

Mechanical Science and Engineering III

**Selected, peer reviewed papers from the 2013 3rd International
Conference on Mechanical Science and Engineering (ICMSE2013)**

Applied Mechanics and Materials Volume 328

**Hong Kong, China
1-3 March 2013**

Volume 1 of 2

Editor:

Yandong Wang

ISBN: 978-1-62748-855-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2013) by Trans Tech Publications Ltd.
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact Trans Tech Publications Ltd.
at the address below.

Trans Tech Publications Ltd.
Laubisrutisr 24
CH-8712 Stafa-Zuerich
Switzerland

Fax: +41 (44) 922 10 33 Fax: +1 (603) 632-5611
e-mail: sales@ttp.net

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

XQNWO G'3

Preface, Reviewers and Sponsors

Chapter 1: Manufacturing System, Automation and Control

Design of a Parallel Manipulator Based on Multi-Objective Self-Adaptive Differential Evolution Algorithm Q.M. Meng	3
Research on Aircraft Assembly Sequence Planning Technology Based on Key Characteristics Z.L. Sun, P.F. Han and G. Zhao	9
A Simplified Method for Joint Optimization of Production Schedule and Preventive Maintenance in Tobacco Flow Shop J.M. Da, L.Y. Wang and S.X. Zhao	17
The Design of Test Bench for Transmission Efficiency of Automobile Driveline D.P. Zhang and Y.M. Mo	22
Research on 5S Concept Used in Production Line Balance Based on Line Balance Chart Method-S Production Line as an Example Q. He, Y. Liu and H.Y. Ma	28
Cutting Technique of Welding Groove for Intersecting of Braces at Small Angle during Liwan 3-1 CEP Jacket Fabrication F.Y. Yang, S.M. Li, Z.R. Song, T. Deng, Z.B. Wang and W.H. Zhang	34
The Mode and Key Technology of Battery Quick Change Research for Electric Commercial Vehicle Q. Yang, H.L. Zhao, A.Z. Yan, G.H. Zhao and S.Z. Luo	39
Research on Three-Dimensional Visualization Terrain Application Technology Based on ECT/EPX Z.H. Dong, D.F. Han and L. Song	43
Key Technologies of Telepresence in Time-Delayed Teleoperation System: Review and Analysis J.H. Chen, X.H. Mu, F.P. Du and H.L. Guo	48
A Wall Climbing Robot Based on the Improved Electro Adhesion Technology J.C. Guo, G.H. Dai and G.C. Cui	56
Modeling, Simulation and Optimization of Corner Milling T. Li, Q. Liu, L.D. Ma, X.F. Zhang, J. Yin and S.F. Cui	62
An Adaptive Cooperative Control Method for Nonlinear System Based on Directed Graph Z.M. Li, Y.M. Gao and Y.F. Niu	67
Application of BP Neural Network Controller on Inverted Pendulum H.X. Cheng, D.S. Zhang and L. Cheng	72
Modeling and Identification of Friction Behaviors of Hydraulic Forging Press Machine Q. Pan, M.H. Huang and Y.B. Li	77
Target Tracking Based on QPSO Algorithm Y. Ni and W.B. Xu	84
Body Measurements Forecast Based on Factor Analysis and Radical Basis Function Net Z. Liu, J.T. Li, G. Chen and G.D. Lu	89
Study Based on Piecewise Drying Process of Corn Seed Multi-Purpose Drying System W.Y. Zhao, Z.L. Shi, Y.J. Li, Z. Yang, L.J. Wei and W.Y. Jiang	93
Fuzzy Control Approach to Reconfigurable Manufacturing System Involving Equipment Representation H. Sun, S.B. Cai and R.H.J. Massawe	100
The Basic Data Establishment for Automobile Panels' Main Stamping Defects Control J.X. Chen, J. Zhang, H.L. Li and J.X. Zhang	105
Comparative Study on Fuzzy PID Controller and Conventional PID Controller H.X. Cheng, D.S. Zhang and L. Cheng	112

