ISBN(softcover): 978-3-03785-356-6 ISBN(eBook): 978-3-03813-795-5

Table of Contents

Preface and Committee

Chapter 1: Industry Technology, Material Engineering and Dynamic System

Finite Element Modeling of Shear-Slitting Process
M. Ding, D.P. Wu and Q. Qin 3

Iris Feature Extraction and Matching Based on Space Pyramid
W. Peng, Q.Y. Yang and S. Gu 7

Temperature Field Simulation of TP2 Copper Strip during Reversible Universal Hot Rolling Using Finite Element Method
H.L. Li, H.B. Yang and D.F. Li 12

The Combined Homotopy Methods for Optimizition under the Quasi-Normal Cone Condition
Y.F. Gao 16

Finite Element Contact Analysis of Locomotive Traction Gears
J.H. Bao and W.D. He 19

Study on Analysis and Evaluation of the Industry Competitiveness in Hebei Province
Y.N. Zhao 25

Study on Thermal Protection Materials Applied to Electronic Memory Embed in Aircraft
F. Wen and X.P. Yang 30

Image Segmentation Based on Facet Model Fitting
W.G. Li, S.J. Duan and Z.H. Yin 35

GaAs/InGaAs Optoelectronic Switch for Triple-Logic Applications
K.F. Yarn, M.J. Yang and W.C. Chang 40

Non-Isolated Bidirectional DC-DC Converter with Step up-down Capability Based on Energy Materials
H.L. Do 44

Preparation of a Polyclonal Antibody Based Indirect Competitive ELISA for Enrofloxacin Residue
G.Y. Fan and J.Q. Jiang 47

Zero-Voltage-Switching Buck-Boost Converter with a Coupled Inductor Based on Magnetic Materials
H.L. Do 51

Preparation and Immunological Traits of Monoclonal Antibody against Sarafloxacin
G.Y. Fan and J.Q. Jiang 54

The General Embedded Kernel Simulation System Model
X.H. Yang, D. Suo and F. Wen 58

UV LEDs with Low Dislocation GaN Buffer Layers Grown by MOCVD
K.F. Yarn, W.C. Chang and I.T. Hsieh 63

Ultrasonic Water Level Measurement System Based on GPS
G.Y. Li, W. Zhu and X.C. Wang 67

Virtual Shaping Design of Beach Bike
Q.L. Du and X.W. Jiang 71

The Research on Multi-Axes Automatic Motion Control Systems
L.J. Hu, X.H. Zeng, G.X. Chen and H. Song 75

Miniaturization of a Wide-Band Planar Spiral Antenna by Adding Vias
L. Deng and S.F. Li 79

Application of Support Vector Machines to the Tracking Control of Piezoelectric Actuators
S.Y. Yang and H.F. Wang 82

Study on Refractive-Diffractive Logarithm Axicons in mm/submm Range
Y.Z. Yu and W.B. Dou 86

Tracking Control of Piezoelectric Actuators with Waveshaping Technique
S.Y. Yang and H.F. Wang 91

Electromagnetic Analysis of Apodized Annular-Aperture Logarithmic Axicons in Wave Imaging Systems
Y.Z. Yu and W.B. Dou 95

The Energy-Saving and Emission Reduction Generation Dispatching Based on Particle Swarm Optimization
Y.H. Li, J. Wang and W.P. Yan 99

Segmentation of Bladder and Prostate Cancer with Biological Materials Based on Center-Focus Active Shape Model
Y. Tian 103

Emergy Analysis of Energy-Saving and Emission Reduction of Coal-Fired Generation
Y.H. Li, J. Wang and W.P. Yan 110

Research on Portable Virtual Oscilloscope Based on USB Bus
J.H. Niu and Z. Li 114

Mine Fan Speed Testing System Based on Wind Speed Data Wireless Transmission Unit
Y. Song 118

The Forward Simulation of Tunnel Engineering Geological Exploration Based on Ansoft
L. Yao, P.F. Zhao and H.F. Zhao 123

Research and Simulation on the Image Segmentation Algorithm with Corn Image Based on HSI Color Model
X.F. Hou and Y.Y. Shang 128

