Table of Contents

Preface

Sponsors and Committees

Chapter I Computer-Aided Material and Mechanics

LiNi _{0.5} Mn _{1.5} O ₄ Prepared by a Solution Combustion Synthesis at Different Temperatures G.Y. Liu, J.M. Guo and B.S. Wang	3
Flameless Solution Combustion Synthesis of Al ³⁺ Doped LiMn ₂ O ₄ G.Y. Liu, J.M. Guo, B.S. Wang and Y. He	7
A Vision-Based Gap Detection Method during the Placement of Large-Scale Composite Structures L. Cao, W. Chen and J. Xiao	11
Surface Texture Detection for Composite Material Placement Based on Vision	16
Simulation on Electro-Hydraulic Proportional Position Control System under Pressure Boundary Conditions J. Yu, Y. Li and X.K. Xu	21
Study in Stereovision Obstacle Avoidance for Adsorption Type Wall-Climbing Robot with Several Legs	
Empirically-Sourced Mechanical Behaviors of Pneumatic Artificial Muscles for	26
Compensation-Based Controls F. Li, Y. Wang, H.T. Tong and R.P.S. Han Elman Neural Network-Based Dynamic Scheduling of Wafer Photolithography Process	31
	36
	41
Processing Devices	46
Dynamic Analysis of Cutter Head System in Tunnel Boring Machine L.D. Zhu, P.C. Su, G. Li and W.S. Wang	51
Video Vehicle Detection Based on Local Feature Z.M. Qian, H.X. Shi and J.K. Yang	56
Research on Combinational Reasoning of Directional Relations Based on Double Projections Model in Three-Dimensional Space Y.S. Liu and W.J. Gu	61
Method Based on Knowledge Modules of Hydraulic Fault and it's Application	66
A Study for the Fabrication of Wall-Shaped Support Spacer in a Field Emission Display Panel	
Fabrication Research and Property of Double Cold Cathode for the Field Emission Display	71
	75
	79
	84
Manufacturing Resources Optimization Deployment for Complicated Parts Based on Network W.L. Peng, W.N. Zhang and H.M. Jin	89
Design and Realization of Materials Service Safety Assessment System Based on Ontology	94

Intelligent Fuzzy PID Control of Pneumatic Position Servo System J. Yu, J.W. Liu and X.F. Liu	100
Design of an Intelligent Bean Sprout Incubator Based on MSP430 SingleChip Computer H.Y. Huang, T. Yin, S.M. Zhao, S.B. Xiong, X.Y. Li, J.M. Du and J.C. Cao	105
Modeling Multi-Robot Terrain Mapping Using Hybrid Dynamics H. Wu and C.A. Liu	110
The Research on Emergence Mechanism of High-Speed Railway Accident Y.H. Wang, X.M. Xiao and H. Cui	116
Study of Pesticide Contaminated Navel Orange Recognition Using near Infrared Spectroscopy	
L. Xue, J. Li, M.H. Liu, X. Wang and C.S. Luo	121
Study of Fluorescence Spectrum for Measurement of Soluble Solids Content in Navel Orange	
J. Li, L. Xue, M.H. Liu, X. Wang and C.S. Luo	126
The SIMULINK Modeling and FPGA Realization of Digital down Converter H. He, D.P. Sha and H. Sun	131
Kinematics Modeling on CFRP Curved Part Ultrasonic Test L. Li, Y.J. Miao, Z.B. Wang and X.B. Li	136
An Advanced Filter Adaptive to Non-Stationary Clutter in Ultrasonic Color Flow Imaging C.S. Xie and D.C. Liu	141
The Seepage Behavior of Composite Geo-Membrane & Cutoff Wall Applied in Three Gorges Project	1.16
K.C. Sun Study on Clobal Stability of Mone Overhanging Steel Beam	146
Study on Global Stability of Mono-Overhanging Steel Beam K. Li and L. Yu	151
Research of Wireless Sensor Network Node Based on Vibrating Wire Sensor of Single Coil and Phototube	156
D.Y. Li and X.Z. Zhao The New Method for Machining Bigger Holes of Carbon Fiber Reinforced Plastics (CFRP)	156
J.M. Ding, Y.J. Sun and C. Su	161
Elasticity Analysis Modeling by Least Squares Support Vector Machines Applied to System Load	
H. Zheng, L. Xie and J. Xiong	165
A Parameterized Simulation Model for Multi-Axle Vehicle L.Q. Jin and C.X. Song	170
Effects of Low Frequency Electromagnetic Field on the Solidification Structure of Al- 4.5%Cu Alloy during Level Casting Process X.J. Wang, D.D. Chen, H.X. Jiang, G.S. Wang, Q.F. Zhu and J.Z. Cui	176
The Optimization of Free-Form Space Structures Based on Soap Film Property	1/0
N. Li and J.Y. Lu	180
Reliability Model Analysis and Design of the Access Controller Circuit H. Sun	185
Chapter II: Computer-Aided Engineering Technologies	
A Security Localization Method in Wireless Sensor Networks X.D. Chen and B. Peng	193
Image Reconstruction Based on the TV and Mumford-Shah-Euler Model R.H. Liu, L.Y. Su and F. Li	198
A Novel Resource Selection Model for Data Grid Based on QoS M.C. Qu, X.H. Wu, M.H. Liao and X.Z. Yang	203
Compositive Evaluation for Node Importance of Wireless Network B. Chen, G.Y. Chen and Z.X. Wang	210
Numerical Simulation of Interior Flow Field of a Variable Thrust Rocket Engine C.G. Yue, X.L. Chang, S.J. Yang and Y.H. Zhang	215
Numerical Calculation of a Missile's Aerodynamic Characteristic C.G. Yue, X.L. Chang, Y.H. Zhang and S.J. Yang	220

