Table of Contents

Preface and Committee

Chapter 1: Intelligent Materials, Energy Science and Dynamic System

Gear Fault Diagnoise Based on Ensemble Empirical Mode Decomposition and Instantaneous Energy Density Spectrum J.M. Lu, F.L. Meng, H. Shen, L.B. Ding and S.N. Bao	3
Numerical Analysis of Nonlinear Behaviors of a Flexible Rotor Dynamic System with Turbulent Journal Bearings Support	3
Y.J. Lu, Y.F. Zhang, X.Y. Ma and X. Liu	7
Dynamic Path Planning Algorithm Based on Chaos Genetic Vehicle Navigation P. Feng	12
The Hybrid Genetic Algorithm of Single-Machine Materials Manufacturing Process with Periodic Maintenance X.Y. Yu, Z.Y. Rao and H. Zhu	16
The Improved Design of Some Shrunk Super High Pressure Cylinder Based on Equal Strength Theory	20
Y.X. Zhang, L.F. Wang and F. Yao Design of Ultra-High Pressure Cylinders Based on Principle of Autofrettage Y.X. Zhang, F. Yao and X.S. Men	20 24
The High Resolution Lunar Planet DEM Based on the Altimetry Data of 400-Circle CE-1 Laser Altimeter (2B)	
J.P. Chen, H.L. Liu and M. Guo Effect of Ammonium and Nitrate Ratios on Growth and Yield of Chinese Kale	28
S.W. Song, G.X. Liao, H.C. Liu, G.W. Sun and R.Y. Chen	32
Effect of the Nitrogen Nutrient on Pigments of Flower Stalk in Chinese Kale R.Y. Chen, S.W. Song, C.Z. Song, H.C. Liu, G.W. Sun and D.F. Huang	37
Process Parameters Optimization on Ultrahigh Pressure Extraction of Pesticide Residues in Vegetables Z.M. Xu and Y.J. Sun	42
Impact Analysis of Ultrahigh Pressure Treatment Pesticide Residues in Vegetables on near Infrared Spectroscopy Detection Z.M. Xu and Y.J. Sun	46
Investigation of Solidification Characteristics of Resin for Integral Stereolithography System	50
G.S. Xu, G. Yang, J. Gong and J. Yang Simulation and Analysis of Optimization Process Parameters for Multi-Cavity Injection Molding Ports Warrage by Constitution Method	50
Molding Parts Warpage by Genetic Algorithm Method W.J. Chen Study on the Panel Fabrication for the Field Emission Display with Symmetrical Electrode	54
Stripe Y.X. Ma	58
Fabrication and Properties of Short-Stripe Insulation Wall in a FED Panel Y.X. Ma	62
The Design and Realization of Automation Stamping Machine System L.W. Yan, T.F. Li, W. Li and L.N. Zhao	66
Analysis and Achievement of the Leak Detection of High Vacuum System on Magnetron Sputtering Equipment J.C. Feng, S.H. Huang and M. Su	71
Stress Analysis and Modal Analysis of Robot Manipulator W.C. Zhang, J. Chen, B.H. Pei, B.B. Ma and X.B. Du	75
Study of Vice-Steering Control System for Training Car W.C. Zhang, B.B. Ma, X.B. Du, B.H. Pei and J. Chen	79
W.C. Zhang, B.B. Ma, A.B. Du, B.H. Fel and J. Chen	19