An Interaction Process Model for Virtual Objects Based on Interaction Structures J. Zhang, Y.L. Sun, Z.J. Xu and Y. Li	117
Application of PSO Algorithm in PMSM Sensorless Control System T.P. Zhou	123
Three Dimensional Path Planning of Autonomous Underwater Vehicles Y. Peng, W.Q. Wu, M. Liu, S.R. Xie and J. Luo	128
Design and Analysis for Three Phase Meshing Gear Motor R.H. Ding	133
Research on Forming Technology of Thermoplastic Composite Blade for Wind Turbine H.T. Cen, X.L. Wang and Z.Y. Hu	139
Fault Detection and Diagnosis and Fault Tolerance Compensation for Electric Actuator H.X. Cheng, F. Yi and L. Cheng	144
Applied NURBS on the Research of Interactive Curved Hull Computer Aided Design Z.H. Dong, D.F. Han and L.H. Yuan	149
Layout Improvement for Mixed-Model Production Offline Area Based on Fundamental Industrial Engineering and Simulation H.Y. Wang, Y.J. Zhuo and Z.X. Qin	154
An Efficient Algorithm for Collision Detection on Five-Axis Machining R.S. Lin, R.G. Chang, J.L. Yan and H.S. Chiu	158
The Impact of Using the Power to Change the Electrical and Mechanical Equipment Performance J. Song and H.M. Huang	163
Contouring Control of Biaxial Systems with Modified Reference Commands S.L. Chen, H.S. Hsu, H.S. Chiu, R.D. Yang and C.T. Yen	167
Vehicle Damper Production Process Analysis and Improvement S.C. Dong, L.X. Ma and D.T. Li	173
Application of the Wireless Data Transmission System L. Cheng, Z.H. Cheng, H.X. Cheng and P. Li	177
Swarm Robotics Cooperation Collision Strategies Based on Game Theory C.M. Li, P. Yang, J. Gong and W.C. Niu	182
Swarm Robots Hunting Behavior Based on Particle Swarm Optimization P. Yang, B. Zhang, C.M. Li and P. Xia	187
Vibration Fatigue Test Based on Fiber Bragg Grating Sensors and HHT S.J. Xin and Z. Tong	193
Pistol Ring Gap Inspection under Free State Based on Machine Vision G.T. Wang and M.L. Yu	198
Repair Method for Overheated Areas in the Liwan3-1 Jacket Members F.Y. Yang, S.M. Li, Z.R. Song, T. Deng and M.W. Yang	203
Study on Optimizing the Process Parameters for the Band Saw Equipment G.J. Chen, J. Ni, T.T. Liu, H.P. Chen and Y.P. Gong	208
Failure Mechanism and Control Techniques of Reused Roadway in an Isolated Coal Barrier Pillar S. Yan, D.Y. Chong, Z.T. Han and J. Zhang	213
Design of Technical Information Management System for Machine Tool Workbench P.B. Xiu and T.L. Zhang	219

Chapter 2: Information Technologies Application for Manufacture, Data Processing

Shape Classification and Retrieval Based on the V-System X.C. Wang and H.L. Sun	227
About SOA and its Realization Technology Discussion L.N. Mao, Y.L. Tang, L. Lu and T.B. Zhang	233
Application of MATLAB-Based Regression Analysis Model in Enterprises L. Jiang	239
Linear Programming Application in Construction Enterprises L. Jiang	244

A New Approach of Distributed Query Processing Based on Database Grid Z.Y. Chen, S.B. Huang, L.S. Shen and S. Yang	248
An Efficient Algorithm to Understand Long Counterexample Z.Y. Chen, S.B. Huang, M.Y. Ji and L.S. Shen	254
Analysis on GNSS Receiver with the Principles of Signal and Information L.S. Guo, X.Y. Li and X.Y. Kong	261
A New Hybrid Particle Swarm Optimization for Solving the Knapsack Problem H. Wang	266
Reconstruction of Distribution Network Based on Binary PSO and Optimal Flow Method S. Liu, B. Liu and Y.J. Peng	271
A Revised and Improved Version of the MRP Algorithm: Rev MRP M. D'Avino, A. Bregni and M.M. Schiraldi	276

