

# Table of Contents

## Preface, Committees and Sponsors

## Chapter 1: Advanced Materials Engineering and Processing Technologies

<b>An OLED Surface-Plasmon-Polariton Mode Energy Extraction Method Using a Dielectric Extraction Layer</b> H.N. Lee	3
<b>Effect of Post Curing, Fibre Content and Resin-Hardener Mixing Ratio on the Properties of Kenaf-Aramid Hybrid Composites</b> R. Yahaya, S.M. Sapuan, M. Jawaaid, Z. Leman and E.S. Zainudin	7
<b>Environmental Friendly Sulphoaluminate Cement Based Rapid Hardening and Repair Materials</b> M.J. Lu, M.F. Ba, D.Y. Man, S.Y. Ma, J. Yang and S.Z. Shao	12
<b>Membrane Processing of Refined Palm Oil Wastewater Using TiO<sub>2</sub> Entrapped Nanoporous PVDF Membrane</b> E. Yuliwati and A.S. Mohruni	16
<b>Discharge Criterion along the Surface of Solid Dielectric in SF<sub>6</sub> under High Pressure</b> D.A. Glushkov and A.I. Khalyasmaa	21
<b>The Photodegradation Performance of Phosphotungstic Acid/CdS Composite Materials to Organic Dyes</b> T.S. Wang, S. Bao, L. Xu, Z.R. Liu and L.M. Duan	25
<b>Rigidity Analysis of Kenaf Thermoplastic Composites Using Halpin-Tsai Equation</b> M.R. Mansor, S.M. Sapuan, E.S. Zainudin, A.A. Nuraini and A. Hambali	29
<b>Preparation and Characteristics of Electrospun Silver-Containing PHBV Ultrafine Fiber</b> M.H. Min, Y.Y. Shi, X.X. Chen, J.G. Shi, H.Y. Ma, H.L. Huang and L.M. Wang	34
<b>Pore Size Control of Ordered Mesoporous Carbons and Adsorption Performance of Dye Molecules</b> Y. Cao, J.Z. Zhu, Y. Ding, G. Han, R.L. Fan and H.Q. Fu	38
<b>Investigating the Effects of Blending Ratio and Injection Parameters on the Tensile Properties of Glass Fiber-Filled Nylon 66 Composite Gear</b> N.M. Mehat, N.S. Zakarria and S. Kamaruddin	43
<b>Polycrystalline Silicon Wafer Surface Color Defect Inspection Based on Machine Vision</b> H. Wang, R. Miao, X.S. Wu, W.Y. Ni and X.C. Tang	48
<b>Investigation into the Differences Thermal Properties of SLS Polymer Powder Materials Using Differential Scanning Calorimetry (DSC)</b> Y. Way, H. Puwanto, M. Aichouni and Farizahani	53
<b>Preparation of High Solid Content Polyurethane Emulsion with Sulfonate Hydrophilic Chain-Extending Agents</b> X.L. Wei and F.X. Zhang	57
<b>Asbestos and Alternative Materials</b> L.A.C. Lopes and L.A. Salles	61
<b>Relationship between Foamability and Nanoparticle Concentration of Carbon Dioxide (CO<sub>2</sub>) Foam for Enhanced Oil Recovery (EOR)</b> T.A.T. Mohd, M.A.A. Shukor, N.A. Ghazali, N. Alias, E. Yahya, A. Azizi, M.Z. Shahrudin and N.A. Ramlee	67
<b>Preparation of Hydroxyapatite Composite Coatings with Interlayer of TiO<sub>2</sub> and its Corrosion Behaviors</b> C.H. Liang, S.S. Wang, N.B. Huang and B. Wu	72
<b>Encapsulation of Multi-Enzymes on Waste Clay Material: Preparation, Characterization and Application for Tapioca Starch Hydrolysis</b> N.A. Edama, A. Sulaiman, K.H.K. Hamid, S.N.A. Rahim, A.S. Baharuddin and M.N. Mokhtar	77
<b>The Optimum Number of Trays and Solvent Circulation Rate in Removing Acid Gases in Absorption Unit</b> E. Yahya, N.H. Alias, T.A.T. Mohd and A.H. Ghazalli	83

<b>Effect of Leaching Treatment on Mechanical Properties of Natural Rubber Latex (NRL) Products Filled Modified Kaolin</b>	
H. Harahap, E. Surya, I. Surya, I. Hanafi and B. Azahari	90
<b>Optimization of Drying and Extraction Process of <i>Pereskia bleo</i> Leaves in Determining Antioxidant Properties Utilizing Pareto ANOVA</b>	
S.F. Abdul Manaf, N.S. Ab Aziz, S. Abdullah, R. Raslan, F. Hamzah and N.H. Alias	96
<b>Performance Evaluation of Agarwood Distillation Waste as Retarder for High Strength Oilwell Cement</b>	
A. Sauki, A. Azizi, N.H. Alias, N.A. Ghazali, T.A.T. Mohd and M.N.M. Najmi	101
<b>Filled-NR Conductive Thin Film: A Simple Route of Graphene Dispersion in Natural Rubber Latex</b>	
T. Siriyong, C. Boonyuen, C. Warakulwit and W. Keawwattana	106
<b>A Study on Effect of PFA on Stabilized Material Using Direct Shear Test</b>	
M.S. Shakri, M.A. Hafez and M.A. Adnan	111
<b>Enhanced Thermal Conductivity of Nanofluid by Synergistic Effect of Multi-Walled Carbon Nanotubes and Fe<sub>2</sub>O<sub>3</sub> Nanoparticles</b>	
L.F. Chen, M. Cheng, D.J. Yang and L. Yang	118
<b>NIR and Upconversion Luminescence Properties of Nd<sup>3+</sup> Doped in Gd<sub>2</sub>O<sub>3</sub>-CaO-SiO<sub>2</sub>-B<sub>2</sub>O<sub>3</sub> Glass System</b>	
S. Insiripong, S. Kaewjeang, U. Maghanemi, H.J. Kim, N. Chanthima and J. Kaewkhao	124
<b>To Produce Electromagnetic Shielding Material from Lignin of Black Liquor</b>	
F.F. Chen, Y.Q. Xiong and S.L. Du	129
<b>Investigation into the Differences Chemical Properties of Laser Sintering Polymer Powders Using Fourier Transform Infrared Spectroscopy</b>	
Y. Way, H. Puwanto, Farizahani and P.T. Pham	133
<b>Chiral Structure in a Hard/Soft/Hard Layered Magnet</b>	
Z.J. Wang, Y.T. Liu, H.W. Xiao and N. Chen	137
<b>Effect of Aging Treatment on Structural and Mechanical Properties of CuCrZr/AlN Nanocomposites</b>	
M. Gu, Y.C. Wu, M.H. Jiao and X.M. Huang	141
<b>Numerical Analysis on High Speed Liquid-Solid Impact of 17-4PH Material</b>	
M. Li, P.F. Zhao, G.H. Wang and J. Liu	147
<b>Gas Phase Synthesis of Vanadium Oxide Nanoparticle Films with Temperature Controlled Surface Plasmon Resonance Properties</b>	
Y.L. Nan, S. Xu, F. Liu and J.F. Zhou	152
<b>Biodiesel Preparation with Solid Base Catalyst under Ultrasonic Assistant</b>	
A.P. Shi, J.M. Zhu and Q. Ma	158
<b>Study on Microphase Separation of Waterborne Polyurethane by the Infrared Spectroscopy Peak Fitting</b>	
M. Zhao, W.C. Xu and S.Y. Luo	164
<b>Electro-Reduction of Ilmenite to Fe<sub>x</sub>Ti Alloys in Molten CaCl<sub>2</sub></b>	
X.L. Zou, X.G. Lu, W. Xiao, S.L. Gu and B. Shen	172
<b>Review of Copper Atmospheric Corrosion in H<sub>2</sub>S</b>	
P. Wang, Z.H. Yin, H.T. Ren, S. Xu and D.W. Ma	177
<b>Optical Properties of Two Malposed Silver Triangular Nanocylinder Arrays</b>	
Z.J. Cai, G.Q. Liu, Z.Q. Liu, X.N. Zhang, Y. Hu, Y.H. Chen, X.S. Liu and M.L. Liu	182
<b>Study on the Optimal Proportion and Properties of Stabilized Soil Using Beach Clay</b>	
X.W. Zheng, W. Li, G.C. Wang and L. Sha	187
<b>Yields Performance of Automotive Paint Sludge via Microwave Assisted Pyrolysis</b>	
Z. Januri, N.B.A. Rahman, S.S. Idris, S. Matali and S.F. Abdul Manaf	191
<b>Optical Characteristics of Chemically Prepared ZnO Nanostructures on Silica Modified Polyaniline Nanocomposites</b>	
K.M. Emphasis, R.M. Vequizo, R.T. Candidato, M.K.G. Odarve, F.R.G. Bagsican, J.E. Gambe, B.R.B. Sambo and A.C. Alguno	196
<b>Morphological and Optical Characteristics of Zinc Sulfide on Silica-Modified Polyaniline Grown on Glass and Platinum-Coated Substrates</b>	
F.G. Sanico, R.T. Candidato, R.M. Vequizo and A.C. Alguno	201

