Table of Contents

Preface and Organizing Committee

Chapter 1: Materials Science and Engineering Chemistry

Hyperbranched Polysiloxane Functionalized Graphene Oxide via Polyhydrosilylation M.M. Zhang, H.X. Yan, C. Gong and Y.C. Feng	3
Effect of Catalysts on the Properties of Fluorinated Polyurethanes Z. Li, X. Wang, Y. Li, W. Chain and J.J. Hu	9
Experimental and Numerical Simulation of Absorbing Property of Cement-Based Material Blending with Silica Fume and Culver Zed Fuel Ash B. Wang, Y. Zhang and R.J. Chen	14
Experimental and Numerical Simulation of Absorbing Property of Cement-Based Material Blending with Graphite and Carbon Fibers B. Wang, Y. Zhang and R.J. Chen	20
Restrained Shrinkage Ring Test on Polymer Fibres Treated in Cold Plasma Discharge D. Kopkáně, L. Bodnárová and R. Hela	25
A Study of Properties of Dilute Polymer Systems Prepared with Polymer-Bearing Wastewater	21
J. Yang, J.Y. Li, L.L. Pan, J.G. He and K. Yang Effects of Sufentanil Postconditioning on Myocardial Ischemia-Reperfusion Injury in Rats	31
In Vivo	
D.P. Gao, G.Q. Zhao, J. Wang and M. Gao	37
Research of <i>In Situ</i> Grafted Carbon Black W. Fu, A.H. Liu and L. Wang	41
Influence of Ge and Si Doping on the Microstructure and Dielectric Properties of Barium	
Titanate Ceramics Z.J. Shen, L.N. Bing, H.Y. Peng, S.H. Gong and W. Wu	44
Magnetic Property of Hole-Doped Double Perovskite Compound	77
S.J. Yuan, Q. Zhang, H.B. Sun and H. Wang	50
Fabrication of NiO Nanorings by Bubble-Bursting Bubbles as Templates Y.F. Guo, Z.H. Feng and Z.H. Yuan	54
Investigation on the Microstructure and Segregation of Superalloy FGH96 by Direct Laser Forming	
H.Y. Zhang, A.F. Zhang, B. He and X.K. Shi	58
Preparation of Gold-Nickel Phosphide Core-Shell Nanoparticles via a Facile Solution	
Method H.M. Ping, Y.Z. Chen, D.Q. Zeng, R. Xu, H.Z. Guo, L.S. Wang and D.L. Peng	64
The Stress-Strain Behaviors of High Density Aluminum Foam under Monotonic and Cyclic	
Loading Y.J. Liu and B. Qiang	69
Transmittance Characteristics of ITO/SiO ₂ /Nb ₂ O ₅ Multi-Layered Film	0)
Y.A. Kwon and G.E. Jang	73
Box-Behnken Design Based Statistical Modeling and Optimization of Cellulase-Assisted Microwave Extraction of Polysaccharide from Elaeagnus Angustifolia L.	
S. Wang, H.P. Liu, Y. Zhang, J. Yu and W. Yuan	77
Structure and Magnetic Properties Investigation of CoZr and CoZrN Thin Films J. Singh, A.K. Singh, S.K. Gupta and J. Akhtar	83
Electrical and Structural Properties of Multioriented Thin Film PZT Deposited at Room Temperature by RF-PVD M. Mahdi and M. Kadri	89
Analysis of Light Scattering Properties about Dent Nanoparticles upon Wafer	0)
L. Gong, H.L. Hou and J.L. Zou	94
Effects of High Pressure Treatments on the Ripening of Hard Cheeses W. Yang, Y. Xu, D.J. Zhang, Y.X. Zhao and Z. Zhao	98

