

Table of Contents

Preface

Committees

Reviewers

Chapter 1 Quantum, Nano, Micro, and Information Technologies

Study of Nonlinear Phenomena and Chaos Control in Single-Phase SPWM H Bridge Inverter

W. Jiang, F. Yuan and W.L. Hu 1

Research of Complex Behavior of Switching Power Converters

W. Jiang, F. Yuan and W.L. Hu 7

Stock Price Combination Forecast Model Based on Regression Analysis and SVM

F. Kong and G.P. Song 14

Web-Based Case Report Form Design for Clinical Trial

L.L. Fu and T. Chen 19

The Formation Mechanism Analysis of Information Content Industry Cluster

J.P. Han and Y.Q. Wei 25

Improved Multi-Scale Retinex Approaches for Color Image Enhancement

M.Y. Zhu, F. Su and W.J. Li 32

Analysis on the Internet Addiction and Anti-Obsession Software

G.Q. Di, C. Yan, S.Q. Zhang, F.Y. Liu, H.L. Chen, X.S. Li, H.L. Guo, Y.S. Yao, J.C. Zhang and X.M. Wan 38

Preparation and Hydrophobic Processing of Aluminum-Doped Zinc Oxide Films

C. Li, M. Li and D.Y. Zhang 44

Fuzzy Control and Co-Simulation of Automobile Semi-Active Suspension System Based on SIMPACK and MATLAB

S.Y. Bei, J.B. Zhao, L.C. Zhang and S.H. Liu 50

Complementary Pass-Transistor Adiabatic Logic Using Dual Threshold CMOS Techniques

B.B. Lu and J.P. Hu 55

Active Vibration Control of Smart Structure Based on Alternate Driving SMA Actuators

E.Y. Jiang, X.J. Zhu, Y. Shao and Z.L. Wang 61

Analysis and Design of a FBG Intelligent Flexible Structure Based on Orthogonal Curvatures

B. Sun, X.J. Zhu, X.P. Qiao, L. Jiang and J.C. Yi 67

Leakage Reduction of P-Type Logic Circuits Using Pass-Transistor Adiabatic Logic with PMOS Pull-up Configuration

J.T. Jiang, L.F. Ye and J.P. Hu 73

Structural Characteristics and Photocatalytic Capabilities of Visible-Light Enabled Columnar TiO₂ Films

K.R. Wu, C.H. Hung, H.C. Chang and J.C. Sun 79

Deposition of Nitrogen-Doped TiO₂ Films on Unheated Substrates Using DC Magnetron Sputtering Technique

K.R. Wu, C.H. Hung, C.C. Wang and H.W. Li 85

An Integrated Multimedia Learning System for Reciprocating Internal Combustion Engines: RICEM

C.W. Yeh and K.R. Wu 91

Particle Swarm Optimization Based on Genetic Algorithms to Optimize Ultrasonic Conditions of Extracting Chinese Medicine Effective Component