Chapter 3: Quality and Safety Engineering, Assessment

A Study of Run-to-Run Control Efficiency for Quality Improvement C.C. Wang	283
Bridge Monitoring Data Analysis Based on Apriori Algorithm Q. Ye, Q. Zhan, F. Liu and Z. Song	287
Analysis and Optimization of Rear Occupant Safety in Car Head-On Collision L. Hong, R.H. Ge and Y.T. Wu	292
The Operating Characteristics of Orbal Oxidation Ditch Process under Low Dissolved Oxygen S.M. Zhang, L. Liu and S.H. Hu	297
Study on Evolution of River Bed and Flood Prediction at Lanzhou Section of Yellow River J.L. Li, L. Han and H.Y. Zhang	304
Wuerxun Depression Fan Delta Depositional System Research of Nantun Formation in Wubei Sub-Depression J.J. Zhang and C.Z. Liu	308
A Model for the Domino Effect Analysis in Quantitative Risk Assessment M.L. Chen, Z.Q. Geng and Q.X. Zhu	314
Application Research of Two-Tuple Linguistic Theory in Warship Battle Damage Assessment G. Jun, Y. Lu and L.J. Bai	318
Assessment of Polycyclic Aromatic Hydrocarbons Contaminations in Sediments of Love River Mouth, Taiwan C.D. Dong, C.F. Chen, Y.K. Chang and C.W. Chen	323
Analysis of Indoor Air Quality for the Split-Type Air Conditioner with Air Change Function in an Office Environment Y.L. Wu, Y.Z. Kuo, Y.L. Liu, H.C. Chen, Y.J. Cheng and H.C. Yen	328
Game Analysis of the Adverse Selection Formation Mechanism on Engineering Quality Risk Based on Information Asymmetry J.X. Deng	334
Research on Design of Inner-Climbing Tower Crane Supporting System C.X. Zhu, S.Q. Gu and J.F. Jin	338
Supervision Organization Design of Government Investment Project Based on Multi-Agent Technology H.B. Zhang, S. Zhang and Z.Z. Li	343

Chapter 4: Mechanism Theory and Analysis, Numerical and Mathematical Methods in Mechanical Engineering

Function Airfoil and its Pressure Distribution and Lift Coefficient Calculation H.B. Jiang, Z.Q. Cheng and Y.P. Zhao	351
How Atmospheric Large Eddies Transport Domestic Cook Stove Emissions over Slums: A Chennai City Case Study C.R. Sathish Kumar, P. Chandramouli, A. Samaddar, A. Sharma, I. Saini and S. Ghosh	357

