Table of Contents

Preface and Organizing Committee

Photocatalytic Degradation of C.I. Reactive Red 2 on the Mixture of TiO ₂ and HZSM-5	
Zeolite L. Li, B. Yang and W.J. Zhang	1
Microstructure and Mechanical Properties of Lost Foam Casting AZ91D Alloy Produced with Mechanical Vibration	5
J.Q. Li, Z.T. Fan, X.P. Dong, W. Liu and X. Li Research of Process Planning Based on Similarity Theory under Reconfigurable	5
Manufacturing System S.G. Song, X.X. Hu and J. Liu	9
Photoelectrocatalytic Degradation of Methyl Orange on Porous TiO ₂ Film Electrode in NaCl Solution	
W.J. Zhang, J.W. Bai and J. Fu	15
Photocatalytic Activity of TiO ₂ -HZSM-5 Composite for C.I. Reactive Red 2 Degradation L.F. Zhang, P. Wang and W.J. Zhang	20
Manufacturing of Biocompatible Implant Component Using Rapid Prototyping Technology Y. Yusof and M.N.H. Samson	25
Study on the Effect of Waste Gypsum on Hardening Paste Structure and Performances of Lime-Fly Ash	
J.Y. Sun and Y.D. Xu	31
Performance Assessment of Photocatalyst for Ethanol Removal C.M. Ma, G.B. Hong, Y.C. Lo and C.T. Chang	35
Performance Study of SMPS and FDMA for Nanometer Aerosol Particle Measurements C.T. Chang, C.M. Ma, G.B. Hong, H.S. Huang and D.R. Chen	39
Kinematic Analysis and Simulation of the Translational Parallel Mechanism D.T. Xu, Z.L. Sun and J.L. Shi	43
A Study of Mixed Media Creative Artwork Designed with Computer Software R.L. Lin	48
A Design Research of Plastic Cup Modeling Using Simulation with 3ds Max J.C. Xie	53
Optimization of High Performance Engineering Plastics in Thin Wall Part Injection	
Molding T.L. Su, F.C. Kung and Y.L. Kuo	58
Photocatalytic Degradation of Methyl Orange on the Composite of TiO ₂ and Lanthanum	
Niobate W.J. Zhang, X. Sun and N. Ge	63
Analysis for Diving Regulator of Manufacturing Process	
J.C. Wang and Y.P. Tsai	68
Study on the Reuse of Production Wastewater with Submerged Ultrafiltration Membrane G.W. Gao, W.J. He, C. Li and J.K. Hu	73
Esterification of Polypropylene Fiber and its Adsorption of Phthalate Esters H.T. Wang, J.F. Wei, H. Zhang, K.Y. Zhao, L.J. Mu, M. Wang and J. Zheng	78
The Refined Analysis about Mechanical Behavior for Torsional Circular Shaft of Cubic	
Quasicrystal B.S. Zhao, Y. Gao and Y.T. Zhao	83
Numerical Simulation on Bending Characteristics of Aluminium Foam Filled Thin-Walled Tubes	00
Q.C. Wang, H.L. Niu, G.Q. Wang and Y.X. Wang Demonstration of Modification from AIF ₃ Re-Deposition to Polymer Re-Deposition on Air	88
Bearing Surface (ABS) Etched Sidewall of Fluorine-Based Plasma Etch on Al ₂ O ₃ -TiC Substrate	
C. Pakpum, K. Siangchaew and P. Limsuwan	93
Fabrication and Gas-Sensing Characterization of Molybdenum Oxide Nanostructure by Reactive RF Sputtering C. Oros, A. Wigitsorgat, D. Phokharatkul, P. Limsuwan and A. Tuantranont	98
C. Oros, A. Wisitsoraat, D. Phokharatkul, P. Limsuwan and A. Tuantranont	70

Improvement of Hydrophilic Properties on Electrospun Polyacrylonitrile Fabrics Surface by Plasma Treatment	
A. Thongphud, P. Visal-athaphand, P. Supaphol and B. Paosawatyanyong	103
High Speed Rail: Review on the Regional Impact and Economy Development B. Peng, B. Xia and Z.L. Liu	107
Modeling and Analysis of Effect of Thermal Exposure on Fatigue Crack Growth of Al-Cu-Mg Alloys with Low Cu/Mg Ratio Y.H. Hou, Z.Y. Liu and Y.B. Liu	111
Development of Processing Maps for DC Cast Modified and Unmodified Hypereutectic Al- Si Alloys	