J.W. Tian, Y.L. Wu and M.J. Gao 97

Grid-Based Web Information Retrieval Architecture Professional Content-Oriented

X.M. Wei 103

UML Modeling and .NET Frame Development of Web Application

X.M. Wei 107

Study on the Internet Protocol Television Development Strategy Based on Tri-Networks Integration	
W.H. Yuan and Y.P. Li	111
Degradation of Azo Dye Orange II in Aqueous Solution by Homogeneous UV-Fenton Process with Low Concentration of Fe^{3+} as Catalyst	
J.X. Chen, Z.J. Hu, X.X. Yuan, Y.H. Yao and J. Li	116
Research of Revenue Sharing Contract Model under the Linear Quality-Demand in Supply Chain	
J. Hu	120
Design of a Ka Band Microstrip Patch Antenna with Pattern Reconfigurable Characteristic	
Z.L. Deng, Y.D. Yao and M.Z. Hong	126
Research on Bridge Health and Safety Monitoring System	
X.C. Fan	131
Emulational Analysis of Concrete Pouring in Steel-Pipe Arch Rib of Fei Shuiya Bridge	
X.C. Fan	136
Multi-Node Distribution Center Location Model under Manufacturing and Remanufacturing System	
Y.P. Zhao	140
Ka-Band Wideband Pattern Reconfigurable Microstrip Patch Antenna with RF MEMS Switches	
Z.L. Deng, M.Z. Hong and Y.D. Yao	146
On Semi-Supervised Learning Genetic-Based and Deterministic Annealing EM Algorithm for Dirichlet Mixture Models	
J.H. Bai, K. Li and X.X. Zhang	151
The Optimum Design of Ship Turbo Generator Reducer Based on Shock Characteristics	
Y. Wang, X.L. Chen, G.M. Li and X.Y. Liu	157
Design and Analysis of a Novel Tunable Band-Stop Filter Using RF MEMS Technology	
Z.L. Deng, N.B. Zhang and Y.T. Ge	163
Analyzing Speed Accuracy Trade-Off in Control Movement Mechanism with Error Enforcement	
M. Saipunizam, M.T. Shakirah and N.I. Mohammad	169
Mobile Learning: An Application Prototype for AVL Tree Learning Object	
N.I. Mohammad, M. Saipunizam and C.N.W. Edrea	176
Study on Mass and Thickness Measurement of Chicken Meat Using X-Ray Image	
J.H. Zhao, M.H. Liu, J. Shen, D.C. Tu and F. Yu	182
Analysis and Implementation of UFS File System Based on Computer Forensics	
L. Yang, Q.Q. Gao, D.L. Luo and S.X. Wu	186
Research of IPv6 in an Embedded Real-Time OS	
Y. Xu and H. Zhao	192
Nanogold Aggravating MEMS Cantilever Piezoelectric Optical Detection Biochip	
Z.L. Deng, Y.T. Ge, W.G. Guan, N.B. Zhang and Q.K. Cao	198
Human Pose Tracking For Video Using SURF features	
O.Y. Yi	203
Preliminary Study on Quantification of Duck Color Based on Fuzzy K – Nearest Neighbor Method	
D.C. Tu, J.H. Zhao, M.H. Liu, J. Shen and F. Yu	210
Evolutionary Game Analysis on Management of R&D Staff	
Z.K. Zhu and H.S. Lu	216
Built-in Self-Test Design for Fault Detection of MUXFXs in SRAM-Based FPGAs	
S. Hong, W.H. Tao, Y.P. Qi, C. Gao, X.Z. Liu, J.Y. Huang and D. Zhang	220
Texture Classification Research Based on the Logarithmic Polar Coordinates Transform and Support Vector Machine	
D.C. Gao, B. Liu and J.G. Wang	226
Risk Assessment of Geological Hazard in Wudu Area of Longnan City, China	
S.Y. Liang, Y.X. Wang and Y. Wang	232
Status and Trend of Research on Top-Quality Course in Vocational College Based on Network	
S.Y. Li, Q.M. Li and Y.Q. Zhang	238