Multi-Scale Hermitian Wavelet Envelope Spectrum Based Bearing Fault Detection
H. Li 132

The Positive Analysis of the Impact on Operation Performance of Non-Agricultural Business for Agricultural Listed Companies
Q. Chen and X.M. Zhang 137

Synthesis of $Al_{0.6667}Ti(PO_4)_2$ and its Selectivity to Li^+ Exchange
H. Li 141

The Application of Co-Evolutionary Algorithm in the Engineering Project Multi-Objective Optimization Based on Engineering Materials
W.Q. Li, S.F. Tian, L.Y. Meng and Q.H. Zhang 145

Chapter 2: Industry, Manufacturing Technology and Mechanical Engineering

The Synthesis and Ion-Exchange Property of Li^+ Memorized Spinel $Al_{1.5}Fe_{0.5}(PO_4)_2$
J.H. Jiang 151

Vision-Based Label Extraction and Matching
C.M. Wu, D.T. Xie and C.F. Wei 155

Study of an Inorganic Ion Exchanger $AlFe(PO_4)_2$
H. Li 161

Study on Evaluation of the Airlines' Competitiveness with Applications in China
X.J. Li, Q. Si and J. Deng 165

Optimization of Machining Parameters Using EDM in Gas Media Based on Taguchi Method
D.A. Wang, Y.C. Lin, H.M. Chow, S.F. Fan and A.C. Wang 170

Research on Performance Evaluation to Airlines Based on Gray Comprehensive Theory
X.J. Li, Q. Si and J. Deng 176

Granary Temperature and Humidity Detection System
L. Jin, T. Zhao and Q. Liu 181

Design for Testability of Multi-Mode Satellite Navigation Baseband SoC Chip
S. Gao, Q. Wang and Y.X. Zhang 185

Cyclostationary Analysis Based Gear Fault Diagnosis
Z.T. Li and H. Li 190

Fluid Experimental Research on Dual-Vortex Interaction Instability
Z.R. Liu, J.W. Wang and R. Zhu 195

Heavy Metal Pollution in City Topsoil Fuzzy Clustering Model
X. Wang, X.J. Li, P. Ke and S.S. Zhang 199

Analysis on Influence of the Position Error of Joint Points in the Fixed Platform of 3-UPS Parallel Machine Tool
J.Y. Guo, Y. Jin, Z.Q. Sheng and L. Zhao 203

Gradient Lattice Algorithm of Heavy Metal Pollution
R. Gao, X.Y. Liu, X.J. Li and S.S. Zhang 207

Analysis and Simulation of UHF RFID System Based on ISO/IEC18000-6 Protocol
Q.L. Sheng and S. He 211

A Fuzzy Cluster Mathematic Model of City Topsoil Heavy Metal Pollution
X.Y. Liu, G. Wu and S.S. Zhang 215

Image De-Noising Method with Noise Control Materials Based on Wavelet Transform and Wiener Filter
Y.M. Wang and T. Li 219

Studies on Predicting Distribution of Guava Fruit Fly in Yunnan Province Based on the Genetic Neural Model
Y.P. Ni, X.F. Liu and H. Ye 224

Joint-Optimization Method of Detection Period and Detection Time with Spectrum Detection in Cognitive Radio
J. Ye and Q. Zhu 229

EMD and Envelope Spectrum Based Bearing Fault Detection
Z.T. Li and H. Li 233

Based on the Method of Fuzzy Clustering Analysis of the Smartphone Product Market
C.X. Zheng, Z.C. Ma and Z. Gao 238

Significance of Clinicopathology and Expression of Heat Shock Protein 72 in Human Primary Lung Carcinomas
Y. Fang, X.P. Wang, H.P. Lin and Q.X. Wang 242

Evaluation Implementation for Accessibility of Urban Public Green Space Based on ArcGIS Engine
P.H. Li, X.Y. Zhang and F.H. Hu 247

Study on Experimental Simulation of Rocks under Hydraulic Fracturing
Z.Q. Kang, Y.B. Jia and R.S. Wang 252

Non-Parameter Comparative Study on the Three Main Oil Crops Plant Efficiency
X.L. Wang, J. Lv, Y. Yang and L.Q. Ge 257

