Table of Contents

Preface and Organization Committee

Chapter 1: Materials Science and Materials Engineering

Modifications in Water Sorption Isotherms of Cement Mortars Caused by Carbonation:

Effects of Cycles S.T. Pham	3
NEPE Propellant Ignition and Combustion under Laser Irradiation H.M. Wang, X. Chen and C. Zhao	10
Simplified Design Method of GRP Pipes in Different Design Service Life J.Z. Chen and S.R. Zhu	15
Optimization of Preparation and Characterization of the Plasmid DNA from Newcastle Disease Virus Encapsulated in Chitosan Nanoparticles C. Shi, Y.W. Sun, G.Y. Rong, Y. Zhang and K. Zhao	19
A Bending Sequence Planning Algorithm Based on Multiple-Constraint Model Z.Y. Zhao, L.C. Zhang and Y.S. Shi	26
Effects of the Stress Concentration and Plane Stress on the Essential Work of Fracture (EWF) Method	20
C. Zhao, X. Chen, C.S. Zhou and H.M. Wang The Fabrication and the Properties of Gradient Porous Titanium by Centrifugal Deposition	32
and Sintering G.J. Cao, W.J. Xu, Y.C. Feng and W.Y. Tang	38
Acid Fracture Conductivity Behavior of Tahe Carbonate: High Closure Stress, Long-Term Conductivity, and Composite Conductivity	44
J.N. Mou, M.T. Yao and K.X. Zheng Effective Atomic Displacements in α-Zirconium under Neutron Irradiation V. Svetukhin and M. Tikhonchev	52
Ultrasonic Cavitation Based Processing of Metal Matrix Nanocomposites: An Overview S. Sardar, S.K. Karmakar and D. Das	58
Numerical Simulation of Foam Structure Formation and Destruction Process Using Phase- Field Model T. Uehara	65
Analysis on Magnetoelectric Responses of Porous Polypropylene and Polyvinyl Chloride after High-Voltage Corona Discharge J.W. Zhang and R. Belouadah	70
Electroforming Solution Component Performance Impact Study of the Electroformed Layer	
X. Zhang, B.L. Li, D.X. Kong and H. Jiang Dynamic Recrystallization Microstructure Grain Size Prediction of 7075 Aluminum Alloy Piston Prepared by Isothermal Extrusion	75
Y. Wu, W.L. Chen, Y. Gao and R. Zhou	81
Chapter 2: Artificial Intelligence and Data Mining, Data, Image and Signal Processing, Intelligent Automation and Control	
Automatic Badminton Action Recognition Using RGB-D Sensor H.Y. Ting, K.S. Sim and F.S. Abas	89
Kinect-Based Badminton Action Analysis System H.Y. Ting, K.S. Sim and F.S. Abas	94
A Review of Hot Topic Detection and Tracking Technology G.X. Xu, Y. Hai, Y.X. Feng, S.Z. Xie and J.L. Zhang	100
Study on the Improvement of TFIDF Algorithm in Data Mining H.F. Sun and W. Hou	106