Chapter 2: Research and Design in Mechanical Engineering

ADAMS-Based Simulation Study on Lateral Stability of Counterbalanced Forklift Trucks G. Xia, X.W. Tang, J.F. Hu and Z.Q. Liu	105
Aeroelastic Tailoring of Oscillating Supersonic Wing with External Stores N.A. Abdullah and E. Sulaeman	110
Performance Analyses and Experimental Verification for the Clamping Mechanism of Die Casting Machine	
G.Y. Wu, W.C. Tang and S.P. Wan	116
SIP: Smart Insulin Pump A. Faraji and M. Kasiri	123
Interactive Foot Orthosis (IFO) for People with Drop Foot A. Faraji and M.R. Valajoozi	129
Hydraulic System Design Research Based on Green Design L.T. Ha	135
Implementation of ESD Protection for Output Driver ICs with SCR Circuits Techniques S.L. Chen and D.A. Fran	139
Study on a New Evaluation Method of the Use Condition of Water Flooding J. Yang, H.Y. Yu, J.G. He, S.J. Shu and K. Yang	145
Comparison between Rankine Cycle and Trilateral Cycle in Binary System for Power	
Generation M. Oreijah, A. Date and A. Akbarzadaha	151
Flow Field Analysis of a Horizontal Wave Flow Turbine Power Plant Based on FLUENT S.M. Wang, K. Tian, C. Lv and Y.N. Wang	156
Heat Transfer Enhancement Using Ultrasonic Waves in Presence of Liquid: A Basic Research for Cooling Electronic F. Baffigi and C. Bartoli	163
Computational Fluid Dynamics Analysis for Flow Field of Radiator Air Intake in the	
Powertrain Compartment L.L. Song, W.Z. Zhang, Y.F. Cao and Y.L. Zeng	171
Chapter 3: Environmental Engineering	
Experimental Study on the Treatment of Sewage by Soil X.H. Wang, Y. Zhang and C.H. Huang	179
Rapid and High-Efficient Composting Process of Municipal Sewage Surplus Sludge C.H. Huang, Y. Zhang and J.H. Luo	184
Study on Chemical Enhanced Primary Treatment of Sewage J.H. Luo, C.H. Huang and Y. Zhang	189
Optical Characterization of Chrysotile for the Real Time Detection H.S. Ahn, S.Y. Song, J.H. Ahn, D.G. Jang and J.C. Joo	194
The Model of the Pearl River Water Pollution Based on Reaction Diffusion Equation G.J. Huang, S.M. Fang, J. Xian and J.M. Jiang	199
The Influence Analysis Model about the Pricing of Carbon Emission Right on China's Generation Right Replacement	
Z.F. Tan, Q.H. Hu, L.Q. Lin, L.W. Ju and Z.H. Chen	203
Chapter 4: Mechatronics, Automation and Robotics	
An Electrical-Performance Test Method for Test Handler Y. Chao, Z.S. Zhang and M. Dai	209
Research on INS-Aided GNSS Carrier Tracking Loop in High Dynamic Circumstance X.L. Wang, C.J. Li and X.C. Li	215
The Design of Control System for Motion Platform Based PLC Y.H. Wei, C. Xu, G.R. Wang and Y.T. Li	222

