

Table of Contents

Preface and Committees

Chapter 1: Materials Science and Technologies, Applied Mechanics

Hot Ductility and Microstructure in Slab Shell of Low Ni Austenitic Stainless Steel G.Q. Hou and L. Zhu	3
The Research on the Corrosion Inhibition Rate of CTAB Combined with Sodium Silicate on the Q235 and 316L Steel R.S. Yang and M.T. Li	7
The Research on the Corrosion Inhibitor for the 316L Stainless Steel R.S. Yang, M.T. Li and Y.Z. Jin	11
Properties of Epoxy Cathodic Electrodeposition Coating by Aminosiloxane M.T. Li, R.S. Yang and L.Y. Yu	15
Studies on Oxidation of Adrenaline Using Encaged FePc in Y Zeolite as Catalyst M.T. Li, R.S. Yang and L. Lin	18
Synthesis, Crystal Structure and DNA Binding of a Chiral New Cu(II) Complex with (1R, 2R)-1,2-Hexanediamine Y.Z. Jiang, Z.Y. Chen and L.Q. Zhang	22
Synthesis, Crystal Structure and Bio-Activity of 1-Phenyl-3-(2-Hydroxyl-Phenyl)-5-(2,4-Chloro-Phenyl)-2-Pyrazoline Y.Z. Jiang, Y.Y. Shi and D.W. Liang	27
Influences of Aggregate on Microwave Absorbing Properties of Porous Concrete X.P. Li, S.F. Lin, X.L. Lv, L. Zhao and L.Q. Wen	31
Influence of Bulk Concentration on the Discontinuous Transition in Surface Segregation X.Y. Li, M. Lin, X. Chen, C. Huang, Y.X. Li and J.Y. Wang	35
Local Equilibrium in the Dissolution Kinetics of Ag on Cu(111) Surface M. Lin, X. Chen, X.Y. Li, C. Huang, Y.X. Li and J.Y. Wang	43
Contrast of Wear Resistance between X80CrVMo13-2 Cutting Steel and 4Cr13 in Different Heat Treatment Condition C.Y. Wang, H.S. Ding, Z.F. Cheng and L.G. Zhao	50
Preparation Test Study on High Strength Lightweight Concrete in Engineering Materials X.Q. Yu, M. Lin, G.L. Geng, Y.H. Li and L. Jia	55
Nonlinear Finite Element Analysis of Steel-Encased Composite Continuous Beams with High Strength Materials Q.Y. Shi, Y.T. Ge, L.L. Cao and Z.C. Zhang	59
The Research of Mn Modified Carbon Sphere Supported Pt Catalyst Material for Direct Methanol Fuel Cell K.Q. Wang, J. Tang and Y. Gao	63
Influence of the Trace Boron Element on Corrosion Behavior of 1Cr17 Stainless Steel in 10% Hcl Solution T.M. Guo, Z. Hui, X.L. Nan, C.S. Han and D.C. Zhang	67
Epoxy Resins Treated with Magnesium-Containing Compounds in Material Engineering C.F. Sun and M. Gao	73
Research on the Machining Properties of <i>Parashorea chinensis</i> Wood for Engineering N. Li, N.C. Su, B.F. Qiu and Y.D. Zhong	78
Noble Metal Catalysts for Methane Reforming in Material Application Engineering W. Hua, Y.C. Dai and H.T. Jiang	83
A Study on the Activation Effect of Fluorgypsum by Physical and Chemical Modification H. Pan and G.Z. Li	88
The Performance Study of Light Foam Concrete H.Q. Zhao and G.Z. Li	92
The Preparation of Red Mud Lightweight Ceramsite L. Ma and G.Z. Li	96

