Table of Contents

Preface and Committees

Chapter 1: Materials Research

Temperature Deformation	
W. Zhang	3
Effect of Coarse Aggregate Type on the Residual Velocity of Rigid Projectile Perforating Concrete Target	
Z.J. Zhang, X.M. Wang and W.B. Li	7
Nanowelding of Single Walled Carbon Nanotubes onto Electrodes Using Molecular Dynamics Method	12
X. Liu, Z. Liu, P. Sun, Y.R. Wang and Y. Wu	13
Preparation Process of Long Fiber Reinforced Impact Polypropylene Copolymer Composites	
L.P. Li, H.S. Tan, Y.F. Liu, Z.X. Tan and X.J. Liu	17
The Exploitation of Environmentally Friendly Materials for Humane Care in Children Postoperative Recovery X.H. Shao	21
The Mechanical Properties of Cement Reinforced Loess and Pore Microstructure	
Characteristics H.M. Liu, L.M. Wang and P. Gao	25
The Study for Non-Destructive Quantification Method of Reinforcement Corrosion Degree	23
Based on Electrochemical Detection and Finite Analysis Technology D. Zeng, B.H. Hao and Q.H. Zeng	31
Chapter 2: Applied Mechanics	
A Case Study on the Air Flow Characteristics of the Hirobo-FALCON 505 Controllable Helicopter's Main Rotor Blade	39
Z.B.A. Awal and M.S. bin Ammoo Computational Analysis of a Magnetohydrodynamic Flow in an Electrically Conducting	39
Hairpin Duct X.J. Xiao and C.N. Kim	43
Flow Regime Identification for Wet Gas Flow Based on Kurtosis Feature of Flow-Induced Pipeline Vibration	40
C.Q. Hua, H.W. Pan, Y.F. Geng and L.C. Xing	49
Numerical Modeling on Low Velocity Impact on a Foam Core Sandwich Panel Z.H. Xie and Q. Yan	53
Research on Horizontal Well Inhibiting Water Coning and Tapping the Potential of	
Remaining Oil	57
XII WII Y N WANG R H WANG H H ZNANG B L UI ANG M ZNII	51
X.D. Wu, Y.N. Wang, R.H. Wang, H.H. Zhang, B.L. Qi and M. Zhu Research on the Aero Dynamicity of Steady Wing of Non-Parachute Terminal Sensitive	65
Research on the Aero Dynamicity of Steady Wing of Non-Parachute Terminal Sensitive Projectile S.T. Lv, X.D. Ma, R.Z. Liu and R. Guo	65
Research on the Aero Dynamicity of Steady Wing of Non-Parachute Terminal Sensitive Projectile S.T. Lv, X.D. Ma, R.Z. Liu and R. Guo Stress Analysis and Applications of Sucker Rod in Deviated Wells J.M. Zhang, X.D. Wu, R.H. Wang, B. Wang and Y.N. Wang	69
Research on the Aero Dynamicity of Steady Wing of Non-Parachute Terminal Sensitive Projectile S.T. Lv, X.D. Ma, R.Z. Liu and R. Guo Stress Analysis and Applications of Sucker Rod in Deviated Wells J.M. Zhang, X.D. Wu, R.H. Wang, B. Wang and Y.N. Wang Study on Aftershocks Triggering by Static Stress Changes of the Minxian-Zhangxian 6.6 Earthquake	69
Research on the Aero Dynamicity of Steady Wing of Non-Parachute Terminal Sensitive Projectile S.T. Lv, X.D. Ma, R.Z. Liu and R. Guo Stress Analysis and Applications of Sucker Rod in Deviated Wells J.M. Zhang, X.D. Wu, R.H. Wang, B. Wang and Y.N. Wang Study on Aftershocks Triggering by Static Stress Changes of the Minxian-Zhangxian 6.6 Earthquake F.B. Liu and A.G. Wang	
Research on the Aero Dynamicity of Steady Wing of Non-Parachute Terminal Sensitive Projectile S.T. Lv, X.D. Ma, R.Z. Liu and R. Guo Stress Analysis and Applications of Sucker Rod in Deviated Wells J.M. Zhang, X.D. Wu, R.H. Wang, B. Wang and Y.N. Wang Study on Aftershocks Triggering by Static Stress Changes of the Minxian-Zhangxian 6.6 Earthquake	69