<b>The Use of Response Surface Methodology (RSM) in Experimental Design of Membrane Treatment in Treating PW from Oil and Gas Field</b>	
M.Z. Shahrudin, T.A.T. Mohd, N.A. Ghazali, N.H. Alias and M.N.H. Talib	206
<b>Magnetic Attenuation in Superconducting Cylinders by Beer-Lambert Modified Model</b>	
A. Changjan, S. Punchoo and P. Udomsamuthirun	211
<b>Transient AC Electro-Osmotic Flow of Generalized Maxwell Fluids through Microchannels</b>	
Z. Yin, Y.J. Jian, L. Chang, R. Na and Q.S. Liu	216
<b>Tribological Properties for Cast Iron CrMo at High Temperature</b>	
Y.T. Yan and X.B. Gan	224
<b>Effect of Fly Ash Content on Mechanical Properties of Cement-Fly Ash Stabilized Crushed Stones</b>	
X. Chen, J.W. Liu and M.K. Zhou	228
<b>Poplar Wood Veneer Stain Retardant Study the Integration Process</b>	
D.J. Shen	233
<b>The Effects of Cu Content on Microstructure and Mechanical Properties of Thixoformed A319 Aluminium Alloys</b>	
M.S. Salleh, M.Z. Omar, J. Syarif, K.S. Alhawari and M.N. Mohammed	237
<b>Under-Deposit Corrosion Rate Evaluation in Cooling Water System by Weight Loss, Profilometric and Electrical Resistance Methods</b>	
K. Rithdang, P. Wongbunyakul, P. Jamawatr, P. Lortrakul and G. Lothongkum	242
<b>Effects of Curing Systems on the Strength and Microstructure of Reactive Powder Concrete with Iron Tailing Sands</b>	
Z.G. Zhu, B.X. Li, J.C. Liu and X.D. Lv	247
<b>Thermal Treatment Effect on Catalytic Activity of Au/TiO<sub>2</sub> for CO Oxidation</b>	
A. Mahmood, S.M. Ramay, Y. Al-Zeghayer, S. Haider, M.A. Shar and Y. Khalid	254
<b>Thermodynamic Solidification Path Assessment and Microstructural Comparison of Deep Eutectic Au-Cu-Si System</b>	
K. Thipayarat, A. Lewan, E. Nisaratanaporn and B. Lohwongwatana	259
<b>Photovoltaic Performance Improvement of Dye-Sensitized Solar Cells (DSSCs) Based on Y-Doped TiO<sub>2</sub> Thin Films</b>	
Q.P. Liu	264
<b>Effect of Al Addition in Cast Nickel Base Superalloy, GTD-111 on Microstructures and Oxidation Behaviors at 900°C and 1000°C</b>	
P. Wangyao, T. Eriyakul, S. Polsilapa, P. Srigiofun and O. Srihakulang	268
<b>Effect of Al and Ti Additions in Cast Nickel Base Alloy, Grade Hastelloy X by Arc Melting Process on Microstructures and Oxidation Behavior at 900°C and 1000°C</b>	
P. Srigiofun, P. Wangyao, G. Lothongkum and E. Nisaratanaporn	274
<b>A Study of Gold Recovery from E-Waste by Bioleaching Using <i>Chromobacterium violaceum</i></b>	
J. Dangton and Q. Leepowpanth	280
<b>Surface Modifications of Mg Alloys Based on Micro-Arc Oxidation Methods from Manufacturing Perspectives</b>	
H. Tao, K.H. So, E. Li, X.Z. Zhang and G. Lai	284
<b>Effects of Laser Cladding of Silicon Carbides Particles and Iron Based Powder</b>	
M.W. Yip, S. Barnes and A.A.D. Sarhan	289
<b>Investigation of the Thermal Properties of Different Grades Polyamide 12 (PA12) in Improving Laser Sintering Process (SLS)</b>	
Y. Way, D.T. Pham and K.D. Dotchev	294
<b>Numerical Analysis for Process Parameter Effect in Electromagnetic Impact Welding of Aluminum Alloy Sheet</b>	
D.Y. Kim, H.I. Park, J.H. Kim, S.W. Kim and Y.S. Lee	297
<b>Synthesis of Single-Crystalline Gold Nanosheet Having Multilayer Structure under the Polymeric Bulk Condition</b>	
S.H. Cha	301
<b>Design, Manufacturing and Welding of Aluminum Alloy UHV Chambers for Taiwan Photon Source</b>	
C.C. Chang, C.K. Chan, C.L. Chen, G.Y. Hsiung and J.R. Chen	305
<b>Effect of Cold Rolling Process on the Microstructure and Corrosion Behaviors of 316L Stainless Steel in Simulated Body Fluids</b>	
W.M.F.W. Mohamad, M.Z. Selamat, B. Bundjali and M. Musa	310