Investigation and Analysis on the Effect of Autonomous Learning in Colleges Based on Information Technology	
S.Y. Li, Z.A. Wang and B. Liang	243
Patent Innovation Factors Evolution Based on P-SVM and GCCA	
S. Xu, Z.J. Wang and H.F. Zhao	247
Voltage Scaling for SRAM in 45nm CMOS Process	
J.P. Hu and J.G. Zhu	253
Two-Dimensional FIR Filter Design on Wideband Speech Enhancement in Microphone Array	
X.F. Su and X.H. Zhang	260
 Chapter 2 Computer, Communication and Control	
Design of Multimedia Courseware Sports Theory Based on Visual Basic	
Z.B. Yin, Y. Ren and G.F. Yan	267
Experimental Measurement of Wind Velocity Fluctuation and its Influences on Sand Particle Trajectory	
J.J. Wu and L.H. He	271
Design of Anti-Disturbance H_{∞} Controller of Automotive Electric Power Steering System	
G.Q. Geng, C. Long and J.B. Zhao	277
Multi-Granularity and Many-to-Many Associative Memory Based on Incidence of Patterns	
G.W. Yang and X. Yu	284
Motion Models of Artificial Animals and Momentarily Continuously Switching of the Models	
G.W. Yang and Y. Yang	295
Optimized Configuration for the Upper Body with a Bisecting Hip Mechanism in Passive Dynamic Walking	
J. Zhao, X.G. Wu, X.Z. Zang, J.H. Yan and L. Zhu	306
PML's Optimal Choice in Solving Helmholtz Equation	
B. Zhang	312
A Generic Framework for Human-Machine Hybrid Recognition Based on Wearable Visual Computing	
L. Han, F.Z. Xue, Z.S. Li and D.Y. Chen	317
MAS-Based Urban Rail Transport Ridership Forecast System and Traffic Generation Analysis	
F. Ding, J.B. Zhao, S.Y. Bei and H.M. Liu	322
Study on the Operational Characteristics of Hybrid A^2/O Process at Low Temperature	
J.G. He, L. Ke, B.P. Han, F. Liu and J. Liu	326
On Mode Split Model of MAS-Based Urban Rail Transport Ridership Forecast System	
J.B. Zhao, S.Y. Bei, L.C. Zhang and H.M. Liu	332
Research on Consumers' Brand Choice Cognitive Processes	
X.H. Wang and L. Lin	338
Speed Ratio Control Study on CVT with Electrical Pulley Actuation System	
L.C. Zhang, S.Y. Bei and J.B. Zhao	342
The Automatic Transportation Management System of Trucks and Shovels in Open Pit	
Q.H. Gu, C.W. Lu and S.G. Jing	347
Framework of RFID-Based Infrastructure Project Quality Management Expert System	
H.F. Cheng, D.F. Zou and S.M. Jiang	352
Monitoring Software Based on LabVIEW and DSC Module	
X.X. Chen and X.S. Yao	359
Dynamics Analysis of a Novel Mine Disaster Searching Robot	
J. Zhao, L. Zhu, X.Z. Zang, G.F. Liu and G. Liu	363
The Use of TiAlN Coated Carbide Tool when Finish Drilling of Stainless Steel X4Cr17Ni8TiN	
J. Jurko	369
Modeling and Prediction of the CNY Exchange Rates Using RBF Neural Networks versus GARCH Models	
Z.C. Liu, X.Y. Liu and Z.R. Zheng	375
A Three-Dimensional Transmission Line Management System Based on TerraExplorer Pro	
X.L. Liu, C. Fan and J.F. Zhan	383