A Reverse Design Method of Geometric Model for Fan's Impeller Based on Geomagic Studio and SolidWorks	362
X.B. Ning, R.H. Tang and Q.S. Jiang	
The Time-Frequency Analysis Method Based on EMD White Noise Energy Density Distribution Characteristics of the Internal Combustion Engine Vibration	367
G.Y. Feng, Y.P. Cai and Y.P. He	
The Transmission Precision Test Research of High Precision FA45-29 Prototype	376
L. Xuan, L. Lei, T.M. Guan and J.B. Li	
Study on Bio-Locust Subsequent Attitude Adjustment Robot	382
J.M. Yin, D.S. Chen, K. Zhao, B.G. Zhang and K.W. Chen	
New Rotor with Variable Clearance in the Short Fiber Rubber Composite Mixing	387
C.J. Liu and C.S. Wang	
The Calculation and Analysis of the Infrared Thermal Wave Nondestructive Testing for the Defects of the Parts in the Turnout Point Switch	393
P. Yang, G. Jing and C.M. Li	
Effects of Wheel Dressing Errors on the Accuracy of CNC Gear Form Grinding	400
H. Zhang and X.D. Huang	
Research on the Effect of Pump Block Material Selection on Pump Spindle Stress	408
Y.Q. Ding, F. Qiu, J.B. Liu, Y.C. Wang and L.Q. Tao	
Resistance Analysis of RC Frame Corner Joint Subjected to Progressive Collapse	414
P. Zhang, Z.Y. Yang, H.T. Zhou and J. Hu	
Effect of Load-Relieving Structure against Overload under High Overload	421
Q.L. Ning, J. Li, D. Chen and G.P. Wang	
Analysis of Influence Parameters of the Project Ribbed Bar Machining Quality	426
X.J. Zheng, Z.N. Wang and L. Ma	
Method Study to Determine Tighten Torque of Thread Fasteners	432
T.Z. Chen and Y.M. Mo	
Rigid-Body Guidance Synthesis of Four-Bar Linkages with Use of the Relative Displacement Differences of Monad Vectors	437
C.Z. Wang	
A New Testability Optimization Allocation Approach	444
G. Liu and F. Li	
Numerical Simulation on the Shape of Stamping Part about Hot Forming and Quenching	450
W. Wang, Y. Liu, P.F. Wen and J. Tong	
Coupling Simulation and Characteristic Analysis of Pure Water High-Speed On-Off Valve	457
L.Y. Yan, P.F. Wu and Z.X. Bao	
The Improved K-Means Cluster Analysis on Diagnosis Data Fusion of the Aero-Engine	463
X.B. Liu, B.B. Deng and L.N. Shen	
Design and Research of a New Ultrasonic Atomizing Vibrator	468
H. Li, J.J. Zhao, Z. Yin and K. Ren	
Simulation Model and Experimental Verification of Electro-Hydraulic Servo Valve	473
X.F. Ruan	
Experimental Research on the Mathematical Model of Abrasion Ratio Based on the Abrasive Belt Grinding	480
G.J. Xiao, Y. Huang, R.K. Cheng and Y. Lu	
Simulation on Cutting Temperature during High-Speed Milling Aluminum Alloy 7055	486
L. Tan, C.F. Yao, W. Zuo and D.X. Wu	
Model of Group Robots Based on Distribution Function	491
T. Itami	
 Chapter 5: Dynamics Systems: Models and Analysis	
Optimization of Vehicle Powertrain Mounting System Based on Adams/View	499
G.Y. Pan, Y. Yan and X. Yang	
Nonlinear Revision of the Linear Model for Stockbridge Vibration Damper and Experiment Validation	504
X.Y. Luo, Y.S. Zhang and Y.P. Zheng	