<b>Steam Methane Reforming of Natural Gas with Substantial Carbon Dioxide Contents – Process Optimization for Gas-to-Liquid Applications</b> W. Maqbool, S.J. Park and E.S. Lee	316
<b>Preparation of Gold Nanocrystals Having Various Morphologies under Polymeric Bulk Phase</b> S.H. Cha	321
<b>Optimization Sol Gel Process Parameter of <math>\text{CaCu}_3\text{Mn}_4\text{O}_{12}</math></b> A. Nurulhuda, Y. Hafizzal, A.R.M. Warikh, A. Rafidah, Y. Suhaila, A. Azrina and I.S. Anwar	326
<b>The Technological Conception of Quality Assurance in the Surface Treatment of Aluminum and Copper Alloys</b> M.Y. Kulikov, V.E. Inozemtsev, D.A. Nechaev and M.N. Oo	331
<b>Study the Effect of Vegetable-Based Lubricant on Surface Roughness during Milling Operation by Using Response Surface Methodology</b> A.A. Siti and Y.L. Yap	336
<b>Production of Self-Healing PI Polymeric Films with Encapsulated TMPTA in PU Microparticles</b> G. Tleubayeva, B. Khudaibergenov, R. Iskakov and I. Tleubayeva	344
<b>Low Temperature Annealing Effect on Electrical Properties of Multicrystalline Silicon Wafers for Photovoltaic Application</b> A. Boucheham, D. Bouhafs, N. Khelifati and B. Palahouane	349
<b>Controlling the Growth of <math>\text{ZnO-SiO}_2</math> Nanostructures Using Pt-Coated Si Substrate</b> A.D.M.V. Peguit, R.T. Candidato, R.M. Vequizo, M.K.G. Odarve, B.R.B. Sambo, F.R.G. Bagsican, J.E. Gambe, G.G. Paylaga, M.E. Jabian and A.C. Alguno	354
<b>Growth of Zinc Oxide Nanostructures on Electrochemically-Etched p-Type Silicon(100) Substrate by Chemical Bath Deposition Method</b> H.M.D. Paculba and A.C. Alguno	358
<b>The Analysis of Influence on the Edge Drop of Tandem Cold Rolling Mill</b> X.M. Zhou and X.X. Cheng	363

## **Chapter 2: General Mechanical Engineering and Applied Mechanics**

<b>A Modified EEMD Decomposition for the Detection of Rolling Bearing Faults</b> Y.C. Shi, Y.Y. Jiang, H.F. Gao and J.W. Xiang	369
<b>Research on Stochastic Resonance Method Based on Bee Colony Algorithm and its Application to Bearing Fault Diagnosis</b> X.H. Cui, Y.Y. Jiang, H.F. Gao and J.W. Xiang	374
<b>Effects of Temperature and Volume Agglomerate Fraction on Mechanical Response of PEMFC Electrodes</b> Y. Xiao and C.D. Cho	379
<b>Structural Optimization of the Telescopic Boom of a Certain Type of Truck-Mounted Crane</b> Z.W. Chen, Z. Cui, Y.J. Fu, W.P. Cui, L.J. Dong and W.G. Jiang	383
<b>A New Plasmonic Filter through Double Metal Films Perforated with Rectangular Grooves and Circular Holes</b> X.N. Zhang, G.Q. Liu, Y. Hu, Y.H. Chen, Z.J. Cai, Z.Q. Liu, X.S. Liu and M.L. Liu	389
<b>Metallic Ellipsoidal Array – Film for Enhancing Transmission via Plasmonic Coupling</b> Y. Hu, G.Q. Liu, X.N. Zhang, Y.H. Chen, Z.J. Cai, Z.Q. Liu, X.S. Liu and M.L. Liu	393
<b>The Design of a Cylindrical Cam Structure whose Profile could be Reconstructed</b> L.J. Shi, W.J. Chen, Y.J. Hu and Z.Y. Shao	397
<b>Strain Measurement in the Steel Shell Surface Impacted by a Falling Ball</b> W. Liu, J. Song, H. Guan, X. Han, J.Z. Wu, W.G. Yang and X.P. Li	401
<b>Analysis and Calculation of Spud Clamshell Dredger's Heeling</b> H.B. Xiao, K.F. Lu and S.Q. Lu	406
<b>Dynamical Penetration Simulation of Solid Target under Shaped Charge Liner</b> F.S. Wang, Y.Y. Ji, J.L. Zhang and S.J. Qiao	410
<b>The Study Wear Resistance of the Modified Surface of the Cutting Tool</b> A.S. Vereschaka, A.A. Vereschaka and M.S. Migranov	417

<b>Mechanical Effects and Existing Problems Analysis of Anchor Frame Combination Supporting Structure</b>	422
W. Jing, W.P. Xue, R.S. Yang, K.L. Zhou and J.P. Li	
<b>The Inversion of Formation Parameters after Volume Fracturing</b>	428
J. Peng, X.M. Shao and D.S. Zhou	
<b>Multi-Pulse Chaotic Dynamics of a Composite Laminated Plate with Strong Coupling</b>	431
Y. Zhao, W. Xu and J.H. Zhang	
<b>Metallurgical Defect and Hydrogen Embrittlement Failure of a Gear</b>	438
Y.Z. Gao, Z.W. Yu and X.L. Xu	
<b>The Optimized Design of Tower Crane Hoisting System Based on the Improved Particle Swarm Optimization Algorithm</b>	444
S.C. Yuan, C.F. Wang, H. Xue, F. An and D.H. Wang	
<b>Finite Element Analysis of the Influence of Balance Mode on Rolling Mill Universal Spindle Strength</b>	449
Z.Q. Guo and Z.L. Xu	
<b>The Research on Analysis and Test Technology of Automobile Gearbox Assembly Process</b>	454
E.M. Zhou, X.F. Shi and L. Pan	
<b>Simulation Analysis and Experimental Research on Direct-Drive Wave Turbine</b>	459
Y.G. Li, Z. Wang, S.M. Wang and L.Y. Wang	
<b>Pattern and Direction Based Smoothing Methods for Surfaces Modeling of Integral Impeller</b>	464
J. Zhao and L.W. Song	
<b>Research of Wind Velocity Field of the Loading Area in Case of Empty Refrigerated Compartment of the Single Temperature Zone Refrigerator Transportation Vehicle</b>	469
J.M. Wang, Z.L. Ding, C.Z. Huang and Z.L. Jiang	
<b>Slope Stability Analysis Based on Coupling Multiple Factors</b>	475
Z.Q. Sun	
<b>Simulation Research on Rolling Element Bearing Feature Extraction Based on Recursive Least-Squares Lattice-Ladder Algorithms</b>	481
J.P. Zhu, Y.X. Zhang, S. Zhang and X.L. Wang	
<b>Comparison of Suppression Cavitations Schemes within Hydraulic Valve</b>	487
L.H. Yang, S.A. Liu, Y.L. Chen, X.H. Zhou, C.X. Wang, Y.M. Yao and J.L. Liu	
<b>Investigation into the Polishing of Stainless Steel Using Sisal Wheels</b>	491
P. Tevinpibanphan, S. Prombanpong and V. Tangwarodomnukun	
<b>Effect of Process Parameters on Surface Roughness in the Cloth Wheel Polishing of Stainless Steel</b>	496
S. Sonthimool, S. Prombanpong and V. Tangwarodomnukun	
<b>Automatic Wiper System Based on the Adjacent Capacitive Edge Effect</b>	501
P. Wang, W.Q. Yuan and Y.T. Wang	
<b>Effects of Flap Wheel Grinding Parameters on Surface Roughness for Stainless Steel</b>	506
J. Somgumnerd, V. Tangwarodomnukun and S. Prombanpong	
<b>Experimental Investigation on Axially Loaded PFRP Compression Members Having Double C-Sections</b>	510
S. Seangatith, J. Thumrongvut and C. Chatwivat	
<b>Modeling and Simulation of Railway Vehicle Using ADAMS/Rail</b>	515
W.M.Z.W. Abdullah, H. Jamaluddin, M.H. Harun, R.A. Rahman and K. Hudha	
<b>Reynolds Number Effect Investigation of Shock Wave on Supercritical Airfoil</b>	520
X. Xu, D.W. Liu, D.H. Chen and Y.J. Wang	
<b>Undersea Observatory Platform Shape Design and Sinking Calculation Based on Fluent</b>	525
Y. Hong and Y.S. Liu	
<b>Nonlinear Analysis of Stochastic Heave Motion for Truss Spar</b>	531
W.J. Shen, Y.G. Tang and L.Q. Liu	
<b>Analytical Investigation on Optimum Member Angle of Lattice Truss Structures</b>	537
S.W. Kim and D.Y. Kim	
<b>Research on the Effect of Prefabricated Crack Distribution about Crack Propagation</b>	542
L. Zhu	
<b>Water Desalination System: Experimental Study on the Performance of a Multi-Stage Still</b>	546
T. Zahia, A. Hanane, B. Randha, Z. Djamila and A. Mohamed	