Preparation of Cementitious Material with High Dosage of Low-Alkalinity Steel Slag J. Zhu and G.Z. Li	100
Study on Preparation of a New Foamed Cement Material C.W. Du and G.Z. Li	104
Study on Preparation of Solid Concrete Brick with Recycled Aggregate Q.J. Li and G.Z. Li	108
Study on the Performance of New Foamed Cement Insulation Material X.L. Li and G.Z. Li	112
Cellulase Production by Submerged Fermentation Using Biological Materials of Corncob Residue with <i>Aspergillus Niger</i> FC-1 S.Y. Jiang, H.Q. Shi, M.F. Gao, Y.P. Liu, X.M. Fang, G.F. Dai, G.Y. Zhu, X.Y. Deng, Y.F. Zhang, B. Zhang, X.D. Shang and J. Wu	116
Experimental Research on Flexural Mechanical Behavior of Fiber Reinforced Concrete Flexural Members X.C. Wang, J.P. Zhang and H.T. Liu	120
Study on Shape Optimization of Calcium–Alginate Beads Z.Q. Li, L.D. Hou, Z. Li, W. Zheng and L. Li	125
Effect of the Ratio of Silica Source on Ultra-Light Calcium Silicate Material <i>In Situ</i> Strengthened with Xonotlite Whiskers F. Liu, T. Li, X.D. Wang and J.X. Cao	131
Effect of Fe Loading Content on Catalytic Performance of ZSM-5 for the IMTO Process F. Liu, T. Li, P.L. Ye, X.D. Wang, J.X. Cao and D.H. Guo	135
Influence of Hydrothermal Conditions on Ultra-Light Calcium Silicate Material <i>In Situ</i> Strengthened with Xonotlite Whiskers F. Liu, T. Li, X.D. Wang and J.X. Cao	139
Influence of Parameters on Catalytic Performance over Different Modified ZSM-5 Zeolite for the IMTO Process F. Liu, T. Li, P.L. Ye, J.X. Cao and D.H. Guo	143
Interspecies H₂ Transfer of Syntrophic Microbes in Co-Fermentation with Properties of Biochemical Materials for Hydrogen and Methane Production F. Yin, W.D. Zhang, J. Liu and Z.X. Huang	147
Modeling and Simulation of the Crawler Passing Institutions of a New Type of Entertainment Machine with Mechanical Engineering Materials J.Y. Hao and L. Wu	153
The Manufacture and Nutritional Analysis of the <i>Dioscorea batatas</i> <i>F.flablla</i>. Makiro Jam with Material Properties G. Hu, S.Q. Hu and H.C. Wang	158
Methods of Errors Analysis in Assembly of Dicing Saw in Silicon Devices with Material Properties and Applied Mechanics Y. Ma	162
Program Design of Gravity Retaining Wall Structural Reliability with Engineering Materials Base on Matlab Software Y.L. Song, J.R. Cao and S. Li	166
Equivalent Stress Analysis of Piercing Process in Diescher's Mill Using Finite Element Method L. Lu and Z.X. Wang	170
Force Research of Piercing Process in Diescher's Mill with Mechanical Properties by FEM Simulation L. Lu and Z.X. Wang	174
Application on Monitoring the Earthen Roadbed Filling of Highway with Engineering Materials B.L. Huang and X. Liang	178
Estimation of the Time Constant of Plunge Grinding of C45 in Infeed Period with Properties of Mechanical Materials Based on Acoustic Emission Measurement C. Jiang, H.L. Li, Y.F. Mai and Y.L. Chi	182

Chapter 2: Energy, Power and Heat Engineering

Ground Source Heat Pump and Conventional Heat Sources to Match the Design and Operation Mode for Energy Saving C.Y. Ran and L.Y. Zhang	189
Ground Source Heat Pump Application in Cold Areas for Energy Conservation C.Y. Ran and B.J. Yan	194
Study on Energy Consumption and Energy Saving Emission for the Low Carbon Economy in Yunnan with Uncertain Factors and Policy Recommendations Q. He and Q. Tan	198
Thermal Performance of a Novel Flat Heat Pipe with Integral Micro-Grooved Wick for Energy Saving Z.H. Kou, M.L. Bai and H.W. Yang	202
Waveform Acquisition and Playback System in Electrical Energy for Energy Saving Based on STM32 Design C.X. Dong	206
Research and Design of Multigrounded in Micro-Grid Power Supply with Analysis of Electricity Energy W.X. Wang and G.Z. Wang	210
Research of Micro-Grid Power System Grounding and RCD for Energy Saving W.X. Wang and J.H. Zhang	214
An Analysis on the Water Consumption Rate of LongTan Hydropower Station with Properties of Water Energy X.G. Lei and A. Yin	218
The Research on Intelligent Global MPPT of Small Wind Turbine for Energy Saving H. Sun, C.Z. Yang and Y.Z. Shan	223
Analysis on Heat Source Operation Scheduling of Coal Fired and Gas Fired Source Co-Heating System Z.G. Zhou, P. Wang and P.H. Zou	227
Study on Hydropower Energy and its Future Changes in the Upper Yangtze River Basin under Climate Change X.F. Zeng, N. Zhao and J.Z. Zhou	232
Comparison between Numerical Simulation and Analytical Calculation of Heat Loss and Temperature Profile of Buried Pipes P. Wang, Z.G. Zhou, Y. Li and P.H. Zou	237
A Comparison Analysis of Boiler Feed-Water Pump Set for the 1000MW Power Plant with Energy Saving in Energy Engineering J. Shen, Z.H. Huang, J.M. Wang, C.L. Zhang and C. Ma	241
Study on Energy Saving with Chinese Regional Energy-Economic Efficiency Analysis Based on SBM Model X.C. Liu and Z.M. Qian	247
Energy Consumption Analysis and Comprehensive Optimization in Oil Pipeline System Y. Wang, Y. Liu, J. Zhao and L.X. Wei	251
Application of Advanced PID Controller for Wind Energy Conversion System with Optimal Design G. Sun and W. Wang	255
A Design of Experiments (DOE) Approach to Parameters Optimization of Sludge Treatment System in an Enzyme Preparations Factory H.X. Wang, M. Ji and X.Y. Zhang	259
Assessment on Vegetation Dynamics under Climate Change for Energy Saving with Satellite Data and Geographically Weighted Regression N. Zhao, X.F. Zeng and J.Z. Zhou	265