Development of a Closed-Loop Simulator for a Separately-Excited DC Motor Drive System C. Joochim, A. Suwanma and N. Worrakul	509
JC@ A9`&	
Dynamic Responses for Rails and Panels of Electromagnetic Rail Launcher in the Electromagnetic Forces W. He and X.Z. Bai	515
Engineering Vehicle ABS Model Reference Self-Adaptive Control Strategy Analysis and Simulation Z.S. Zhang, Y.Q. Luo and H. Wei	526
Study on Friction Chatter Mechanism of Power Ultrasonic Vibration Honing Based on Stribeck Effect J.Q. Wang, X.J. Zhu and Q. Cheng	531
Dynamic Performance Analysis on Helical Milling Spindle Unit H.Y. Wang and X.D. Qin	536
Dynamic Analysis of New Garbage Container Transport Frame in Back-Loaded Condition T.M. Guan, X. Liu, L. Wu and L. Lei	541
Analysis on Dynamic Contact Force in High Power Density Gear Transmission Based on Flexible Model H.S. Feng, L.Q. Wang, D.Z. Zheng and L. Gu	547
Experimental Modeling Using Pseudo Mode Shape Method T.C. Yang and Y.A. Tsai	552
Mesh Partition Based Explicit Integration Method for Dynamic Structure FEA D.P. Li and Y.C. Hu	558
Inverse Frequency Problem of Discrete System of Symmetry Beam with Two Fixed Ends M. He, Q.J. Liu and Q.S. Wang	564
Switched Projective Synchronization of the Stochastic Newton-Leipnik System D. Dong, S.J. Ma and J. Zheng	570
Applying the Bessel Filter in State Feedback Q.Z. Wang and X.X. Wang	575
Bifurcations of Exact Traveling Wave Solutions of Maccari's Equations H.X. Zhou	580
Study of Vehicle Vibration Model Based on Lagrange Method M. Yang, X.X. Zhou, D.C. Zhang, X.E. Wu and X. Chen	585
Research on Running Stability of the Rail Vehicle Based on SIMPACK L.H. Wang, A.N. Huang and G.W. Liu	589
Reduce the Number of Anti-Hunting Dampers in High-Speed Train by Optimal Design of Wheel Profile L.W. Man and J.M. Zhang	594
The Simulation and Analysis of Piezoelectric Vibration Control for the Autobody Thin-Wall Structure C.L. Shen, X.W. An, Y. Han and D.X. Wang	599
Application of Power Spectral Density on Estimation of the Number of Source Signals N. Li, H.T. Chen and S.P. Liu	604
Review of Loads Transfer Laws and their Applications in Artillery H. Xiao, G.L. Yang and P. Wang	609
Study on the Motions and Stress of Immersing Tunnel Element under Wave Actions H.D. Shi, S.Y. Li and D. Wang	614
Research on the Vortex Structures of Flow around Surface-Mounted Obstacles S.Q. Chen and B. Liao	623
Calculation Method of Lubricant Film Pressure Distribution of Axial Piston Pump Slippers Y.J. Wang	629
Research on Automobile Aerodynamic Drag Reduction Based on Isobaric Surface of a Blunt Body X.J. Hu, L. Liao, X.C. Li, C.H. Yang, P. Guo, B. Yang, J.Y. Wang and D. Liang	634
The Simulation Study of the Car Curve Traveling Traction Control System W. Zhao, N.N. Wang, Y.Y. Duan and J.G. Xi	639
Dynamic Identification of Industrial Robots from Low-Sampled Data E. Oliva, G. Berselli and F. Pini	644