K.Z. He, F.X. Yu, D.Z. Zhao and L. Zuo Resistance Measurements in Conductive Fabrics	116
T. Pola and J. Vanhala	121
Pathway and Kinetic of Dechlorination of Trichloroethylene in Water by Supported Nanoscale Bimetallic Fe-Cu Particles H. Zhang, Y.X. Zheng and H.T. Wang	126
State-of-Art Technology ALLVAC 718 Plus Superalloy for Gas Turbine Engine Parts S.C. Uzgur, Y. Uzunonat, S.F. Diltemiz, M.C. Kushan and R. Gunay	131
The Influence of Preheating on Automated Fiber Placement Speed Y.H. Li, H.Y. Fu and Z.X. Shao	136
Effect of Annealing Temperature on Deformed Microstructure of Low Carbon Martensite J. Zhao, Y.M. Yang, J.C. Chen, Q.X. Wen, L.T. Zhang, S.X. Zhang, Z.K. Ren, X.N. Wu and Y.W. Gao	130
The Direct Oxidation of CO on the Highly Active Pt-Skin Pt ₃ Ni(111) Surface: a First Principles Study	
Z.X. Yang, X.H. Yu, Z.S. Lu and X.Q. Dai	147
Characteristics of Visible-Light Enabled TiO ₂ /ITO Films K.R. Wu, C.H. Hung, C.W. Yeh, H.C. Chang and J.C. Sun	152
EDS, XRD and Raman Scattering Study of Dy Ion Implanted CdTe Polycrystalline Thin Films J. Hou, H.B. Cao, X.C. Huang and C.Y. Song	157
Base Pressure Effects on the Structure, Surface Roughness and Electrical Resistivity of Mo Thin Films by RF Magnetron Sputtering M.J. Jeng, W.K. Lei, W.L. Ku, L.B. Chang, C.W. Wu, Y.T. Lu and S.C. Hu	161
The Adsorption Properties of Cu and Ni on the Ceria(111) Surface Z.S. Lu, Z.X. Yang and K. Hermansson	166
A Study of Mixed Media Art Creation for Children's Picture Books R.L. Lin	172
A Study of Creative Artworks of Picture Books with Tableware Colored Using Mixed Media	
R.L. Lin	177
Applied Design and Research of RFID for Sports Competitions J.C. Xie	182
Numerical Simulation on Mechanical Properties of SiC/Al Co-Continuous Composites M.J. Zhao, N. Li, L.Z. Zhao and X.L. Zhang	186
A Study of Logo Design for Products Marketed Online Using Computer Graphing Software R.L. Lin	191
Water Distribution System Modeling and Simulation S.H. Shu and D. Zhang	196
Effects of Asperity Shape on the Adhesion Hysteresis Originated from Surface Roughness L.F. Wang, B. Guo, G.M. Huang, W.B. Rong and L.N. Sun	201
The General Solution for Torsional Circular Shaft of Cubic Quasicrystal B.S. Zhao, J.L. Shi, Y.T. Zhao and Y. Gao	206
An Integrated Multimedia Learning System for Reciprocating Internal Combustion Engines: RICEM	
C.W. Yeh	211
Project of High-Speed Railway and Sustainable Development Evaluating L. Liu and W. Liu	216

Shell Body Nose Forming by Rotary Swaging Process J.H. Jang, B.D. Joo, S.M. Mun and Y.H. Moon	221
Integrated Scheduling Algorithm with Setup Time Z.Q. Xie, J. Yang, Y.Z. Teng and L. Lan	226
The Multi-Objective Optimization Design of Leaf Spring of few Piece Variable Cross-Section	221
Q.M. Fan and Q.M. Fan An Improved Routing Algorithm in Intermittently Connected Sensor Networks	231
Q.L. Liu, Y.J. Pan, H.F. Yan, X. Li and M.W. Zhu	236
A Stress and Strain Analytical Formula Applied in Low Alloy and High Strengthen Steel Material H. Wang, Y.X. Zhang, Q.X. Lin and Q.H. Zhou	241
Effect of Sm ₂ O ₃ on the Electrical Properties of TiO ₂ -Ta ₂ O ₅ -Based Capacitor-Varistor	241
Ceramics T.G. Wang, Q. Qin and D.J. Zhou	246
Dry Sliding Tribological Behavior of Continuous Ceramic Frames Reinforced Aluminum-Based Composites	250
D. Huang and W. Zhao	250
Epipolar Geometry Estimation Using Improved LO-RANSAC J. Zhou	255