Study of Trivariate Pseudoframes and Subspace Frames and their Applications in Solid-State Physics
Z.Y. Chen and Q.J. Chen 262

Parallel Machine Tardiness Scheduling Based on Improved Discrete Differential Evolution
M. Wei, G.L. Deng, Z.H. Xu and X.S. Gu 266

The Characters of Multiple Tight Multivariate Wavelet Frames and Application in Quantum Physics
D.L. Hua and Q.B. Lu 271

Design of CAN-Bus Based Yarn Feeding Control System for Carpet Tufting Machine
G.F. Chen, L.L. Zhai, K. Zou, Y. Yang and W.B. Wang 275

The Research of Bivariate Minimum-Energy Frames and Frames of Subspace and Application in Particle Physics
Y.H. Lv 280

Yarn Feeding Change Analysis for Needle Bar Transverse Shifting of Carpet Tufting Machine
G.F. Chen, L.L. Zhai, Y.Z. Yang, Y. Yang and Q.Q. Li 284

The Nice Feature of a Sort of Orthogonal Finitely Supported Five-Variant Wavelet Packages
H.W. Gao and L.R. Fang 289

Wrist Wearable Physiological Signal Detection Equipment with Biochemical Materials
X. Chen, H.L. Hou, M.H. Wu and M.M. Huo 293

Fault Diagnosis of Gear Wear Based on Local Mean Decomposition
H. Li 298

Technology to Drill Micro-Holes without Recast Layer by Laser on Nickel-Based Alloy
K.D. Wang, W.Q. Duan, X.S. Mei and W.J. Wang 303

Chapter 3: Material Science, Machine System and Production System

Research on Compensation Method of Temperature Drift in Pressure Sensor Using Double Wheatstone-Bridge Method
X.L. Luo, T.B. Xu and L.H. Bi 311

Study on Recast Phenomenon in Processing of Micro-Hole with Millisecond Laser
K.D. Wang, W.Q. Duan, X.S. Mei and W.J. Wang 315

3-D Image Reconstruction in Optical Coherence Tomography Systems Based on VTK in OCT Systems
Y.Q. Feng and K. Wang 320

Finite Element Simulation for Micro-Hole Processing with Millisecond Laser
K.D. Wang, B. Liu, W.Q. Duan and W.J. Wang 324

A Unified Framework for Co-Rotational Finite Element Method
X.L. Luo, S.Z. Yang and T.B. Xu 329

Research on Automatic Programming Technology of Holes Processing Based on IGES
S.X. Zhao and K.D. Wang 333

Discharge Speed Control of In-Pipe Detector in Gas Pipeline
L.J. Yang, Y. Zhao and S.W. Gao 338

Application of Zigbee Technology in Chemical Water Ultrafiltration System
J.J. Zhao, Y. Bai and R.S. Wang 343

Edge Detection Algorithm for Surface Image Based on Euclidean Distance Discriminant
G. Li, Z.Q. Li and Y.L. Tong 347

A Research on the Key Technology of Real-Time Vibration Measurement Basing on Grid
Y. Gao and H.H. Zhang 351

A Nonparametric Study on the Effects of Energy Consumption from some Energy Materials to Economic Growth in China
J.B. Chen and Z. Xu 356

Preparation and Characterization of Antibacterial Cap-Shaped Gold Nanoparticles
Y.S. Xie, S.Q. Man and S.Z. Tan 360

Approach for Setting Project Buffer with Engineering Materials Based on the Theory of Unascertained Rational Number
W.Q. Li, Z. Zhao and L.Y. Meng 364

Rateless Codes Aided Multi-Hop Systems with Receiver Imperfections
J. Yang and C.H. Zhu 368

The Determinants of Consumers' Purchase Intention to Online Group-Buying
G. Li and X. Shi 372

Trend Extraction in Vibration Signal Based on EMD
Y.H. Dong and J.X. Zhang 377

Knowledge Flow Modeling and Analysis in Supply Chain Based on Stochastic Petri Net
X.Z. Li and Y.J. Ding 381