<b>Analysis of Factors influencing Galvanized Sheet Friction based on Orthogonal Experiments</b>	
Y. Huang, H.F. Liu, T. Zhou and L.G. Wang	550

## **Chapter 3: Applied Thermodynamics, Heat Transfer, Energy Conversion**

<b>Experimental Study on Thermal Effect of Shear Strength of Cohesive Soil</b>	
D. Zhou, C.H. Liu, B. Guo and G.Y. Yue	561
<b>Investigation and Analysis on Energy-Saving Status in Building Lighting in China, Japan and Korea</b>	
J.L. Jiang, X.Y. He, Y.C. Zhang, Y. Fang, W.H. Xiao, N.Y. Zou, A. Okhee, M. Miyamoto, Y. Inoue and M. Kunishima	567
<b>Using MATLAB and COMSOL Multiphysics for Optimization of the Model of Underground Thermal Processes at Old Mining Dumps</b>	
S. Ozana, M. Pies and R. Hajovsky	571
<b>Analysis of Temperature and Heat Flow Characteristics in Underground Tunnel</b>	
H.M. Xie and M.D. Li	579
<b>The Experimental Study on the Effects of Supply Air Angle on Indoor Thermal Environment</b>	
Z.Q. Liu, G. Li and Y. Su	584
<b>Application of Water-Intake Methods on Open-Loop Surface Water Source Heat Pump</b>	
W. Zhang	588
<b>Introduction of Respirable Air Conditioner Based on the Principle of Gravity Circulation</b>	
D. Yang, Q.M. Wen, C.J. Zhang, X.T. Liu and S.J. Wei	592
<b>Heat Transfer Analysis of Groundwater Flow for Ground Heat Exchangers in the Multi-Borehole Field of Ground Source Heat Pump under the Intermittent Operation</b>	
C.C. Zhang and Y.J. Yu	595
<b>Numerical Modeling of the Flow and Pollutant Dispersion in Street Canyons with Ground Thermal Effect</b>	
N.B. Zhang, Y.M. Kang, K. Zhong and J.P. Liu	601
<b>Thermodynamic Effects on Hydrate Formation in Deepwater Pipeline</b>	
A. Abbasi and F.M. Hashim	607
<b>The Tilt Angle of the Solar Panels has the Highest Power</b>	
M. Khodphan	612
<b>Empirical Analysis on Peasant Households' Willingness of Using Solid Biomass Fuel</b>	
L.B. Ma	617
<b>Theoretical Investigation on Electron Transport and the Effect on Thermal Transport in Graphene Ribbon</b>	
J.F. Wang and H.Q. Xie	622
<b>The Experimental Study of Floor Heating for Solar House</b>	
Y.F. Jing, G.Z. Ding, J.J. Miao, C.K. Ou and J.Y. Tan	626

## **Chapter 4: Instrumentation, Measurement Technologies, Analysis and Methodology**

<b>A Novel Change Detection Method Using Independent Component Analysis and Oriented-Object Method</b>	
X.C. Li, C.Y. Jia and W.H. Li	633
<b>Visual Pop-Can Detection Method Based on AdaBoost</b>	
X.Y. Lin, Y.B. Xue and B.H. Guo	637
<b>Research on Method of Metro Monitoring Model Based on Grey Prediction Algorithm</b>	
M.H. Liu and X.B. Sun	641
<b>The Numerical Simulation of Underwater Electric Field Sensor Calibration Traceability</b>	
P. Hu, R.Y. Yue and J. Tian	646
<b>A Numerical Simulation of VOCs Distribution in Indoor Environment of a Dormitory</b>	
S. Bin and Z.H. Yang	650

<b>A Current Harmonic Detection Method via Input Observer</b> P. Li, D.B. Huang and P. Wang	655
<b>A New Method of Continuous Blood Pressure Measurement Based on the Pulse Image Sensor</b> A.H. Zhang, R. Shen, X.Z. Zhou, D.M. Lin and Z. Wei	659
<b>Experimental Study on Measuring the Steel Stress via FBG Sensors</b> H.W. Lin and Y.X. Zhao	663
<b>Design and Simulation of Polarized Neutron Reflectometry at CARR</b> R.D. Liu, Y.T. Liu, D.F. Chen and T.F. Li	668
<b>Numerical Simulation of Fractured Rock Slope with Shear-Slip Behavior</b> Q. Gao and G.H. Wang	673
<b>Characterization of Heavy Metal Contaminated Wastewater Using a Coaxial Sensor and Electromagnetic Wave Reflection Technique</b> N. Puangngernmak and S. Chalermwisutkul	678
<b>Development of a Railway Track Displacement Monitoring by Using Digital Image Correlation Technique</b> L. Iryani, H. Setiawan, T. Dirgantara and I.S. Putra	683
<b>Research on Underwater Binocular Camera Calibration and Distortion Analysis in Current Disturbance</b> Y.J. Pang, D. Wang, H. Huang and M.W. Sheng	688
<b>Video Copy Detection Based on Principal Component Analysis</b> Y.Y. Hou	693
<b>Bearing Damage Detection Based on Sound Signal</b> M. Aswin, I.N.G. Wardana, Y.S. Irawan and H. Suyono	698
<b>Tool Fault Analysis with Decision Tree Induction and Sequence Mining</b> K. Kerdprasop and N. Kerdprasop	703
<b>Alternative Working Electrode for the Determination of the Antioxidant Content by Electrochemical Techniques</b> C.Y. Liu, W.W. Yu, Y.G. Huang, N.N. Wang, L.P. Zhu, Z.C. Luo and Z.P. Zhu	708