Air Flow in Large Space Building with CFD Model and Local Test J. Wang and H.X. Wang	260
Structure and Compressive Properties of Silver Foams with Various Porosities S. Asavavisithchai and A. Oonpraderm	267
Influence of Substrate Material on Tensile Behavior and Fracture Characteristics of SiC by Chemical Vapour Deposition C.X. Liu, Y.Q. Yang and X. Luo	272
The Exact Deformation Theory of Two-Dimensional Dodecagonal Quasicrystal Shaft B.S. Zhao, Y.T. Zhao and Y. Gao	276
Effect of L/D Ratio on Al-Si Functionally Graded Material Cast through Centrifuge	270
Technique K. Aithal, Narendranath, V. Desai and P.G. Mukunda	281
Two Ash Stability Coal Stone Basic Levels Are in the Express Line of PingDingShan City of Application and the Technique Economy Analysis D.W. Lv and L. Zhang	286
Automatic Ultrasonic Inspection Method of Railway Axle and its Remaining Life Prediction H.W. Hu, X.B. Li, X.H. Wang and Y.M. Shao	291
Defect Inspection and Classification of CFRP with Complex Surface by Ultrasonic X.B. Li, H.W. Hu, L. Li and L.J. Tong	297
Discussion about Calculation Principle of Carbon Emission in Low-Carbon Architectures X.F. Zhu and D.W. Lv	302
Biomechanical Numerical Simulation of Bone Tissue Engineering Scaffolds L.L. Lin, W.J. Wang, J.F. Zhang and M.L. Fang	306
The Influence of Air Humidity on Fatigue Properties of an AA2524T34 Aluminum Alloy T. Li, J.L. Tao and Q.Y. Wang	311
Implementation of W-CDMA System Based on IP Functions A.F. Ren, M. Luo and F.M. Hu	315
Characteristics of Rotary Draw-Bent Tubes for the Hydroforming B.D. Joo, J.H. Jang, H.J. Lee and Y.H. Moon	320
Preparation and Modification MnZn Ferrite Thin Films under Swift Heavy Ion (SHI) Irradiation	
J.R. Sun, Z.G. Wang, Y.Y. Wang, C.F. Yao, K.F. Wei, T.L. Shen and F.S. Li Study on the Effect of Fe ₃ O ₄ Nanoparticle Dopants on the Properties of Magneto Optical	325
Glasses	220
Q.L. Chen, W. Lin, Q.L. Chen and S.B. Wang Trim Optimizations of an Adaptive Tailless Aircraft with Composite Wing	330
J. Xie, Z.C. Yang and S.J. Guo	334

Numerical Simulation of Residual Stress Distribution Produced by Shot Peening Y.S. Zeng, X. Huang, L.J. Cao and S.J. Li	339
Convolution PHD Filtering for Nonlinear Non-Gaussian Models J.J. Yin and J.Q. Zhang	344
Marginal Design Evaluation for CAM Obtained Zirconia Based Crown Frameworks L. Sandu, F. Topală and S. Porojan	349
Ethylene Polymerization by Thioether Bridged Dinuclear Titanocene Complex Y.J. Nie and M. Yang	354
Parametric Simulation Modeling Approach for Mobilization Production Plan G.X. Wang, L. Wang, Y. Yan and S.M. Chen	358
Resolution and Analysis for Quasi-Stable Frost Forming Model J. Wang and H.X. Wang	363
Modeling and Decoupling Control of Grid-Connected Voltage Source Inverter for Wind Energy Applications J.F. Mao, G.Q. Wu, A.H. Wu, X.D. Zhang and K. Yang	369
Ethylene Polymerization by Thioether Bridged Dinuclear Zirconocene Complex Y.J. Nie and M. Yang	374
Unequal Deformation Characteristics of In-Plane Roll-Bending of Strip with Considering Spread Effects	
Z.J. Li, H. Yang, H. Li and R.J. Gu	378
A Multi-Objective Optimization Method for Thin-Walled Tube NC Bending J. Xu, H. Yang and H. Li	383
GetCM: A Vision of Cloud Manufacturing J.T. Zhou, H.C. Yang, M.W. Wang, S.K. Jing and R. Mo	388
A New Numerical Method for the Riesz Space Fractional Diffusion Equation H.F. Ding, Y.X. Zhang, W.S. He and X.Y. Yang	393