Distributed Energy-Efficient Unequal Clustering Mechanism for Wireless Sensor Networks C.J. Jiang, W.R. Shi and M. Xiang	225
A Hybrid Fuzzy DEMATEL-VIKOR Method for Product Concept Evaluation X.H. Lin, Y.X. Feng, J.R. Tan and X.H. An	230
Combination of SVM and Score Normalization for Person Identification Based on Audio- Visual Feature Fusion	
J. Cao, D. Wu, Z.L. Liu and P. Pan	236
Automatical Reconstruction of Deficient CAD Model G.P. Qian and R.F. Tong	241
An Extensible Business Objects Modeling Framework for Enterprise Resource Planning L. Wang, M. Cao and H.Y. Zhu	246
Trusted Software Construction Model Based on Trust Shell J.F. Tian and Y. Zhu	251
The Definition and Implementation of Flexible Architecture for Enterprise Application J.J. Wu, Y.H. Zhu and H.Y. Zhu	256
A Novel Human Action Recognition Algorithm Based on Edit Distance H.J. Yuan and C.R. Wang	261
Computer Aided Design of Coat-Hanger Die in Polymer Film Processing K. Meng, X.H. Wang and Q.G. Chen	266
The Research of Heterogeneous Entity Association Method Based on MOSS Y.S. Liu, H.H. Lv and L.L. Wang	271
An Image-Based Visual Servoing for Manipulator S.X. Tian and S.Z. Wang	277
The Target Tracking Method Based on Camshift Algorithm Combined with SIFT J.Y. Zhang, H.Y. Wu, S. Chen and D.S. Xia	281
Researches on Scientific Workflow and GIS Services for Gas Network Application Z.Y. Liu, C.J. Hu, C.P. Ouyang and Y. Li	287
Multi-Level BOP Based Assembly Process Data Organization Model Q.Z. Zhou and H.Y. Zha	292
The Implementaion of Checkpointing and Process Migration under Service-Oriented Distributed Network Computing Infrastructure R.A. Peng, Y.H. Zhu and W.C. Zhu	297
A Multi-Information Propagation Model on Complex Networks S.J. Li, F.J. Shao, R.C. Sun and Y. Sui	302
Exception Diagnosis for Composite Service Y. Dai, L. Yang, B. Zhang and Z.L. Zhu	307
LMI Formulation for Static Output Feedback Control of Linear Continuous System X.G. Wang, D.M. Zhang and J. Liu	312
The Design of Software Parallel Engineering Model Based on Petri Net Y.Q. Sun, S.Y. Xie, Y.W. Gu and H.F. Shi	317
Study of Goal-Oriented Migrating Workflow System Based on Mobile Computing	
Paradigm X.G. Wu	322
The Estimate Model Improvement of Software Cost Based on Fuzzy Matrix Technology Y.Q. Sun, X.L. Tao, C.P. Zhang and X.L. Zhang	327
The Design and Analysis on Communication Physical Layer of High-Speed Inter-Missile Networking	
Y. Qi, Q.M. Li, X.H. Wei and J. Yin	332
Wavelet Image Denoising by Threshold Optimization Based on Genetic Algorithm S.P. Zhao, X.W. Li, J.H. Xing and Y.W. Ye	337
A Design of PCI Target Interface Based on FPGA Z. Xie	342
Customer Segmentation Based on Context Preference Mining for Mobile Service M.H. Hu, S.Q. Cai and T.T. Tan	348
Simulation Research on Cutting Process of Single Abrasive Grain Based on FEM and SPH Method	
C. Su, J.M. Ding and L.D. Zhu	353