## **Chapter 5: Electronics and Integrated Circuits, Embedded Technology and Applications**

<b>Model Reduction and Controller Design of a DC-DC Converter</b> L.B. Wang, J.J. Liu, H.F. Chen, Y. She and Y.Z. Wang	715
<b>An Automated-Switching Precision Decade Capacitor</b> J.C. Hsu, J. Gong and C.F. Huang	719
<b>Influence of Inhomogeneous Anisotropic Ground Conductivity upon the Directivity of ELF Line-Current Antenna</b> C. Liu, H.N. Wu and Y.P. Li	725
<b>The Fully Digital Controlled Corrector Magnet Power Converter with a Shunt as a Current Sensing Component</b> B.S. Wang, C.Y. Liu and K.B. Liu	730
<b>Radio Telemetry Unit for Online Monitoring System at Mining Dumps</b> M. Pies, R. Hajovsky, M. Latocha and S. Ozana	736
<b>The Wireless Sensor System Based on the Chip of STM32 and SH79F32</b> C.J. Qi and H.W. Wang	744
<b>Data Acquisition and Wireless Data Transmission of Lightning Electromagnetic Field</b> G.H. Du and Y.M. Tian	748
<b>Signal Integrity Analysis of High-Speed Differential Vias</b> L.B. Zhao and Q.H. Chen	754
<b>Investigation of Melting Current in Glass Tube Fuses</b> C. Ketthanom and C. Chaijumrus	760
<b>An Optimized Combination of Frequency Domain Adaptive Equalizers</b> K.C. Leng, C. Bie, X. Gong, R. Xu and Y.C. Guo	766
<b>The Impedance Characteristics of ELF Line-Current Antenna over Inhomogeneous Anisotropic Ground</b> C. Liu, B. Wang, H.Q. Xu and Y.L. Liu	771

<b>Star-L-Shaped Circularly Polarized Ultra-Wideband Microstrip Antenna for Wireless Applications</b>	
R. Yuwono and R. Syakura	776
<b>Multiband Antenna Formed of Superimposed Compressed Loops</b>	
J. Sivaraks and S. Malisuwan	780
<b>Hardware Implementation of Modeling Frequency Coded Serial Communication for Eurobalise Using ASK Module</b>	
P. Ehkan, F.F. Zakaria, M.S. Razalli, F.A.A. Fuad, M.N.M. Warip and L.C. Yuen	785

## **Chapter 6: Electrical Engineering and Electric Machines**

<b>Research on Inverse Form Innovation Design for ATSE with Dual Power Supply</b>	
H. Yang, Z. Zhang and Y. Luo	801
<b>Proposed Control Method of Doubly Fed Induction Generator Rotor Side Converter Based on System Frequency Regulation</b>	
E. Zakieldeen, Y. Tang and Y. Li	806
<b>A Modeling and Simulation Method for SVPWM</b>	
J.Q. Lin, X.Y. Cheng and X. Mu	815
<b>Modeling and Simulation of Improved Vector Control System for PMSM</b>	
X.J. Wang, T. Zhou, J.X. Feng and Y.P. Pei	819
<b>Design of Horizontally Vibrating Linear Motor for Thin Smart Phone</b>	
K.B. Lee, J.H. Kim and J.H. Kim	824
<b>A Model Predictive Control Method for Bidirectional DC-DC Converter in the ZVS Condition</b>	
P. Li, D.B. Huang and Y.R. Zhang	829
<b>Study on Problem of Sensorless PMSM Parameters Identification</b>	
H.J. Wang and Y.K. Fan	834
<b>Research on Optimization Design of Low-Voltage Circuit Breaker Power System</b>	
J.B. Ding, H. Li and J.D. Cao	839

## **Chapter 7: Power System and Energy Engineering, its Applications**

<b>Analysis of the Characteristics of PMSG Tidal Current Power Generation System Using PMSG and Water Tunnel</b>	
W.Y. An, H.T. Lim, S.H. Lee, C. Lee, G.S. Kim and C.H. Jo	847
<b>Fault Diagnosis Method for Power Network Based on Combinational Cross Entropy Algorithm</b>	
L. Bian and C.Y. Bian	851
<b>Effect of Contacting Air Surface of Cathode on Microbial Fuel Cells</b>	
C.T. Wang	855
<b>Trust and Power Factor Regulation Based Power Control Scheme for High Penetration Photovoltaic</b>	
Y. Gao, J.L. Mao, B.L. Zhang, A.S. Zhou and Y. Liu	860
<b>Wartime Nuclear Power Plant Security Protection Research</b>	
N.J. Du and Y.G. Shen	864
<b>The Research on the Design Method of Micro Grid Operation Control Strategy Based on the Analysis of the Typical Example</b>	
N. Wang, H. Tan, S.S. Shi and Z.Q. Yuan	868
<b>Design of an Intelligent Solar-LED Streetlight</b>	
Y.Y. Zhang, X.F. Lu, R. Cai, J. Gong, S. Liu and J.Y. Bao	873
<b>The Effect of Power Supply of LED Lamp</b>	
P. Kerdlap	880
<b>Research of Rough Set Theory on Forecast of Power Generation for Grid-Connected Photovoltaic System</b>	
Y.Z. Li, Q. Deng and S.Y. Lv	885
<b>A Novel Sliding Mode Control Based Low Voltage Ride through Strategy for Wind Turbine</b>	
B. Zeng, J.X. Zou, K. Li and X.S. Xin	890



<b>Rotation Energy Harvesting Device</b> B.J. Tsai and J.C. Wang	895
<b>A Suitable Method of Energy Storage Capacity Optimization Based on DFT for BIPV</b> B. Li, S. Chen and S.Y. Liang	901
<b>Modeling of Water Removal from PEM Fuel Cell during Gas Purging</b> J.B. Wang, Y. Yin and Q. Du	910

## **Chapter 8: Mechatronics and Robotics**

<b>Intelligent Control System Design of a Unmanned Quadrotor Robot</b> S.J. Baek, Y.P. Jeon, U.R. Cho, J.H. Park, D.J. Lee and K.T. Chong	917
<b>A Mobile Robot Obstacle Avoidance Using Fuzzy Logic and Model Predictive Control</b> B. Baasandorj, A. Reyaz, P.J. Ho, C.W. Cheol, D.J. Lee and K.T. Chong	922
<b>Development of a Force Feedback System for Omni-Directional Telepresence Robot</b> J.U. Hwang and T.H. Park	928
<b>Intelligence Dumping into Autonomous Robotic Systems for Higher Autonomy</b> M. Cotsaftis	933
<b>A New Approach for Face Recognition Performance Evaluation for Robot Using LED Monitor</b> M.Y. Cho, Y.S. Jeong and B.T. Chun	939
<b>Actuation by Pneumatic Muscles of a Parallel Asymmetric Gripper System</b> D. Negrea, A. Deaconescu and T. Deaconescu	943
<b>Dynamic Response of Commuter Rail Vehicle under Lateral Track Irregularity</b> M.H. Harun, W.M. Zailimi, H. Jamaluddin, R.A. Rahman and K. Hudha	948
<b>A Simulation of the Number of Particles Trapped by the Circulating Filter of a Hard Disk Drive and their Trajectories</b> J. Thongsri and V. Pongkom	953
<b>FEM Analysis for the Influence of Manufacturing Process Defects on Dynamic Behavior of Thin Chromium Microbeam</b> H. Bourouina, R. Yahiaoui, B.Y. Majlis, A. Hassein-Bey, M.E.A. Benamar and A. Sahar	958
<b>A Study on the Key Technologies of a Kind of Automatic Packaging System</b> B.J. Chen, T.Z. Ge and J.Z. Wang	963
<b>Research on the Key Issues of Numerical Controlled Machine Layout Design</b> Z.G. Xu	968