The Investigation of Conformational Change and Water Permeability of Poly(acrylic Acid)-Graft-Polypropylene Membrane in Cross-Flow Microfiltration Y.J. Liu, C.Y. Lv and J. Yang	397
Optimization of Machining Parameters on Surface Roughness in EDM of Ti-6Al-4V Using Response Surface Method M.M. Rahman, M.A.R. Khan, M.M. Noor, K. Kadirgama and R.A. Bakar	402
Study on Mechanical Properties of New Type Chain Concrete Blocks with Ecological	102
Function X.L. Zhang, J.J. Li, Z.X. Huang and Y.H. Chen	409
Influence of Electromagnetic Stirring Parameters and Isothermal Extruding on Semi-Solid Forming Performance of ZA27 Alloys X.W. Duan, X.H. You and J.H. Tian	414
Linear Static Response of Suspension Arm Based on Artificial Neural Network Technique M.M. Rahman, H.M. Mohyaldeen, M.M. Noor, K. Kadirgama and R.A. Bakar	419
Production of Activated Carbon from Ligin: Optimization Using Response Surface	
Methodology L. Jiang, F. Ma, A.J. Gu and L.J. Zhang	427
Biosorption of C. I. Reactive Red 2 by Immobilized Fungal Biomass L.F. Zhang and M. Wang	432
The Effect of Heat Treatment Temperature on Property and Structure of Ni Group Core- Shell Particles ER S.K. Tan, X.P. Song, L. Qiao, H.Y. Guo, S. Ji and H. Zhao	437
Application of Imprinted Functionalized Silica Gel Sorbent for Selective Removal of	,
Cadmium (II) from Industial Wastewaters Z.C. Li, H.T. Fan and T. Sun	441
Analysis of Influence Factors on Anti-Rutting Performance of Fiber Asphalt Mastic and Fiber Asphalt Mixture B. Chen and C.F. Wen	445
Manufacturing Process Planning to Evaluation on Failure Causes for Lithography Machine: Analytic Hierarchy Process	
P.S. Ko and C.C. Wu	450

Using Data Envelopment Analysis to Measurement Patent Performance of Medical Instruments Industry	
S.R. Cheng, C.C. Wu and S.H. Lee Wu	454
Preparation of Steel Slag Adsorbent and its Removal Phenol Property S.Y. Liu, J. Gao, Y.Y. Xu, C.W. Lu and Y.J. Yang	460
Determinition of Optimal Coiling Temperature and Cold Reduction Ratio of Adding P High Strength if Steel	465
M.L. Wang, Z.W. Zheng and L. Xiao Morphology of High-Pressure Crystallized Poly (Ethylene Terephthalate)/Bisphenol-A	465
Polycarbonate Blends J. Lu, D.P. Zhang, J.J. Tian and R. Huang	470
GC/MS Analysis on Benzene/Alcohol Extractives of <i>Manglietia Glauca</i> Leavies for Biomedicine Engineering Z.F. Zhang and X.Y. Zhou	475
The Mechanical Feature and Dependence of the pH-Sensitive Hydrogel X.F. Zhu, M. Yang, H.X. Zhang and Y.J. Nie	479
First Principles Calculation of Geometrical and Electronic Structure of Semiconductor Fe _{1-x} Mn _x Si ₂	
F. Gui, S.Y. Zhou, W.J. Yan, C.H. Zhang, X.T. Guo and Y. Yang	483
Friction Effect in Hot Rolling of Large Rings with Different Sizes M. Wang	487
The Creep Behaviour of Extruded Mg-5Li-3Al-1.5Zn-2RE Alloy T.Q. Li, Y.B. Liu, Z.Y. Cao, L.R. Cheng and D.M. Jiang	492
Effect of Heat Treatments on the Bio-Corrosion Resistance of Magnesium Alloy Mg-8.0Al-	
1.0Zn-xGd L. Li, R. He, G.J. Huang and S.S. Xie	497
Kinetic Analysis of Thermal Decomposition of Epoxy Resin/Polyaniline Nanocomposites S.Y. Shan, Q.M. Jia, L.H. Jiang and Y.M. Wang	502
Isomerization of α-Pinene Catalyzed by Polyaniline with Different Morphologies Q.M. Jia, S.Y. Shan, L.H. Jiang and Y.M. Wang	506
The Determination of Prestress for Reinforced Concrete Pipes Based on Elasticity R. He, W. He and H.X. Zheng	510
Effect of Different Silicon Sources on CO ₂ Absorption Properties of Li ₄ SiO ₄ at High Temperature S.Y. Shan, Q.M. Jia, L.H. Jiang and Y.M. Wang	515