The Numerical Simulation and Performance Analysis of the Vortex Pump for Solid-Liquid	
Two Phase Medium P.Y. Song, H.L. Wang and P.C. He	88
Chapter 3: Design, Modelling and Simulation	
Analysis of Modal and Seismic Property of Oil Storage Tanks C.X. Shi and W.M. Yang	95
Calculation of Kill Probability for Kinetic Energy Rod against TBM Warhead Y.C. Wang, J. Wang and B.B. Han	100
Design for Disassembly Based on Substance-Field Analysis R. Mu and N. Zhao	105
Optimization of Incremental Sheet Metal Forming Parameters by Design of Experiments S.D. Majagi and G. Chandramohan	111
Overview of Visualization Tool as an Experimental Method in Iterative Participatory Design	
H. Hussain	117
Research for Calculation Model of Allotypic Pumping Unit Load X.Q. Cen, X.D. Wu, S. Wei, X.S. Zhang, J.M. Zhang, J.F. Tang and S.D. Li	121
Research of Front-End Modeling Design for a SUV Based on Self-Piercing Riveting Anti- Fatigue Design	120
X. Wang, R.J. Liu and X.W. Dang	130
Solving the Deflection Problem of Laptop Casing Structure by Finite Difference Method H. Hu, W.C. Tang and H.X. Huang	134
Dynamic Analysis on a Cable-Driven Interventional Active Catheter Using Kane's Method Combined with Screw Theory D.X. Zhao, B. Chen, G.Z. Shou and Y.Q. Gu	140
Numerical Studies on the Performance of Saccardo Ventilation System in Emergency Fire Scenarios	
R. Ganjiazad, A. Kazemipour, H. Afshin and B. Farhanieh	146
Design and Optimization of Urban Signal Fuzzy Controller Based on IQPSO W. Li, X. Bi, Y.X. Cao and J.S. Du	152
Error Modeling and Simulation of Serial-Parallel Mechanism Based on Screw Theory S.H. Hu, X.L. Liu, J.C. Sun, T.T. Xie and S. Qi	156
Structural Design and Performance Study of Parallel Metamorphic Mechanism Based on	
Screw System Theory S.H. Hu, H.G. Wang, T.T. Xie and T.S. Sun	162
Missile Trajectory Simulation in Vertical Plane Y.H. Li, B. Mo and J. Zhao	167
Experimental Verification of the Suppression Effect of Ship Shaft-Rate Electric Field H.P. Zhang, X.G. Chen, C.Y. Ao and W.C. Gong	172
Modal Analysis of a Electric Tool H.W. Wei, Y. Wang and Q. Gao	176
An Efficient Quadratic Conversion Architecture for Real-Time Wideband DDC L. Zhang	180
Study on Development and Testing Mechanism of a New Multifunction Agricultural V-Belt Fatigue Testing Machine	405
W.F. Zhang, F.X. Zhang, Y.J. Lv and F.F. Bao	185
Digital Structural Design and Research of Optical Microscope Y.X. Shan	190
Real-Time Suppression Research of Shaft-Rate Electric Field Based on the Compensated Negative Potential H.P. Zhang, X.G. Chen, C.Y. Ao and Z.P. Sun	197
11.1 . Zhang, 12.0. Chen, C. 1 . 110 and Z.1 . Dan	1//