## **Chapter 9: Control and Automation of Manufacturing**

<b>PI Control of Proportional Valve-Cylinder Water Hydraulic System</b> X. Ba, X.H. Luo, X.F. Zhao and Y.Q. Zhu	977
<b>Two Types of Neural Network Prediction Models and Time Complexity</b> J.M. Zhang, L. Zhu and S. Rekheja	985
<b>Design and Simulation of Automatic Control System for Feed-Drier</b> S.Y. Di and H.Y. Chi	990
<b>The PWM Rectification System Based on Intelligent PI Controller</b> X.B. Wang, B.D. Bai, Z.F. Hu and D.Z. Chen	995
<b>Design of Automation Control System for Lubricant Syringe</b> H. Liu, J.W. Shu, C.L. Li, R.K. Chang, X.F. Jin and X.S. Wang	999
<b>Design of Auto Lifting Control System Based on PLC</b> F.Z. Qin, H.Y. Song, X.L. Liu and H.C. Niu	1003
<b>Oscillation of Second-Order Nonlinear Differential Equations</b> Q. Zhu and Z.B. Ma	1007
<b>Organize Method on Platform of Machine Automation Control System</b> D. Du, G.Q. Wen, J.Y. Zhao and M.J. Ge	1011
<b>The Optimal Control Strategy of Frequency Carrier Intelligent Shutoff</b> T.J. Yang and X.L. Zhang	1017

<b>Study on Hydraulic System of Test Stand for Subsea Control Module</b> H.X. Gong, J. Li, Y.P. Wang and H.G. Qu	1023
<b>Application of Genetic Programming Method Combined with Neural Network in HVAC Optimal Operation</b> C.W. Chen, Y.C. Chang, W.T. Liao and C.W. Lee	1030
<b>The Design and Research of Automatic Control Feeding System</b> X.J. Wang, J.J. Zhang, J.X. Feng and Y. Meng	1035
<b>Multi-Processing Feed-Back Decision Making for Scheduling Gates in Manufacturing System</b> B.L. Sefidgari and S.P. Shamchi	1040
<b>Optimal Sequence-Dependent Job Scheduling of Packing Process with Multiple Non-Identical Machines in Tablet Production</b> A. Sodsangaroonngam, C. Soontravanich and C. Khompatraporn	1046

## **Chapter 10: Signal and Image Processing, Data Mining and Computational Mathematics**

<b>Inverse Kinematics of NAO's Right Arm towards its Handwriting a Chinese Character Based on Corner Detection of Character Template</b> E.D. Arisandi and S.Y. Qin	1053
<b>A New Method of Parameters Determined in PCNN</b> S.M. He and D.H. Wang	1059
<b>A Promotion of a Color Morphological Filter</b> S.M. He	1064
<b>An Improved Filtering Algorithm for Impulse Noise with High Density Based on Edge Information Preservation</b> W.Z. Zhao, H.L. Jing, B.Z. Yang and H. Zhang	1068
<b>Image Copy Detection Based on DCT Ordinal and Block Median</b> Y.G. Sun, Y. Yang and J.Y. Liu	1072
<b>The Blind Watermarking Method Simulation Research Based on Wavelet Tree Quantization</b> F. Sun and P. Li	1076
<b>Research of Signal Processing Based on Kalman Filter and Particle Filter</b> O.Y. Jin, Y.S. Li and J. Liu	1080
<b>A Frequency Reuse Scheme Based on Interference Pre-Cancellation and Resource Scheduling for Multi-Beam Satellite Downlink Signal</b> Y.N. He, W. Zheng, B. Li, Y.Z. Gao and J.J. Wu	1085
<b>Quality Control Oriented Data Analysis and Application of Traditional Chinese Medicine Extraction Process</b> P. Lu, M. Jiao and B.G. Hou	1089
<b>Driver Fatigue Monitoring Based on Head and Facial Features Using Hierarchical Bayesian Method</b> D.Y. Jia and S.X. Zou	1093
<b>The Application Research of Data Mining in Research-Oriented Learning Platform Building</b> C.E. Zhang, X.F. Hou and Y.F. Zhang	1098
<b>Improved Relative Term Frequency Probability Feature Selection for Document Categorization</b> Q. Li, L. He and X. Lin	1102
<b>Facial Expression Recognition Based on the Texture Features of Global Principal Component and Local Boundary</b> W.H. Zheng, W. Wang and Y.D. Ma	1110
<b>Mixed Expression Recognition &amp; Analysis Based on Compressed Sense and Subjection Degree</b> J. Cai, Y.Y. Li and Y. Zhang	1118
<b>NURBS Curve Extraction from 2D Laser Sensor Data and 3D Simulated Data</b> R.J. Yan, J. Wu, J.Y. Lee and C.S. Han	1124

<b>A New Method for Processing Symbolization Time Series</b> Q. Wang	1130
<b>Comparison Study of the Clustering Analysis Methods in the Load Time-Variation Research</b> Y. Lin, Y. Fan, L.X. Wu, Y.H. Xu and G. Song	1135
<b>Study on Wavelet De-Noising of High Frequency Current Signal for Rotor Position Self-Sensing of PMSM</b> X.M. Zhou, X.H. Ma and X. Qi	1139
<b>The Use of OpenMP Parallel Standards in Massive Data Delaunay Triangulation</b> J. Li, B.X. Guo and X.W. Xiao	1143
<b>Approaches in Pattern Recognition and Classification Based on Coin Images</b> C.K. Wong, M.A. bin Mohd Shukran and F.Y. Lee	1148
<b>Global Color Composition for Curved Screen Display System</b> Z.J. Lin and D.M. Lu	1152
<b>An Iterative Indexing PLANO Frame Work for Graph Feature Mining</b> A.P.M. Monickaraj, K. Vivekanandan and D.R. Chitra	1156
<b>Wideband LFM Signal Parameter Estimation Based on Compressed Sensing Theory</b> N. Ma and J.X. Wang	1160
<b>Hybrid Radio and Visible Light Communications in Inter-Vehicle Communication</b> X.A. Huang, C. Sugimoto and R. Kohno	1166
<b>Research of the Transient Signal Recognition Based on Empirical Mode Decomposition</b> W.J. Wang and K.F. Chen	1173
<b>An Improved Normalized Cut Image Segmentation Algorithm with k-Means Cluster</b> W.T. Yu, J.L. Wang and L. Ye	1179
<b>Object Update-Based Mean Shift Tracing Algorithm Combined with LBP</b> M.Z. Liu, M. Sun and Y.F. Wang	1185
<b>Application of Kalman Filtering and Smoothing for Airborne Gravimetry</b> W. Zheng, G.B. Zhang and R. Li	1192
<b>Exact Soliton Solutions of the Variable Coefficient KdV Equation with Forced Term</b> Y.M. Bao and S. Bao	1196
<b>Predicting BEOL Key Qualities by Mahalanobis-Taguchi System – An Example of Taiwan’s Semiconductor</b> S.Y. Lin and H.L. Teng	1201
<b>Solution of Travelling Salesman Problem Using Ant Colony Algorithm</b> S.D. Gülcü, Ş. Gülcü and H. Kahramanli	1206
<b>Research on Application of Ant Colony Optimization</b> W. Rui and Z.T. Wang	1213
<b>Application of Ant Colony Algorithm</b> R. Wang and Z.T. Wang	1217
<b>Optimization and Simulation of OFDM System Based on Orthogonal Wavelet</b> Z.Y. Sun and F.M. Zeng	1221
<b>Joint Multiple-Access Channel Effective Order and CIR Estimation Algorithm for Multi-User OFDM/SDMA System</b> S.Z. Li, Z. Zhang, X.M. Mu and J.K. Zhang	1227
<b>Adaptive Equalizer for DS-CDMA Multi-User Communication System Using Sign-Algorithm Based on Laguerre Filter Structure</b> P. Sirithummachak and C. Benjangkprasert	1231
<b>Wind Speed Prediction Based on Improved Grey Neural Network Model</b> B. Zeng, J.X. Zou, K. Li and X.S. Xin	1235
<b>The Automata Model of Interval Speed CPNs</b> W.Z. Liao	1241
<b>Multi-Level Indicators Reduction Approach for Complex Index System</b> D.Y. Jia, X.H. Liu, S.T. Feng and K.Y. Zhou	1249
<b>Numerical Simulation of Droplet Ejection Based on VOF Method</b> X.Y. Suo	1257
<b>Analysis of HCV’s Linearity Using Support Vector Machine (SVM)</b> Y.S. Hwang, B.J. Jun and T.S. Yoon	1265

