K_2HfCl_6 Electrolyte X. Liu, B. Song, W.Y. Ke and L.J. Wang	39
The Study on Photocatalytic Degradation of Methyl Orange Using $\text{SrFe}_{0.5}\text{Co}_{0.5}\text{O}_{3-\delta}$ F.F. Liu, J. Qiao, C. Li, H.Y. Meng and X.H. Huang	45
Preparation of Antimicrobial PHEMA-g-PCBMAE Hydrogels with Improved Mechanical Properties R.C. Zeng, J. Cheng, S.P. Xu, Q. Liu, X.F. Wen and P.H. Pi	49

Chapter 2: High Performance Structural Material

Research on the Hydration Mechanism of Portland Cement with Magnesium Slag J. Deng, X.L. Wang and Y.P. Guo	57
Effects of Mono-And Dianhydrides on Thermal and Mechanical Properties Enhancement of Polybenzoxazine: A Property Comparison S. Rimdusit, W. Punuch and C. Jubsilp	63
Reliability Optimization Design of Composite Transmission Shaft D.Y. Cai, F.J. Liu, X.H. Yin and F.H. Chen	69
Effect of Rubber Contents on Tribological and Thermomechanical Properties of Polybenzoxazine C. Jubsilp, S. Rimdusit and T. Takeichi	75
Study on Seismic Resistant Properties of the Integral Structure after Adding Steel Storey on Top of the Multistoried Brick-Concrete Architecture Y.H. Guo, X. Cao and L. Wang	81
Thermally Induced Vibration Analysis of Composite Laminate Based on Equivalent Displacement Method X.H. Kong and Z.J. Wang	87

Chapter 3: Materials Processing Technology

Mesosopic Simulation Analysis of the Influence of Die Wall Friction on Compression Process of Powder Particles M.H. Jiao, D. Li, L. Sun and M. Gu	97
---	----

The Influence of Cr Gradient of Transition Layer on Creep Rupture Properties of Dissimilar Joint	103
B.Q. Zhang, Z.P. Cai, K.J. Li and J.L. Pan	
Influence of Prior Austenite Grain Size on the Dispersion of Fatigue Crack Propagation Thresholds in Weld Metal	111
L.G. Sun, Z.P. Cai, J.L. Pan, X. Liu, X.J. Xu and Y.M. Ding	
Modeling of Disk-Shaped Anode-Support SOFC with Proton Conductor Electrolyte and $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{CoO}_{3-\delta}$-$\text{Sm}_{0.2}\text{Ce}_{0.8}\text{O}_{2-\delta}$ Cathode	121
Q.P. Zhang and W. Liu	
Electroless Copper Coating on Boron Carbide Particles by Using Copper Activation Method	127
W. Wang, Q.L. Li, W. Liu, Y.W. Yao and X.J. Li	
Strength Loss Method to Evaluate the Sulfate Attack Resistance of the Cement-Porous Silica Fume Mortar	133
S.Q. Zhang, S.X. Zhang, Y.F. Fu and D.M. Wang	
Thermal Vibration Compound Stress Relief on Thick DH36 Steel Welded Plates	143
S.Q. Li, H.Y. Fang, X.S. Liu and W. Cui	
Iron Removal from Hafnium Crystal Bar by Iodide Process	149
L.S. Tian, Y.X. Yin and L.J. Wang	
Research and Application of Numerical Control Milling Machine Tool Length Compensation Instructions	155
D.Y. Sun and P. Zhou	
Effect of Coiling Temperature and Cold Rolling Reduction on Planar Anisotropy of Ti-Alloyed Low Carbon Steel	161
G.T. Zhang, Z.W. Zheng and J. Chang	
Device Design of Hot-Air Curing and Study on the Properties of Hot-Air Cured Phosphate Sand	167
L. Xia, W. Long, J. Huang and Y.S. Zhang	
The Effects of Cross Cold Rolling Reductions on Microstructure of Ti+P-IF Steel	171
Y. Du and G.L. Xu	
The Breakdown Characteristic Research of Polymer Materials in Liquid Nitrogen	177
T.Y. Niu, D.S. Xu, Y. Wang, L. Li, Q. Lan, Q.J. Zhang, Y. Lu and H.L. Jiao	