Chapter 4: Robotic, Sensors and Control Systems

A Hybrid Approach Based on ACO and Ga for Multi Objective Mobile Robot Path Planning	
B.K. Oleiwi, H. Roth and B.I. Kazem	203
Comparative Study of Motion Control Card Based on NI PXIe and cRIO Platform for Three-Axis Turntable G.D. Liu, B. Mo, B. Tang and Y.H. Li	213
Design of Rate Gyro Stabilized Platform Control System X.Y. Yan, B. Mo, H. Qi and H.W. Zhu	218
Robotic Fish Technology and its Applications to Space Mechatronics I. Yamamoto, N. Shin, T. Oka and M. Matsui	224
Fuzzy Predictive Control Using Particle Swarm Optimization: Application to SCARA	
Robot M.L. Hadjili, K. Kara, O.A. Sahed and J. Bouyanzar	230
Design of Automatic Control System of Floating Dock T. Guo, R. Zhang and S.H. Zhou	237
Design of New Intelligent Redundant Serial Bus with Isolated Driver in the Distributed Control System L. Wang, B. Mo, Q.H. Li and H. Mei	242
Design of Pneumatic and Control System for Quartz Crystal Tin Dipping Machine H.J. Chang, Y.P. Yang, Y.F. Yue and G. Yang	248
High-Speed Brushless DC Motor Current-Loop Sampling System Design for Three-Axis Turntable	
G.D. Liu, B. Mo, D.Z. Zhou and S.C. Du	252
Study and Application of Sliding Mode Control Strategy for High-Power Current Source Inverter J. Bai, S.Q. Lu and J. Liu	259
Chapter 5: Information and Computer Technologies	
Chapter 3. Information and Computer Technologies	
Design of a Communication Interface between the Controller and the Galvanometer J.C. Wei, G.Y. Zhang, Y. Chen and X.T. Yan	269
Reliability Evaluation of Main Electrical Connection of Substation Based on Graph Theory Y.Q. Huang and J.H. Zhang	273
Mechanical Disassembly of End-of-Life Products V.D. Tourassis	277
Study on Development Techniques of AR Application Program in MFC Environmen J. An and J.S. Fan	281
The Resource Conflict Resolution Problem for Virtual Cellular Manufacturing Inter-Cell Scheduling under the Conditions of Resource Sharing	206
W.M. Han, J. Liu and L. Mei Influencing Factors and Evaluation Standards of Vibration on Human Comfort	286
F. Niu, C. Šu, X.D. Ren, G. Meng and Z.S. Rao	294
A New Wire Icing Automatic Monitoring System Based on Wireless Communication Platform	201
C.L. Wang, B.L. Chen, L.B. Zheng, H.C. Fang and L. Han Capability Based Weapon System-of-Systems Evaluation Strategies Design Space and	301
Exploratory Analysis Z.F. Li, Z.M. Li, F. Yang and Y.F. Zhu	306
Material Demand Forecasting: An ERP System Perspective M. Relich, K. Witkowski, S. Saniuk and J. Sujanova	311
Design of a Reconfigurable Extendible Real-Time Multi-Bus Simulation System on the Information Flow in the Control Systems	
L. Wang, B. Mo, K. Gao and J. Lin Pick Evaluation in Marine Traffic Systems Pased on Fuzzy Catastrophe Theory	315
Risk Evaluation in Marine Traffic Systems Based on Fuzzy Catastrophe Theory J. Qi, Z.Y. Zheng and J.M. Li	319
Approximate Evaluation of Exact Solutions of Measurements Inverse Problems	319

Research on Lower-Order Body Matrix Method and the Configuration Transformation of	
Planar Metamorphic Mechanism S.H. Hu, M.H. Zhang, S. Qi and T.T. Xie	332
Scene Classification Based on Improved Spatial Partition Model Z.Y. Liu, J. He, J.L. Wang and F. Zhao	339
Superconvergence Analysis of Finite Element Method for Onlinear Klein-Gordon Equation Y. Shi, H.L. Meng, Q. Jia and D.Y. Shi	343