## Chapter 11: Communication, Networks and Information Technologies

<b>Information Extraction of Pro/E Swept Features Based on Pro/Toolkit</b> J.C. Zhao, J.F. Dong, Y.X. Fang and F.S. Huang	1273
<b>An Optimization Model and Genetic Algorithm Solution for Automated Celestial Navigation of Ships</b> H. Li, G. Lu, W. Wang and A.G. Wang	1277
<b>A Multi-Band Carrier Aggregation Scheme for Mobile Satellite Communications</b> Y.Z. Gao, X. Yang, X. Geng, J.B. Li and J.J. Wu	1282
<b>Access Control Algorithm with Limited Power Constraint for Mobile Satellite Communications</b> Y.Z. Gao, X.H. Xia, Z.M. Su, X. Luan and J.J. Wu	1286
<b>A Method of Interface between Matlab PV Model and PSASP Transient Stability Program</b> J.M. Zhang and Y.S. Li	1290
<b>TCP Communications Research Based on Embedded WinCE and LabVIEW</b> X.H. Wang, Y.S. Li and J. Liu	1295
<b>Studying the Impact of 32-Bits AS Numbers on Constructing Internet AS Graphs</b> M.Z. Masoud and I.A. Jannoud	1299
<b>A New Intrusion Detection Method Based on Machine Learning in Mobile Ad Hoc Network</b> L.C. Cao, W. Han and S. Dong	1304
<b>Study on High-Performance Simulation Computer for Large-Scale System of Systems Simulation</b> Z.Q. Zhao and J.X. Hao	1311
<b>Investigating the Effect of Software Complexity Metrics on Software Cost</b> B. Falah, S. El Alaoui and H. Abbadi	1319
<b>A Design for Fault-Tolerant Communication Middleware Based on Time-Triggered</b> J. Jin and Q.F. Gu	1326
<b>Design of Theme Crawler for Web Forum</b> Z. Qiu, C.J. Dai and T. Liu	1330
<b>Design and Implementation of the Network Electronic Identity Management System</b> L.S. Ni and B. Chen	1334
<b>Development of Bluetooth Roll Call System Based on Android Platform</b> M.L. Ding, L.P. Li and M.L. Ding	1339
<b>On the Construction of Efficient Private Signature Scheme</b> B.Y. Kang, H. Xu and Y.Z. Niu	1343
<b>Alternative Antenna Research to Optimize MIL-STD-188-125-1 Standard Shielding Effectiveness Measurement</b> H.J. Kang, J.J. Bang, C.S. Huh and U.Y. Huh	1347
<b>A Modified Energy Detection Algorithm Based on Primary User Activity for Cognitive Radio Networks</b> G.T. Han, Y.Q. Ding, X.M. Mu and J.K. Zhang	1351
<b>Joint Transmit Antenna Selection and User Selection in Cognitive Radio MIMO Systems</b> J. Li, S.Z. Li, X.M. Mu and J.K. Zhang	1355
<b>A Velocity and Transmission Environment Based Handover Algorithm for Heterogeneous Networks</b> C.L. Yang, J.X. Wang, H. Yu, Q. Kuang, J. Speidel and M. Wang	1359
<b>Joint Linear Precoding and Power Allocation for MU-MIMO CR Systems with Imperfect CSI</b> W. Wang, Y.H. Lu, D.Y. Li and S.Y. Yang	1363
<b>Partial Interference Alignment Schemes for the K-User MIMO Interference Channel</b> X.L. Lv, G.M. Zhang, G.B. Li, G.M. Lv and C. Zhang	1368
<b>The Design of Android-Based Video-on-Demand System and its Implementation</b> X. Liu	1377
<b>The Method for Broadband Folded Dipoles Using Branch Current Redistribution</b> X. Xie, C. Liu, L. Zhou and H.N. Wu	1381