Theoretical Analysis and Experimental Model Study on Stability of a Crack Rotor System F.L. Wang	651
 Chapter 6: Micro and Nano Technologies, Materials, Molecular and Quantum Physics Applications	
Effect of Different Silica Source on NaA Nanocrystal P. Bai, Y.N. Liu, Z.S. Zhang and Y.L. Sun	659
Mathematical Modeling on Ultra-Filtration Using Functionalized Carbon Nanotubes Y. Chan	664
Design of NDR-Based Oscillators Suitable for the Nano-Based BiCMOS Technique K.J. Gan, Z.J. Jiang, C.S. Tsai, D.Y. Chan, J.S. Huang, Z.K. Kao and W.K. Yeh	669
Fast and Simple Fabrication of RGO/Ag Nanocomposite with Homogenous Dispersion X.J. Jiang, G.Q. Luo, M.J. Li, Q. Shen and L.M. Zhang	674
Influence of Hole Size on Crack Propagation Mechanism of Nano-Single Crystal Copper G. Li, X.Q. Hou and Z.M. Liu	679
The Comparative Study of Non-Equilibrium and Equilibrium MD Simulation Results on Gas Flow in Nanopore Q.X. Liu, Z.Y. Cai and X.P. Yu	684
The Model Construction and Structures of the Dendronized SWCNTs Collaborative Nano-Materials Y.Z. Liu, Y. Liu and H. Tang	690
Glucose Biosensor Based on Pt Nanoparticles/Graphene Chitosan Bionanocomposites H.P. Liu, G.Y. Zhan, Q.Z. Dong, Y.A. Lv, J.F. Wang, C.A. Tao and Z.H. Hu	695
Growth Inhibition of Copper Oxide Engineered Nanoparticles to <i>Lemna minor</i> K.M. Lü, S.K. Men and Z.Y. Wang	700
Microstructure and Magnetic Properties of Microwave Sintered Ni_{0.5}Zn_{0.5}Fe₂O₄ Ferrite Y.D. Peng, Q.L. Xia, L.Y. Li, M. Lou, J.Z. Hu and J.H. Yi	705
Zinc Oxide Nanostructures Synthesized by Thermal Oxidation of Zinc Powder on Si Substrate S. Noothongkaew, S. Pukird, W. Sukkabot, B. Kasemporn, P. Songsirittikul and K.S. An	710
Synthesis and Luminescent Properties of a Novel Nanoscale Eu(III)-Carboxylate Coordination Polymer C.A. Tao, Y.N. Lv, L.Q. Meng, H.P. Liu, Z.H. Hu, H. Zhu and J.F. Wang	715
Synthesis of AgCl Nanoparticles in W/O Microemulsion and Study of AgCl/Poly(GMA-co-MMA-co-AMPS) Copolymer Organic-Inorganic Hybrid Membranes T. Wang, L.G. Wu and Z. Jiang	719
Synthesis and Fluorescence Property of Rare-Earth Terbium Active Monomer Complexes D.M. Wang, W.B. Cao and J. Fan	724
Synthesis and Characterization of Three-Dimensional (3D) Flowerlike CuO by a Simple Chemical Reduction Method K. Xiang, M.J. Li, D.R. Gong, G.Q. Luo and Q. Shen	729
Study on Toxicity of Copper Oxide Engineered Nanoparticles to Tobacco BY-2 Cells L.L. Xu, H.J. Sui, X.Y. Liu and Z.Y. Wang	734
Structure of Nanometer Wide Heavy-Ion Tracks in Muscovite Y. Eyal and S. Abu Saleh	739
The Inverse Task for Magnetic Force Microscopy Data K. Nefedev, V. Kapitan and Y. Shevchenko	744
Bioactivity of Microparticles Prepared from Fermented Seaweeds Waste Materials B.Z. Zhang, P.S. Yan, W. Zhang and B.S. Paulsen	748
The Application of Modified Multi-Wall Carbon Nano-Tube Particles in PCM as the Nucleating Agent X.Y. Zhang, J.L. Niu, J.Y. Wu and S. Zhang	753
Toxicity of Copper Oxide Nanoparticles on the Green Algae: <i>Chlorella pyrenoidosa</i> C.C. Zhang, X.Y. Liu and Z.Y. Wang	758
The Anti-Microbial Property of ZnO Nanoparticles Deposited Bamboo Pulp Fabric G.Y. Zhang, H. Morikawa and Y.Y. Chen	763