Error Analysis Based on Multi-Base Station Network VRS Technology H. He, H.P. Fang, H. Li, D.J. Zhang and M.F. Hou	358
Research on Expressway Toll Audit Technique Based on Data Mining	330
Z.J. Ye, X.H. Zhang, H.K. Xu and Q. Wang	363
Simulation and Optimal Design of Cylinder Block of Axial Piston Pump Based on ANSYS H. Wang and F.L. Meng	368
Remote Monitoring and Fault Diagnosis of Ocean Going Reefer Containers Based on Inmarsat F	
J. Ji and H.D. Han	373
Rational Scale Control Model for Construction Workers Based on Hybrid Intelligent Techniques Y. Xie	378
Flexibility-Based Objective Functions for Constrained Optimization Problems on Structural Damage Detection X. Chen and L. Yu	383
Application of Intelligent Algorithm for Probability Density Estimation H. Zheng, L. Xie and J. Xiong	388
Manufacturing Feature Modeling System Framework Based on XML and UG Platform Y. Cao and J. Du	393
Eight Models Discussion on P3L Multi-Solution Problem L.J. Qin and Y.L. Hu	398
The Modeling Procedures for Model-Based Diagnosis of Slowly Changing Fault in Hybrid System	
J. Zhao, D.T. Ouyang, X.Y. Wang and L.M. Zhang	403
Automobile Brand Database in Second-Hand Vehicle Service Network Application G.R. Dong	408
Modelling of Joint Interface of Turn-Milling Centre Based on Rigid-Flexible Coupling System	
L.D. Zhu, J. Qiu, Y.H. Wang, J. Li and W.S. Wang	412
A Semantic Metadata Describing Video Information Based on Ontology W.F. Song, W.Y. Tian and C.L. Shen	418
The Application of Podcasting into TEFL in China C. Chao	423
A New Security Localization Method for Detecting Malicious Beacon Nodes in Wireless Sensor Networks M. Chen, B. Peng and L. Ma	428
ForCES Architecture Router Models in OPNET	420
X.Y. Sheng, Y. Wang, W.M. Wang and J.J. Zhou	433
SWBDS: Web Data Sources Management Infrastructure for Semantic Web Applications L.H. Zhou, J.B. Fan and K.J. He	438
Chapter III: Computation and Applications	
The Product of Two B-Spline Functions X.J. Che, G. Farin, Z.H. Gao and D. Hansford	445
Research on Evaluation of Intellectual Property Conflicts in Knowledge Transferring among EC Enterprises S.B. Su and R. Gao	449
An Improved Particle Swarm Optimization Algorithm H.X. Cheng and J. Wang	454
Bankruptcy Prediction by Genetic Ant Colony Algorithm Y.D. Zhang and L.N. Wu	459
Research on Multi-Affective Fuzzy Computing and Product Competitive Advantage of Online Product Reviews N. Zhao and Y. Li	464
Clinical Research of TCM Common Syndrome for Chronic Pulmonary Heart Disease Based on Dynamic Kohonen Network and Decision Tree	TOT
J.L. Hu, C.Q. Yue, J.S. Li and J.J. Shen	469