Design and Realization of Jiufeng Multimedia Display System X.Y. Cheng and X.Y. Huang	388
Study on Hardware-in-the-Loop-Simulation of Hydroturbine Governing System H.H. Song, Y.M. Xie and W.Y. Cai	395
Study on Sedimentary Macrofacies of Sandy Group V of the Second Section of Qingshankou Formation, Daqingzi Region M. Zhang, J.L. Zhang, X.M. Huo, C.L. Lei and W. Yan	399
Reliability Analysis of Hydrostatic Bearing Cold-Roll Based on Grey System Theory N.X. Yin and D.L. Hou	403
Algorithm of User Interest Drift Based on Matrix Representation X.X. Mao, S.G. Ju and A.R. Xue	409
Realization of Ethernet and RS485 Communication Gateway Based on μC/OS-II System H.Z. Wu, L.J. Zhang and C.G. Zhang	416
RETRACTED: Application of Amphibious Models in Evaluating Sensor Networks Based on LOOL Algorithm Z.M. Qu	421
RETRACTED: Application of PCA in Controlling and Reducing Enterprise Logistic Cost Z.M. Qu	426
RETRACTED: Application of Probabilistic and Interactive Information in Verifying Machine System and Kernels Based on Relational Modality Z.M. Qu	431
RETRACTED: Investigation and Impact of Knowledge-Based Information on Programming Languages Based on Probabilistic Models Z.M. Qu	436
Study on Sedimentary Macrofacies of Sandy Group V of the Second Section of Qingshankou Formation, Daqingzi Region M. Zhang, J.L. Zhang, X.M. Huo, C.L. Lei and W. Yan	441
Sedimentary Facies Study for IV Sand Group of the Second Member of Qingshankou Formation in Daqingzijing Area W. Yan, J.L. Zhang and C.L. Lei	445
A Fault Diagnosis Method Based on Constrained Frequent Pattern Trees J.H. Cai, W.J. Meng and Z.M. Chen	449
The Development and Application of the Auto Parts Supplier Evaluation System L.Z. Du and Y.Y. Xue	455
Multiway Temperature and Humidity Measurement System X. Chen	460
Multiway Responder with Wireless Communication Technology X. Chen and D.X. Yao	465
Intelligent Knowledge for Product Innovation X.S. Li, Q.X. Li and L. Zhou	470
Content-Based Affective Intensity Recognition Algorithm Using Unascertained Measure L.L. Yan, X.M. Wen, W. Zheng and L. Zhang	476
A Wireless Sensor Network Route Algorithm for Mine Environment G.Z. Qiao and J.C. Zeng	482
A New Embossing Method for Gray Images Using Kalman Filter Z.K. Huang, X.W. Zhang, W.Z. Zhang and L.Y. Hou	488
Research on the Coordination Degree of the Linkage Development between Manufacturing and Logistics D.Y. Ji and R. Zhang	492
Ride Height Control of Trucks with Electrically Controlled Air Suspension Based on PID/PWM Algorithm X. Xu, Z.X. Li, S.J. Qin and C.F. Pan	498
Slow On-Off Control of Two-State Damping for Electrically Controlled Air Suspension Based on Extended Kalman Filter X. Xu, Z.X. Li, Q.Y. Yang and C.F. Pan	504
A Novel Stochastic Localization Algorithm for Sensor Nodes in Wireless Sensor Networks M. Wang, S.J. Bai and H.B. Wang	510

Testy Study on Vehicle Test Rig with Electric Control and Hydrostatic Drive Using a Revised Fuzzy Algorithm	
Q.Y. Zhang, L.C. Zhang and J.B. Zhao	517
The Design of High-Speed CMOS Imaging System Based on SOPC Technology	
X.H. Yang, Y.Y. Shang, D.W. Xu and H.Z. Niu	523
On Reverse Control Strategy and Anti-Wind Disturbance Analysis of Automotive EPS System	
J.B. Zhao, S.Y. Bei and L.C. Zhang	529
An Effective Hybrid Collaborative Recommendation Algorithm for Alleviating Data Sparsity	
G.H. Cheng	535
Personalized Recommendation System Based on Association Rules Mining and Collaborative Filtering	
S.J. Gong	540
Adaptive Cruise Control Using Sensor Fault-Tolerant Control	
W.S. Wang and C. Huang	545
Fatigue Analysis of Diesel Engine Connecting Rod Based on Finite Element Method	
X. Fan, M.H. Pan and C.S. Zhang	550
Test on Flood Prediction-Model Using Artificial Neural Network for ShiiLiAn Hydrologic Station on MinChiang,China	
Q.H. Luan, Y. Cheng and Z.X. Ima	555
A New Method of Multiple Factors Analysis of Cell Coverage Based on GIS	
L.N. Lan, X.R. Gou, Y.H. Xie and M. Wu	562
Research on Investment Decision-Making of the Low-Carbon Industrial Listed Company Based on the Uncertainty Set Pair Analysis	
J.F. Chen and J.Q. Lin	568
Evolutionary Game Theory-Based Modeling and Stability Analysis of Subsidy Policy on Safety Investment in SMEs	
Y.M. Lu	575
Privacy Preserving Coordinating Model in Lot to Lot Supply Chain Based on Common Replenishment Epoch	
W.J. Zhong, C.H. Xie and Y.L. Zhang	580
Implementation of Static Web-Pages Generator Using JavaScript	
W.R. Jiang and J.H. Yan	588
Evaluation of Regional Cultural Creative Industries' Development Based on Fuzzy AHP Method	
S. Hui	592
Computer-Aided Design of Curved Assistance Characteristic of EPS System	
B. Zhou, S.Y. Bei and J.B. Zhao	598