Simulation of Temperature Field in Selective Laser Sintering on PA6/Cu Composite Powders	313
J. Zhang, D.Y. Li, B. Qiu and L.Z. Zhao	519
Microstructure and Wear Resistance of Cu-TiC Composites Fabricated by Mechanical Alloying and Spark Plasma Sintering J. Zhuang, Y.B. Liu, Z.Y. Cao and Y.Y. Li	524
Study of Strain and Temperature Simultaneous Measurement Technology Based on Sampled Grating	324
D.D. Zhu and P. Wang	529
The Synthesis and Characteristic Properties of Poly (AAc-Co-AAm) X.F. Zhu, M. Yang, H.X. Zhang and Y.J. Nie	534
Improvement of a Novel MEMS Bionic Vector Hydrophone G.J. Zhang, C.Y. Xue, X.Y. Wang, J.J. Xiong and W.D. Zhang	539
Effects of Plasma Nitriding on Low Temperature Salt-Bath Chromizing of W18Cr4V Steel J.L. Ye and F. Ye	543
Experimental Study on RC Beams Strengthened with CFRP Sheets J.F. Dong, Q.Y. Wang, C.C. Qiu and D. He	548
A Effects of Polyaniline Morphologies on Performance for Removal Rhodamine B Q.M. Jia, S.Y. Shan, L.H. Jiang and Y.M. Wang	553
Method and Application of Multistage Machining Quality Control Based on Minimum Overall Mean Quality Loss	
Y.Y. Yao, L.P. Zhao, G.Q. Shao and Y.T. Qin	557
Catalyst Study for Carbon Nanotubes Synthesis by Flame Y.H. Guo, B.M. Sun, Z.Y. Ding, J.S. Bi and B. Jia	562

Fuzz Modeling and Evaluation on the Reliability of Coal Mine Ventilation System H. Huang and H.B. Liu	566
Effects of Temperature for Carbon Nanotubes Synthesis Z.Y. Ding, B.M. Sun, Y.H. Guo, B. Jia and J.S. Bi	572
Weft Knitted Pattern Designing Based on the Wave Filter Y.L. Li, L.H. Cao and L.H. Yang	576
Study on Photo-Electro-Chemical Catalytic Degradation of Reactive Brilliant Red X-3B M.Y. Li, K.K. Wang, Y.W. Su, L. Song, G. Cao and G. Ren	580
A First-Principles Study of Hydrogen Molecules Adsorption on Graphene M.J. Roudi and T. Mahmoodi	586
Design of Material Management System for Small-and-Medium-Sized Garment Enterprises Y.N. Yan	590
Study on Three-Dimension Computer Simulation of Plain Knitted Fabrics Y.L. Li, S.Y. Chen, L.H. Yang and L.H. Cao	595
Determination of Austenite Grain Coarsening Temperature of a Nb-Microalloyed Steel	
Sheet D.M. Khaki, V.A. Otaaghvar and M.M. Khaki	600
A New Method for BOM Modeling C.J. Yan and Y. Song	604
Experimental Research on the Normal Absorption Coefficient of the Multilayer Material T. Feng, B. Liu, J. Wang, X. Wu and N. Li	608
The Optimized Design for Groove Parameters Based on Cement Pavement Materials Performance Y.S. Yang, X. Yi, P. Hu and Q. Dong	613
Industrial Diversification and Regional Development Stability: Theoretical Discussion L. Lei	618
Flow Stress Constitutive Equation of Age Hardening Cu-1.1Cr Alloy during Hot Compression Deformation	(22
L. Zhang, K.X. Song, Y.M. Zhang, Q. Wang and W.F. Liu Computer-Aided Design and Fabrication of Bio-Mimetic Materials and Scaffold Micro-	623
Structures Y.H. Chen, J. Cadman, S.W. Zhou and Q. Li	628
Study on Bonding Performance of Interlayer Materials between Old Cement Slab and Asphalt Overlay J. Zhang and W.L. Lu	633
A Multi-Dimension Configuration Method of Modular Machine Tools Based on Customer	033
Requirements-Driven L.P. Zhao, Y.Y. Yao and Q.F. Nie	638
A Method of Obtaining Gray Balance Data Based on Polynomial Regression B.Y. Sun, S.S. Zhou, C.J. Cao and Y.L. Zheng	643
Design and Implementation of Boot Loader Based on Embedded System Platform L.F. Wang	647