Hypergraph-Based User Preference Drift Recognition in Contextual Recommendation M.H. Hu, S.Q. Cai and T.T. Tan	474
The Particle Swarm Optimization Algorithm for Solving Rectangular Packing Problem Y. Qi and J.M. Wang	479
Parallelizing Network Coding Using CUDA X.B. Gan, L. Shen, Z.Y. Wang, X. Lai and Q. Zhu	484
A Comparative Simulation of Organizational Strategies in Production Cells Based on Agent	
Model X.D. Zhang, T. Yu, X.D. Xie and D.F. Zhao	489
Performance Analysis Method under Time-Space Variations H. Jing	494
A Dynamic Service Pool Size Configuration Mechanism for Service-Oriented Workflow P. He, J. Xu, K.G. Wu and J.H. Wen	499
Research on Reliability Modeling of Cross-Organizational Workflows Based on Hierarchical Colored Petri Nets Y.S. Liu, Y.Q. Shen and T.B. Hao	505
On the Distribution Properties of BitTorrent Seeds H. Tang, L. Wang and D. Huang	510
Periodic Estimation of the 3-Arnold Transformation Modulo N Y.J. Li, J.H. Ge and Z.L. Sun	515
Refinement Methodology for Modeling of Urban Road Traffic Networks H. Yue	520
A Method of Hyperbola Object Localization Based on Time Difference in Sensor Networks R. Cheng, Y.G. Cheng and Z.R. Ma	525
Analysis on Security Proof of Two Key Agreement Protocols H.H. Zhou and M.H. Zheng	531
The Research of an Abstract Semantic Framework for Defect Detecting Z.H. Yang, Q. Xiao, Y.Z. Gong, D.H. Jin and Y.W. Wang	536
Research on the Algorithm of Key Object Extraction in Motion Video Images Z. Qu, W. Wei, Z.W. Zhang and D. Wang	541
Flexible Job Shop Scheduling Multi-Objective Optimization Based on Improved Strength Pareto Evolutionary Algorithm W. Wei, Y.X. Feng, J.R. Tan and I. Hagiwara	546
A Clustering Based Data Integration Algorithm in Wireless Sensor Networks J. Huang, H.H. Li, R. Yang and H.Y. Chen	552
Stochastic Simulation of Bus Traveling Time L. Xue, D.J. Zhao and G.M. Liu	556
Soft Sensor Modeling via Support Vector Regression with KICA-Based Feature Extraction Y. Liu, H.Y. Deng, Z.L. Gao and P. Li	560
The Improved Algorithm of Scale Invariant Feature Transform on Palmprint Recognition Z. Qu and Z.Y. Wang	565
Research on the Vehicle Routing Problem with Fuzzy Demands L. Xue and X.X. Dai	570
Control and Operation to Hybrid Optical Network N. Zhang	576
Control Method to Data Transmission for Different Structure Network N. Zhang and M.C. Ge	581
Query Optimization Based on Data Provenance L. Huang and H.B. Cheng	586
An Intelligent Approach to Dynamic Scheduling System of Earth Observation Satellites Y. Feng, R.J. He, J.F. Li and L.N. Xing	591
Cloud Computing: Cloud Security to Trusted Cloud J.Y. Wu, Q.L. Shen, J.L. Zhang and Q. Xie	596
Supplier Selection Using Combined Comparing Interval Grey Numbers and Dominance-Based Rough Sets L. P. Huang and L. L. L.	601
L.P. Huang and J.J. Li A New Web Service Discovery Algorithm Based on Similarity Degree	001
Z.J. Xu and S. Zhang	606

A Novel Convex Optimization for Receive Antenna Selection Y. Wang and H. Li	611
Research on Joint Scheduling of Multiple Imaging Satellites with Multiple Sensors Y. Feng, R.J. He, J.F. Li and L.N. Xing	616
A Novel Personalized Filtering Recommendation Algorithm Based on Collaborative Tagging	010
M.Y. Sun, W.F. Sun, X.D. Liu and L. Xue	621
A Genetic Algorithm for Solving Linear-Quadratic Bilevel Program-Ming Problems H.C. Li and Y.P. Wang	626
P2P Mapping Creation by Semantic Discovering and Mapping J.T. Zhou, H.C. Yang, M.W. Wang and R. Mo	631
An Improved Simulated Annealing Algorithm for Real-Time Dynamic Job-Shop Scheduling Y. Cao and J. Du	636
Concurrent Hierarchical Model and Analysis Based on Fuzzy-Timing Petri Net Y.S. Liu, T.B. Hao and Y.Q. Shen	640
Research on Bounding Box-Tree Algorithm for Collision Detection Y.M. Xiong, Y.M. Chen and Y.H. Chen	645
Analysis and Proof for Convergence Region of Vision Iterative Method L.J. Qin and Y.L. Hu	650
A Improved Routing Algorithm for MAODV Based on Path Stability Z.F. Fan, B.Y. Wu and X.Y. Wan	655
Analysis of Current Situation and Prospect of Multimedia Technology in Physical Education of Chinese Universities	
M.L. Li and H.J. Peng	660
An Efficient Data Stream Clustering Algorithm Based on Dynamic Grids Y. Wu and F. Gao	665
The Construction of Platform for Teachers' Training: A Study from Perspective of Mobile Education	
J.D. Zhu and Z. Zhou	671
South Korean Commodity and Its Design Concept L. Wang	676