Chapter 3: Control Engineering, Monitoring and Control System

Study on the Practice of Electrical Controlling with Mechanical Properties and Engineering Properties X.M. Shang, Z. Li and H.Q. Sun	273
Shrew Attack on Internet Congestion Control Protocol in Control Engineering J.H. Ma and L.X. Ji	277

Design of Intelligent Telephone Alarm System with Intelligent Control System J. He and S. Kang	281
Research of Network Monitoring Management System Based on Artificial Immune J.H. Ma and L.X. Ji	285
Quality Control and Optimization of Concrete Pump Truck Painting Line Based on Properties of Mechanical Materials Y.H. Ma, K.L. Zhao, X.Y. Zhu, Y.C. Pan, J. Shen and D.G. Ren	289
Application of Feedback Linearization Control for Optimal Power Tracking with Energy in Wind Power Generation System Y.F. Geng and W. Wang	293
Research and Design of Intelligent Greenhouse Temperature Control System for Energy Saving T. Wu, C.H. Hu, R. Qin and Z.Q. Chai	297
Global MPPT Control of Solar Photovoltaic System for Energy Saving Based on the Fuzzy Strategy Y.Z. Shan, C.Z. Yang and H. Sun	301
Boiler Combustion System of Multivariable Internal Model Control Application Research J.L. Shang and D.H. Ren	305
A New Maximum Power Point Tracking Control Scheme in Photovoltaic Systems for Energy Saving X.D. Guo, J. Yang, M. Dong, M. Su and Q.T. Shen	311
Design of Vehicle Taillight Circuit with Mechanical Properties in Mechanical Engineering J. He and S. Kang	315
Design of Network Security Monitoring System with Mechanical Properties Suitable for LAN Based on ARP Deception S.F. Lin and X.P. Li	319
Guidance and Control Research on Underwater Unpowered Anti-Submarine Weapons J. Xiong	323
Distributed Control of Multi-Agent Systems through Model Predictive Control with Stability S.J. Zhang and W.F. Liu	328
Multiple Criteria Decision Making Research of Flight Control System Design R. Nie, B.N. Zhang, B.N. Liu, W.G. Zhang and J. Yuan	334
Study on Controlling Electronic Resources System with Electronic Materials for Energy Saving X.Z. Tian	344
Study on Electric Differential Control Scheme for Electric Vehicles H. Song and X.L. Huang	348
Moving Track Control System of Based on Gyroscope and Photoelectric Coder D.X. Yang, G.Y. Zhu and Q.F. Zhu	353
The Fuzzy PI Control for the DSTATCOM Based on the Instantaneous Power Balance D.X. Yang, G.Y. Zhu and Q.F. Zhu	357
Direct Current-Controlled Distribution Static Synchronous Compensator for Voltage Quality Improvement L. Huang, D.X. Yang, J. Tang and Q.F. Zhu	361
Application of Variable Frequency Speed Control to Beam Pumping Units Based on Mechanical Properties in Mechanical Controlling Engineering Y. Peng and X. Liu	365

Chapter 4: Related Topics

Study on Drought Resistance Engineering with Certain Engineering Materials and Improved Information Diffusion X.J. Xiang and Q. Li	373
Application of Kalman Filter Method Based on Water Level Factors in the Dam Deformation Forecast F.M. Lu and J. Li	376

Energy Conservation and Environmental Protection for Green Traffic in China with Development Strategies L. Chen	381
Research on Removal Effects of Pollutants by the (A/O)₄ SBR Process K. Ji, N. Wei, X.Q. Yu, L. Ding and J. Xiao	385
Study on the Ecological Environmental Conditions of Truffle with Analysis of Biomaterials S.Q. Hu, X. Yang, W. Wei and X. Guo	389