QCM Detection of HBV Based on Au-NPs/CNTs Signal Amplification K.Q. Qiao, X.Q. Guo, Y.Q. Wu, Y.G. He, W.H. Wang and Z.X. Ye	767
Production and Characterization of MWCNTs Produced by Non-Stationary Current Regimes in Molten LiCl T.A. Dimitrov, A. Ademi, A. Grozdanov and P. Paunović	772
Polymer Nanocomposite Films with Functionalized MWCNTs A. Grozdanov, A. Tomova, P. Paunović and T.A. Dimitrov	778
Oxidation Study of Pure Fe and Fe-36Ni Alloy at Elevated Temperature S.A. Ha, S.M. Shin, J.Y. Yun and J.P. Wang	784
Phase Transitions in the Binary Alloys with Annealed Magnetic Impurities V.I. Belokon, K.V. Nefedev and O.I. Dyachenko	789
Synthesis of Stable Colloidal Suspension of Graphene Y.N. Lv, C.A. Tao, H.P. Liu, J.F. Wang, H. Zhu, Y.Y. Zhang and H.T. Li	794
The Effect of Crystalline Rice Husk Silica on Polysulfone Membrane for Wastewater Treatment Z. Harun, M.F. Shohur, M.Z. Yunus, M.R. Jamalludin and A.F. Ismail	798
Synthesis and Microstructure Study of Polycarboxylated Superplasticizer with Different Carboxylic Group Content X.Y. Peng and M.G. Xia	802
Wireless Thermal Convection Accelerometer on a RFID-Tag with Heater and Thermal Piles Deposited by E-Beam J.M. Lin and C.H. Lin	808
Electronic Structure and Optical Property of Phosphorus Doped Semiconducting Graphene Nanoribbons A.Q. Chen	813
Alignment of Integrated Photonic Devices Based on Improved Particle Swarm Algorithm M.P. Zhu, Y. Zheng and J.A. Duan	817
Influence of Crystal Structure on the Magnetic Percolation Threshold in Ultrathin Films L. Afremov and Y. Kirienko	823
Electrical Generator Made of Aligned BaTiO₃ Nanofibers Q. Gao and C.X. Gao	827
Physical Characteristics Analysis of Microencapsulated Phase Change Suspension W.B. Fang	831
Effects of Precursor Infiltration and Pyrolysis Cycles on Properties of Hollow Silica Fiber Reinforced Nitride Composites X.R. Zou, C.R. Zhang, S.Q. Wang, H. Zhu, C.A. Tao, L.P. Sheng and H. Xiao	836
Spin-Glass-Like Behavior and Concentration Phase Transitions in Model of Monolayer Two-Sublattice Magnetism K.V. Nefedev and V.Y. Kapitan	841
Optical Performance Characteristics of Light-Emitting Diodes Designed with Dip-Shaped InGaN/GaN Quantum well Structures S.J. Kim, C.J. Choi and H.S. Kim	845
Density Function Theory Study on the Recognition of the Urea-Based Involving Bromine Derivation Receptor for the Halogen Anions K. Yuan, H.X. Li, H. Tang and Y.C. Zhu	850
Research on the Application of Microencapsulated Phase Change Materials to Thermal Infrared Camouflage E.B. Fu and Y.P. Yao	855

Chapter 7: Material Engineering and Processing

Effect of Temperature on Hydration Performance of Portland Cement J. Liu, Y. Zhang, R.Q. Liu, F.Z. Lin and Z.Y. Huang	863
Experimental Study on Surface Integrity in High-Speed End Milling of Titanium Alloy TB6 D.X. Wu, C.F. Yao, L. Tan, J.X. Ren and D.H. Zhang	867
A Study of Technical and Economic Analysis to Energy-Saving Glass of Construction in Hot Summer and Cold Winter Zone X.H. Gan, S.L. Huang and S.M. Liu	872

Erosive Ions in Industrial Boiler Water on the Corrosion Behavior of Water-Wall Tubes M.D. Li, B. Zeng, Y.H. Du, J. Liu, J.M. Zhao and Z.P. Zhu	877
Electrochemical Corrosion Behavior of Ultra-Supercritical Unit Waterwall Tube Material in Simulated Solution of Oxygenated Treatment at Room Temperature C.R. Ma, H.W. Lu, G.H. Lu, W. Su, T.S. Chen and Z.P. Zhu	882
Empirical Regressive Model of Thermal Conductivity Coefficients on a Kind of Compound Rubber Material S.M. Xu, J.H. Du and J.H. Liu	886
Melt Polycondensation and Analysis of Hydroxyl-Terminated Poly(L-lactic Acid) Using Small Molecular Diols as Terminating Agents J. Che and R.J. Yang	890
Effect of Field Strength on Polymer Aggregation in Electrohydrodynamic Spraying of Thermoplastic Polyurethane A. Jadhav, L.J. Wang and R. Padhye	895
Preparation and Thermal Shock Properties of Al₂O₃/40Cr Functionally Graded Composites Materials X.G. He, D.H. Lu, S.M. Chen and Y.C. Xiong	901
Effect of Cord Construction on the Properties of Rubber Composites Z.M. Xie, D.L. Chai, S.C. Chen and Z.M. Wan	906
An Experimental Study on Mechanical Properties for High Performance Concrete Using Fly-Ash J.E. Kim, W.S. Park, S.H. Cho, D.G. Kim and J.M. Noh	911
Experimental Research on Surface Roughness and Topography of Aluminum Alloy 7055 under High-Speed Milling C.F. Yao, L. Tan, W. Zuo and D.H. Zhang	916
Experimental Investigation of Downward Flame Spread over RPU Samples Y.M. Wang, Y.M. Zhang, H.Z. Zhao and L.M. Zhao	921