A New Protocol for Secure Distributed Multiplication of Two Polynomial Shared Values X.N. Hao, X.M. Wang and L.Q. Deng	110
Human Posture Recognition Based on DAG-SVMS S.M. Wang, Y. Gao and L. Luo	117
The Design and Implementation of Astronomical Multi-Catalog Storage and Cross-Match Based on Hadoop X.X. Zhang and J.C. Pan	121
The Multi-Scale Hough Transform Lane Detection Method Based on the Algorithm of Otsu	
and Canny Y. Chai, S.J. Wei and X.C. Li	126
Design of Heart Sound Analyzer L. Zhang	131
The Application of Wavelet Denoise in Sampled Grating Comb Filter D.D. Zhu and H.F. Wang	135
A Real-Time Image Mosaic Algorithm Based on Forstner Operator Y.L. Liu, L.Y. Gu and J.J. Li	139
Simulation for SAR Feature Image of Planar Structures Q.C. Tao	145
The Design of Static Image Compression System L. Zhang	150
A Study on Velocity Decay of φ6mm Tungsten Ball Fragment C.L. Yi, D.R. Kong, Y.Z. Li, L.P. Li, J.Q. Zhang and J. Wang	154
Autonomous Underground Azimuth Measuring Drive System Based on MEMS Gyroscope Y. Liu, X.C. Xu, Q. Liu and T.H. Ji	159
Development of Driver Model for Lane Keeping Manoeuvre P.P. Em, K.S. Sim and E.K. Wong	165
Solving the Problem of UAV Air Combat Game Based on Differential Variational Inequality and D-Gap Function G.Y. Xu, P. Li and B. Zhou	172
Study on Diffusion Simulation and Visualization of Hazardous Chemicals's Disclosure Based on 3D GIS	
T.G. Shi, F. Ding, Y. Wan, Y. Lei and W.H. Song	178
A New Model-Free Predictive Control Method Using Input and Output Data S. Yamamoto	182
Influence of Engine Cabin Simplification on Aerodynamic Characteristics of Car X.J. Hu and J. Chang	188
Chapter 3: Computer Science and Information Technologies	
Design and Implementation of JMF-Based VOD System N. Qiu and H.C. Du	197
Research and Implementation of Internet Topology Based on BRITE C. Liu, J.C. Pan and G.Z. Ge	203
Research and Implementation of Internet Topology Based on AB Model G.Z. Ge, J.C. Pan and C. Liu	207
Using FPGA to Accelerate Deduplication on High-Performance SSD Z.G. Chen, N. Xiao, F. Liu, Y.X. Xing and Z. Sun	212
Research and Prototype Implementation of Network Group Sentiment Analysis Based on Topic	
Y.Ĥ. He, Y.R. Yang, Y.Z. Qian and J. Li	218
"The Last Kilometer" Network Optimization Research of E-Commerce Y.F. Zhuang and Z.W. Wang	224
Optimization Study of Personalized Information Recommendation Model Based on Tensor Decomposition	
H.F. Sun and X.D. Liu	228
A Modified Back Propagation Algorithm of Neural Network with Global Optimization J.J. Li and Z. Cui	232

Study on the System Simulation Model of Personalized Information Recommendation H.F. Sun and F. Wang	239
Chapter 4: Electrical and Magnetoelectric Applications	
Investigation of Surface Potential Decay Behavior of Insulator Polymers after High-Voltage Poling	
J.W. Zhang and R. Belouadah Analysis on Magnetoelectric Effect Induced by Torsion Moment in Self-Powered Piezoelectric Material	245
J.W. Zhang and R. Belouadah A Prototype of Magnetic Actuator Based on Generalized Magnetoelectric Phenomena:	249
Experiments and Analysis J.W. Zhang and R. Belouadah	253
Chapter 5: Advanced Technologies in Social, Education, Economics, Statistics and Management Applications	
The Influence on the Consumption Level of Tibetans S.T. Liu, H. Liu and G.L. Long	261
Vocational Education of Girls in Rural Areas Analysis - Based in Hebei H. Liu, S.T. Liu and G.L. Long	266
Research on Collaborative Design System of Green Building Information Model X.S. Luo, M. Xu and C. Gan	272
The Study of the Framework of an Intelligent Decision Supporting System for Haze Condition D.D. Wang, X.H. Yang and Q. Kan	277
A Study on Teaching Method of Cultural Cognition Courses Based on Network Teaching Platform - Take a Survey of Japan as an Example X.J. Shi and L.J. Wang	282
The Study on the Bank Crisis Pre-Warning System Based on Balanced Scorecard W. Wang	286
On Internet-Based Translation Teaching Mode Reform and Practical Translation Talents Cultivation D.F. Ge and X.H. Yu	290
The Research of the Interactive Translation Teaching Method Based on the Network - Taking the Reform of Translation Teaching in NCIST as the Example X.H. Yu and L.M. Hou	296
Computer Technology in Tropical Areas of China Elementary Student Body Function Research and Application Research of Health Interventions Q.H. Lin, W.T. Hao, Y.L. Zhang and Y. Jiang	300
Functional Action Screening (FMS) Girls Pilates for Ordinary Colleges and Universities Study the Guidance of Design C.L. Xi, W.Z. Li and Y.H. Cao	303
The Application of Lean Management in Power Engineering Projects W. Li and M.Y. Ma	309