Analysis on the Factors Influencing the Kinematic Viscosity of Petroleum Products
S.D. Zhou, F.Z. Zheng and T. Li 386

Data Reading and Processing of Ground Penetrating Radar Based on Multi-Layered Noise Control Materials
H. Xu and J.J. Ma 390

Overview of Intelligent Design on Mold
B. Wang, J.J. Chen and J. Tao 394

The Applied Research of Nano-Material in Athletic Facilities and Sports Equipments
Y. Ji 398

NX-Based Cell Phone Injection Mould Design
L.Z. Zhou and J. Tao 402

Application of Fault Detection Using Ant-Tracking Algorithm: Daqing Oilfield Example
G. Zhou, W.B. Lei and J.H. Zhang 406

High Resolution LADAR Based on Scanning Distance-Imaging
M. Yu, J.H. Ren, D. Hsu and T.G. Zhao 411

Application of Evidence Reasoning in Multi-Class Image Steganalysis
T.T. Zhu, L.N. Wang, Q. Dou and W.J. Miao 416

Study on Water Resources Management of Nantun Coal Mining Area
S.M. Yang 421

A Novel Resource-Optimized Parallel Descrambling Structure for Optical Backbone Transmission Network
Z. Zuo, Q. Lu, Y.M. Zhang and Z.P. Huang 424

Novel Algorithm for Hand Vein Feature Extraction and Recognition with Biometrics Material Based on DEFD-SIFT Method
H.B. Wang and L. Tao 428

An Extended System Aggregation Method for Hybrid Production Lines with Multiple Failure Rate and Unreliable Limited Buffers
J. Liu, Y.N. Wang, J.H. Li and R.S. Chen 432

Research of Alcohol Test System with Alcohol Material Based on Wireless Technology
Y.H. Li, H.Y. Wu, Y.Z. Wu and S.T. Wang 437

Analysis on the Factors that Affect the Cluster Development of the SMEs in Jilin Province
J. Yao, W. Gao and Y. Zhang 441

Basic Study on Improving Power of Wireless Power Transfer via Magnetic Resonance Coupling
Y. Li, Q.X. Yang, H.Y. Chen, X. Zhang and L. Jin 445

A Study on Risk System of Water Conservancy and Hydropower Engineering
H.Y. Zhang and Y.H. Liu 450

The Multi-Body Dynamic Systems Cloud Computing and Simulation Based on Modelica
Y.H. Li, Y.Q. Dong, Y.Z. Wu and S.T. Wang 454

Chapter 4: Material Engineering, Energy Science and Ecological Resources

A No Interference Optical Image Encryption by a Fresnel Diffraction and a Fourier Transformation
H.S. Wang 461

Preliminary Analysis of Thorax CT Image Pre-Processing and 3D Modeling of Patients with Pectus Excavatum
B. Tang and L. Jiang 465

Digital Audio Watermarking Scheme Based on Independent Component Analysis in Stereo Sound
R. Chen, Y.L. Lan and M.R. Asharif 469

Design of Double SDRAM Controller for Multibus Ground-Based Test Equipment
Q. Li, Y.F. Liu and T.Q. Yang 474

Dam Deformation Monitoring and Data Analysis Based on Cloud Model
T.J. Wang, B. Yang and H.Y. Yang 479

Emotion Detection System Based on Speech and Facial Signals
H. Zhao, Y.T. Wang and X.H. Yang 483

Electrochemical Properties of Asymmetric Supercapacitors in Potassium Hydroxide Electrolyte
G.X. Huang, B.L. Xing, C.X. Zhang and L.J. Chen 488

Analysis of Accident in Electrical Engineering
L. Chen and K.F. Xie 492

Spectral Analysis for Temporal and Spatial Variability of AF Signal 496

The Influences of Travel Product Types on Online Travel Purchasing of e-Travel Agency
C.W. Ting, M.S. Chen and C.L. Lee 500

Optimal Guidance Law Design for Reentry Vehicles with Terminal Velocity and Angle Constraints
D.C. Xie and Z.W. Wang 505

The Embedded Quality Control System of Product Manufacturing Process
L. Du, Y. Ke and S. Su 510