Chapter 8: Materials in Manufacturing Processes: Design, Modeling, Simulation and Analysis

Load Capacity Finite Element and Optional Design of Scissor Platform K.X. Guo, J.R. Wu, C.Y. Pan and B. Yin	929
Temperature Control Research on Spiral Case Concrete of Xiluodu Underground Power Plant during Construction J. Zhang, Y.H. Duan and J.M. Wang	933
Application of Hoop Stress Limit State and Predicted Corrosion Rate in Underground Gas Transmission Pipeline Inspection Plan P. Alfon, J.W. Soedarsono, D. Priadi and S. Sulistijono	942
Reloading Stress Relaxation Behavior Analysis Based on a Creep Model for High Temperature Bolting Steel W.W. Zhang, H. Xu and H.Y. Li	950
Modeling and Analysis of Canned Motor of the Nuclear Reactor Coolant Pump Y.S. Wang, Z.Q. Yao, H. Shen, Y.B. Xue and D. Cheng	955
The Influence of the Dimension of Central Tube on Shell-Side Performance of Continuous Helical Baffle Heat Exchanger K. Wang, W.J. Du, S. Ji and L. Cheng	960
Panel Shear Strength of Steel Coupling Beam-Pseudo Strain Hardening Cementitious Composite Wall Connection W.S. Park, J.E. Kim, S.W. Kim, S.H. Yun, N.Y. Eom and H.D. Yun	965
Design Optimization of Modular Bridge Structure F. Riaz, R. Ahmad, K. Alam and A.S. Abid	970
3D Numerical Simulation of Stratified Mixture Formation of DI LPG Engine J. Xu, Z.H. Zhou, Z.R. Hao and B.Y. Xu	975
Numerical Simulation of Temperature Field of Linear Friction Welding of Titanium Alloy Z.M. Liu, J. Wang and J.L. Pan	981
Simulation of Metal Material Quasi-Static Tensile Test Based on ABAQUS D.N. Yu, Y. Wang and J.W. She	985

Simulation and Analysis on the Blind Hole Method Using the Finite Element Method C.H. Yin, C.M. Hsu, P.S. Su and J.H. Kuang	990
The Influence of Eccentricity on Thrust Force of Helical Milling in Carbon Fiber Composite Holemaking Z.H. Sha, Y. Wang and S.F. Zhang	995
The CFD Simulation Analysis on Flow Field of Array Ultrasonic Atomizing Nozzle Coating System Y.L. Wu, S.T. Li, W.L. Liu and P.K. Lin	1000
The Effects of Material Degradation on Sealing Performances of O-Rings Z.G. Zeng, Y.X. Chen and R. Kang	1004

Chapter 9: Related Themes

How many Elements Exist in the World? W.X. Hu, Z.X. Zhao and M. Liu	1011
Current Sensing Circuit Applied to Switching Regulator H.X. Feng	1017
Research on the Stratified Charge Control of the Nitrogen-Enriched Intake Air X.D. Che, Y.A. Jin, Y.L. Xing and Q. Gao	1021
Study on Stability Experimental of Compound Consolidated Soil J.C. Xu and Q.Z. Liu	1026

Keywords Index

Authors Index