The New Progress of Cadmium Sulfide Synthesis Y.H. Zhang and Q. Wang	83
Microstructure and Properties of Zirconia-Mullite Nanocomposites Obtained from Si-Al-Zr-O Amorphous Bulks Doped with CaO and MgO	97
X.P. Tan, S.Q. Liang and L.Y. Chai	87
Chapter 2: Intelligent Materials, Design Science and Applied Mechanics	
Optimization for Heat Treatment Process of Supercritical Material F92Steel J.S. Ding, L.X. Liu and J.C. Feng	95
Design of Automatic Assembly Tire Machine Z.Y. Yang and H. Li	99
The Comparative Trail Research on the Performance of a Diesel Engine Fuelled with Diesel Fuel and Biodiesel/Diesel Blended Fuel W.M. Cheng, H. Xie and G. Li	103
Non-Linear Dynamic Stability of Shallow Reticulated Spherical Shells M.J. Han, Y.T. Li, P. Qiu and X.Z. Wang	107
Effect of Calcium Nutrient on Calcium Distribution and Ultrastructure of Cell and Chloroplast in Bunching Onion Leaf	111
H.C. Liu, W.P. Liu, S.W. Song, G.W. Sun and R.Y. Chen Effect of Water Stress Induced by PEG on Growth and Quality of Bunching Onion D.Z. Dong, H.C. Liu, S.W. Song, G.W. Sun and R.Y. Chen	116
C ¹³ NMR Spectrum Analysis of Perfluoro Polyethers (PFPE) of Fluorocarbon-Based Magnetic Fluid's Base Liquid H.C. Cui, D.C. Li and P. Liu	120
Strain Sensing Behaviour of PPy-Coated XLA Fibers P. Xue, J.P. Wang and X.M. Tao	125
Calculation for Equivalent Nodal Force of Prestress in 20 Nodes Isoparametric Element H. Yang, N. Li and B.S. Xu	129
Surface Modification Induced by Femtosecond Laser Pulses in Lithium Niobate H.Y. Chen, Z.Z. Wan and Y.L. Han	134
Investigation on Stress Field near Crack-Tip of Mode I in Shape Memory Alloy B. Zhou, X.G. Guo, G.L. Hou and X.K. Li	138
Building Materials Effects of Al Content and Physical Properties on the Electromagnetic Interference Shielding of Sn Based Coating Thin Layers F.S. Hung, F.Y. Hung, C.M. Chiang and T.S. Lui	142
Effect of Temperature on Starch Accumulation and Activities of Starch Synthetic Key Enzymes during Grain-Filling Stage of Aromatic Rice	152
Z.J. Xu, L.Z. Xiao, H. Liu, Y.H. Ren and Z.L. Li Performance Evaluation of Epoxy Asphalt and Study of Epoxy Asphalt Used on Deck Surfacing of Concrete Bridge	132
Y.C. Li, P. Zhang, R. Lv, Y.Z. Xu and G.J. Hou Reduction Feature and Selection Principle of Chromium Ore for Stainless Steelmaking in a	157
Smelting Reduction Converter Y. Liu, M.F. Jiang and D.Y. Wang	161
Study on the Advanced Treatment Secondary Effluent of WWTPs by Coagulation Y. Liu, F.X. Li and C.P. Zhang	165
The Connection Properties of Rubber Asphalt Waterproofing Adhesive Layer in Bridge Deck Pavement Y.L. Li and Y.Q. Tan	169
Chapter 3: Biological Materials, Applied Mechanics and Chemical	107
Engineering	
Effect of Biological Organic Fertilizer on Plant Growth and Yield of Chinese Kale	175

Study on Denoising of Corrosion Acoustic Emission Signals of Tank Bottom Based on Independent Component Analysis	100
Y. Yu and J. Zhao	180
Interface Fracture Criterion Based on Molecular Dynamics Simulation Z. Yang	184
Effect of Ammonium and Nitrate Ratio on Nutritional Quality of Flowering Chinese	
Cabbage S.W. Song, L.Y. Yi, H.C. Liu, G.W. Sun and R.Y. Chen	188
The Fracturing Behavior of Detected Rock under Blasting Loads C. Wang, Z.M. Zhu and T. Zheng	193
The Photoelastic Analysis of Stress Intensity Factor for Cracks around a Tunnel M. Wang, Z.M. Zhu and J.H. Liu	197
Research on the Fracture Mechanism of Coal with Three Collinear Cracks Filling with Gas W.C. Jin, Z.M. Zhu and Z.Y. Hu	201
A Contrastive Study on LiMn ₂ O ₄ Prepared by Solution Combustion Synthesis Using Nitrate or Acetate Salts as Raw Materials G.Y. Liu, J.M. Guo, L.L. Zhang, B.S. Wang and Y. He	205
Al Doped LiMn ₂ O ₄ Prepared by a Solution Combustion Synthesis Using Acetate Salts as Raw Materials and Acetic Acid as Fuel	209
G.Y. Liu, J.M. Guo, L.L. Zhang, B.S. Wang and Y. He LiMn ₂ O ₄ Prepared by a Flameless Solution Combustion Synthesis: The Effect of Ignition Temperature	209
G.Y. Liu, J.M. Guo, Y.N. Li, B.S. Wang and Y. He	213
Experimental Investigation of Mechanical Behavior of Carbon-Nanotube Reinforced Cement Mortar L.W. Chang, J.C. Yue and Y.Z. Sun	217
Modified Activated Carbon for Gas Phase Synthesis of Dimethyl Carbonate R. Li	221
CH ₃ and H ₂ Quantum Chemical Study of Reaction Mechanisms R. Li and X.Y. Liu	225
A Hybrid Way for Optimizing Magnesium Matrix Composites Preparing Method J.X. Ye and F.Y. Zhang	229
Effects of Different Stocking Densities on Growth, Serum Steroid Hormone Concentrations, Gonadosomatic Index and Sex Reversal in the Rice Field Eel, <i>Monopterus albus</i> (Zuiew) H.W. Yuan, F. Chen, Q.Q. Xu, S.Y. Gong, Z.J. Chu and D.Q. Yang	233
Effects of Exogenous Melatonin on Serum Steroid Hormones, GSI, Survival Ratio and Sex Reversal in Rice Field Eel, (Monopterus albus) H.W. Yuan, F. Chen, Q.Q. Xu, S.Y. Gong, D.H. Yu and D.Q. Yang	238
The Stability of Unsaturated Soil Foundation Pit Reinforced with the Cement-Mixed Sheet Pile Wall	242
R.J. Li, H. Duan, W. Zheng and H.T. Li Spartina alterniflora: Potential Bio-Energy Source for Biofuel Production in China R.L. Li and G.Y. Qiu	243247