Curvature Tensor under the Yamabe Flow
J.F. Shen, J.J. Yang and N. Xi 514

Acoustic Feature-Based Clustering Analysis for Phonetic Degree of Chinese Phonogram
M. Ma 518

On General Scheme of Railway Bureau Emergency Command System
Y.C. Zhang, Q. Wang and M.J. Wang 523

Underwater Electromagnetic Sources 2-D DOA and Polarization Estimation
Z.B. Zhang and B. Li 529

Simulation Research on Direct 3D ECT Imaging Based on 16 Electrodes
H. Yan, D.Z. Qiang and Y.F. Wang 535

Reliability Analysis of a Cold Standby System under Progressive Type-II Censoring Date
F. Li 540

The Design and Implementation of ECC High-Speed Encryption Engine Based on FPGA
W. Liang, J.B. Xu, W.H. Huang and L. Peng 544

Design and Analysis of an Inflatable Tube with a Rigidizable Web
Z.M. Xie, S.W. Pu, Y.Y. Weng and Z.H. Zhang 549

Design and Implementation of Human-Computer Interaction Terminal Shockproof Device Based on LPC2478
Q.Q. Ge 553

Design of Vehicle Weigh-in-Motion System Based on Neural Network
C. Cheng 557

Establishing Evaluation Model of Competition Power for the Development of Gold Mine Enterprises of Jilin Province
W. Lei 561

A Fabrication of the High Emitter-Isolating-Layer for Printed Cold Cathode in Field Emission Display Panel
X.Q. Li 567

Higher-Order Nonlinear Discrete Approximate Iteration on the Continuing Dynamic Programming
P. Zhang and J.Y. Zhou 571

New Approach for the Continuing Dynamic Programming
P. Zhang and X.H. Meng 575

Simulation and Optimize Design for Deflector Plate of the Vehicle Mounted Vertically Thermal Launched Missile
S.Z. Yu, Y. Jiang, Y.L. Ma, Y.Y. Ma and B.W. Liu 579

A Study on Duration – Cost Information System of Water Conservancy and Hydropower Engineering
H.Y. Zhang and Y.H. Liu 584

Research and Simulation the Cooperation among BITM-Based WSN Nodes
S.Q. Liu, D.Y. Qi and J. Meng 589

Studies of an Improved LMBP Model for Predicting Potential Distribution of Insects
Y.P. Ni and H. Ye 594

The Design and Realization of the Map Decoration and Cartography System Based on ArcEngine
W.K. Xu, S.J. Zhao, Q.B. Xin and H.K. Jiao 599

Tracking Moving Target on Airport Surface Based on Variable-Structure IMM Algorithm
S.L. Gong, X.H. Wang and S.G. Huang 603

Design and Tests of a Water-Cooling Micro-Channel Heat Sink Made by WEDM
K.Z. Liang, A.C. Wang, C.H. Liu, L. Tasi and Y.C. Lin 609

Optimization the Layout of Airport Noise Monitoring Points Based on Gray Dynamic Neural Network Model
J.L. Ding and Z.H. Yang 615

Research on UCD Precoding for MIMO System
H. He, T. Li, T. Yang and L. He 620

Research on TD-SCDMA System Based on Joint Detection and Smart Antenna Technology
H. He, D. Li, T. Yang and L. He 624

The Design of Inventory Dynamic Query System in Printing Enterprises
L. Jiang, W.J. Yang and F. Liang 628

Mar-M247, Haynes-230 and Inconel-718 Study of Machining Characteristics for Ni-Based Superalloys on Friction Drilling
L.D. Yang, W.L. Ku, H.M. Chow, D.A. Wang and Y.C. Lin 632

Water Conservancy and Hydropower Engineering Construction System Brittleness Evaluation Based on Choquest Integral
L. Zhang and Z.Y. Li 638

Fusion Fingerprint and Face Multi-Biometrics Recognition Based on D-S Evidence Theory
F. Wang 644

Research on Health Function of Silk Fiber
W. Lu and X.M. Yang 649

The Fabrication Study of Branched Cathode Electrode for Field Emitter in a FED Panel
X.Q. Li 652