Vibration Control Applied in a Semi-Active Suspension Using Magneto Rheological Damper and Optimal Linear Control Design	220
B.S.C. da Cunha and F.R. Chavarette The Scalability Studies of CAN Bus Based on SONEC	229
Y. Liu	235
Stochastic Error Modeling of MEMS Inertial Sensor with Implementation to GPS-Aided INU System for UAV Motion Sensing C.H. Lim, T.S. Lim and V.C. Koo	240
A Research and Development of Composite Boring and Milling CNC System Based on PMAC J.Y. Sun, W.J. Sun and G.X. Wang	247
Application of PID in Controllable Pitch Propeller of a Multipurpose Ocean Tug H.F. Chen	253
Development of Real-Time Look-Ahead Methodology Based on Quintic PH Curve with \mathbf{G}^2 Continuity for High-Speed Machining J. Shi, Q.Z. Bi, Y.H. Wang and G. Liu	258
Research of Self-Adjust Compromise Control Strategy about Comfort and Stability of Quarter Vehicle	265
J.P. Chen, Y.H. Qiao, W.T. Feng and W.S. Guo The Analysis and Passage of Hadge Trimmer Polastics shout Manipulator Kinematics	265
The Analysis and Research of Hedge Trimmer Robotics about Manipulator Kinematics S. Liu, H. Guo and W.Z. Yang	273
Nonlinear Control of an Inverted Pendulum on a Cart by a Single Control Law A. Özbey, E. Uzal and H. Yildiz	279
Smooth Trajectory Planning for 3-UPU Parallel Manipulator K.G. Osgouie, A.H. Asfia, M.H. Sadooghi and A.A. Kazemabadi	285
Design and Implementation of Position Locked Control System for Four-Gimbal Platform R. Guo, J.J. Zhang, G. Chen and M.Y. Liu	293
Research and Design of Automatic Traction Cutting System for Aluminum Profile Production Based on ARM H. Guo and S.W. Yu	298
Panoramic Image System Design in the Nearly Dark Environment G. Chen, Q. Li and H. Zhang	304
Simulation Research on Effects of Low Velocity Characteristics to Direct Drive Volume Control Systems	
J.F. Wang and L.Y. Wang	310
A Smart Skin Antenna Structure for Global Navigation Satellite System Z.H. Xie, F. Peng, P. Zhang and W. Zhao	316
Chapter 5: Computational Methods and Algorithms, Applied Information Technologies	
Design of Automatic Control Simulation Experiment System Based on Visual C++ Y.K. Chen, Y.L. Ma and Y. Bai	323
Research on Computer Aided Aircraft Maintenance Training and Evaluation System Based on User-Centered Design J.J. Chu, S.H. Yu and W.J. Wang	328
Two Classes of Potential Games and the Solving Method of the Equilibria X.H. Hu, H.W. Gao, D.Y. Wang, Y.M. Li and Z.H. Ji	333
Collision Detection Application for Virtual and Augmented Reality Aided Manufacturing System	
J. Novak-Marcincin and L. Novakova-Marcincinova	338
Hierarchical Optimization Model of Cloud Manufacturing Services Combination H. Zhang, R.F. Guo and C. Geng A Comparative Study of Cloud Bost Harmony Search and Bat Algorithms on Optimization	345
A Comparative Study of Global-Best Harmony Search and Bat Algorithms on Optimization Problems P. Aungkulanon	352
Mobile Sync Client Design of Cloud Storage System B. Jiang, G.Y. Ma, S. Ma and J.F. Xie	358

PCI Express-Based NVMe Solid State Disk J.J. Hung, K. Bu, Z.L. Sun, J.T. Diao and J.B. Liu	365
Introducing Neural Networks as a Computational Intelligent Technique A. Azizi, F. Entessari, K.G. Osgouie and A.R. Rashnoodi	369
A New Five Dimensional Hyperchaotic System and its Fractional Order Form L. Liu, C.X. Liu and Y.F. Liao	375
Downlink Outage Probability Analysis of D-MIMO Systems over a Composite Channel L. Wang, Y.H. Li, W.J. Peng, M.Y. Ju, G.P. Tan and P. Huang	381
Study on the Structural Model of Human Pose W.H. Wang	387
High Quality 3D Restoration of Photographed Structures Using V.R. Technologies S. Butnariu and F. Gîrbacia	391
Rapid Prototyping in Developing Process with CA Systems Application L. Novakova-Marcincinova and J. Novak-Marcincin	399
Fatigue and Comfortableness Analysis in Product Design W.J. Wang, S.H. Yu and J.J. Chu	406
Study of the Discrete Wavelet Transform Based on JPEG2000 Image Compression Algorithm	
J. Čai and S. Wang	411
Mobile Payment Development in China L. Zhao and H.Y. Shu	416
The Application of Virtual Reality Technology in Teaching of Industrial Design – Outline of the Project for the Human-Computer Interactive Simulation of the Upper Limb Operations G.P. Nie and G.J. Ren	420
Software Design of College Students' Physical Activity Energy Monitor Q. Luo	424
Chapter 6: Related Themes	
Applying TRIZ to Improve a Guide Post C.P. Chang and Y.H. Lin	431
The Construction and Management of Technology Innovation Base on College Students K.B. Wang, J.Y. Li, Y.J. Zhang, X. Chen and B. Wang	436
Kinematics Analysis on the Last Exertion Skills of Chinese Woman Javelin Thrower Lv Huihui	
Y. Wang, J.H. Zhou and L.F. Zhao	441
Kinematic Analysis of Basket with 1/2 Turn to Handstand of Haibin Teng on Parallel Bars E.C. Guo and J.H. Zhou	443
The Effect of Adventure Education Activities on Life Effectiveness in High School Student H.L. Li, S.C. Lin, H.C. Chen, W.C. Hong, W.L. Huang, T.M. Ma, S.W. Lin and P.R. Chou	446
Research on the Huxiang Culture Elements Applied in the Smoked Bamboo Furniture	
Design J. Zhao, Z. Li, P. Zhao and Z.F. Zhang	450