<b>Design of a Smart Antenna Using Butler Matrix for WLAN Applications</b> N. Soualmi and H.M. Li	1385
<b>A Novel Coverage Off-Duty Eligibility Rule in Wireless Sensor Networks</b> Y.F. Fu and Q.X. Xiong	1389
<b>An Effective Improved On-Demand Routing for LEO Satellite Networks</b> Z. Ren, B.Y. Du, Y.W. Liu and J.B. Li	1393
<b>Design of IOT Gateway System Based on WMMP-T Protocol</b> C. Wu and Z.P. Zhou	1397
<b>Design of Wireless Voice Communication System in Underground Coal Mine Based on ZigBee</b> D.H. Wang, Q.Q. Zhang and Y.F. Sun	1402
<b>Study on WSN Localization Algorithm and Simulation Model for Intelligent Transportation System</b> Z.F. Li and L.Z. Gao	1407
<b>Research on Particle Swarm Optimization-Based Node Positioning Algorithm for Wireless Sensor Networks</b> J. He and L.Y. Li	1415
<b>Improved Clipping Technique for PAPR Reduction in OFDM</b> M.R. Anjum, M.A. Shaheen, F. Manzoor and M.A. Dida	1420
<b>A Non-Uniform Node Distribution Policy for Routing Holes Avoidance</b> R. Yan, Y. Yang, X.P. Kong, W.C. Xu and Y.Y. Zhou	1424
<b>An Item-Level Access Control Framework for Inter-System Security in the Internet of Things</b> Y. Xie and D. Wang	1430
<b>Preliminary Study on Collaborative Lesson Planning Based on Cloud Platform</b> S.Q. Liu and D.D. Zou	1433
<b>Management of Big Data in the Internet of Things in Agriculture Based on Cloud Computing</b> H.Z. Wang, G.W. Lin, J.Q. Wang, W.L. Gao, Y.F. Chen and Q.L. Duan	1438
<b>A Fine-Grain Price Analysis for Online Transaction Data</b> X. Ji and Y. Chen	1445
<b>Research and Design of Web-Based Autonomous and Collaborative Teaching Mode under Blended Learning</b> C. Liu	1450
<b>Control of Synchronization on Community Networks</b> M. Li, X. Jiang, L.L. Ma, Y.F. Ma, Q.T. Guo, Y.J. Lei and Z.M. Zheng	1454
<b>Responsive Web Design for Mobile Device Screen Optimization</b> F.Y. Lee, M.A. bin Mohd Shukran and C.K. Wong	1460
<b>Solving Bottleneck Problem by Transmission Power Control under Various Compression Assumptions for Wireless Sensor Networks</b> R.H. Cheng and C.M. Huang	1465
<b>A Group Persistent Assignment in Contention Slots of DOCSIS</b> T. Pawasopon and S. Sittichivapak	1471
<b>Calculating the Reliability and Reputation of Agents in E-Commerce Multi-Agent Environments</b> E. Majd, V. Balakrishnan, S. Gharib, K. Pourmahdi, L. Shakeri and M.F. Abadi	1478
<b>Mathematical Programming Models for Flexible Manufacturing System Planning and Scheduling Problem</b> S. Paslar, M.K.A. Ariffin, M. Tamjidy and S.H. Tang	1483
<b>Study on Water Conservancy Information System Based on Cloud Computing</b> H. Liu, X.M. Liu and Z. Wan	1488
<b>Proposed System Model for Android Augmented Reality System in Malaysia Military Operations – Unit Positions</b> M.A.M. Shukran, K. Maskat, W.S.S. Sharif, M.S.F.B.M. Yunus and M.S. Ariffin	1493
<b>A Development of Next-Generation Port Simulator for the Performance Evaluation of Port Crane</b> M.N. A, M.J. Koo and K.S. Lee	1498
<b>Dynamic Federal Collaborative Development Method for Heavy Military Vehicles</b> J. Ji, W.Y. Chai, G.X. Xue and G.Y. Li	1504

<b>An Empirical Research on E-Marketplace Basic Functions</b> R. An and J.Z. Guo	1510
<b>Adaptive <math>H_{\infty}</math> Power and Rate Control for Time-Varying Uncertain Wireless Networks via Dynamic Output Feedback</b> C.W. Han, D.H. Sun, Z.J. Li and Y.T. Shi	1524
<b>A Neural-Q-Learning Based Approach for Delay Tolerant Underwater Acoustic Wireless Sensor Networks</b> L. Zou, D.F. Huang and R. Togneri	1530
<b>Research and Application of Information Management for NC Equipment</b> Z.L. Fang, X.J. Wu and B.X. Fang	1536
<b>A Level-Dependence Model and it's Application in SFMEA</b> Y.M. Wu, L.J. Wu and L. Sun	1543
<b>Information Processing in Searching Tweets</b> Q. Liu and J.P. Liu	1549
<b>A Research of HTN-Based Anytime Planning Algorithm on FPS Games</b> J.L. Dong	1553
<b>A MapReduce Model to Process Massive Switching Center Data Set</b> W.C. Yang, R. Li and Z.D. Shang	1557
<b>Pixel Value Graphical Password Scheme: Identifying Design Features and Requirements</b> M.A. bin Mohd Shukran, M.S.F. bin Mohd Yunus, W.S. Sham Shariff, M.S. Ariffin and K. Maskat	1561
<b>Study on the Multi-Layer Structure Design of the Power Marketing Demand Side Monitoring Center System</b> W.F. Jiang and J. Zhou	1566
<b>Modeling and Simulation of Indoor Millimeter Wave Propagation Characteristics</b> Z.Y. Sun and F.M. Zeng	1571

## **Chapter 12: New Technologies, Methods and Technique in Civil Engineering**

<b>Numerical Simulation of Dynamic Compaction Construction</b> H. Lin, S. Ji, B. Li and M. Liu	1581
<b>Integrated Model for MCDM: Selection Contractor in Malaysian Construction Industry</b> W. Alzoher and A.R. Yaakub	1587
<b>Surface Quality of Actual Structure with Concrete Using Expansive Additives</b> H. Yashwanth and Y. Mochida	1596
<b>Design Guidelines for Buildings in Saudi Arabia Considering Energy Conservation Requirements</b> A.M. Al-Shaalan, W. Ahmed and A. Alohalay	1601
<b>Vibration Response Analysis on Deep-Water Piers under Earthquake and Wave Coupling Motivation</b> Z.J. Wang, L.M. Wu and S.X. Xiao	1607
<b>The Fuzzy Evaluation of Compatibility between PC-HPWR Agent and Cement</b> F. Wang, S.S. Zheng and X.F. Wang	1613
<b>The Bionic Optimization and Analysis and Calculation of the Cast-Steel Joint with Three Branches</b> Z.H. Zhu, W.F. Du, Z.F. Sun and L.M. Zhu	1618
<b>Measurement and Analysis of the Structural Noise of Urban Bridges</b> T. Jin, Q. Huang, Y. Ding and L.F. Zhu	1623
<b>Architecture and Paper Structures – Could Paper-Folding Become a Methodology in Architecture?</b> S.E.M. Calretas and M.S.M. Kong	1627
<b>Optimization Design Study on Uniform Air of Structure of the Cavity Plenum of Badminton Gymnasium</b> Z.L. Zu, C. Chen, L. Yan and N. Li	1635
<b>Review on the Study of Green Design Performance for Building Refurbishment Project: Finding the Gaps in Knowledge</b> S.N.A.A. Sekak, I. Rahmat, N. Ahmad and Y.M. Junus	1641

<b>Risk Management of Construction Schedule by PERT with Monte Carlo Simulation</b> Y. Liu and Y. Li	1646
<b>Review of Durability of Fiber Reinforced Polymer (FRP) Reinforced Concrete Structure</b> Y.H. Huang and Y.C. Guo	1651
<b>Research on the Waterproof Properties of Lightweight Gypsum Materials</b> L.L. Li and G.Z. Li	1655
<b>Effect and Action Mechanism of Superplasticizer on Foamed Cement</b> C.W. Du and G.Z. Li	1659
<b>Effect of Admixtures on the Performance of Recycled Fine Aggregate Cement Mortar</b> F.X. Wang, G.Z. Li and J. Chen	1663
<b>Research on the Wall Crack Grouting Technology of Brick-Concrete Structure</b> B. Jia, K. Li, X. Liu and N.Q. Meng	1667
<b>Based on ANASYS Immersed Tube Tunnel Three-Dimensional Finite Element Analysis</b> Y.K. Wu, T.J. Sun, Y.Q. Wang and Y.L. Xie	1672
<b>Occurrence Analysis of Cracking Concrete Floor Caused by Alkali-Aggregate Reaction</b> X.Q. Bai, T.C. Wang, P.Y. Zhang, D. Yan and T. Liu	1679
<b>Numerical Analysis on the Impact of Windows and Interior Doors on Indoor Airflow of Rural Residence</b> X.Z. Fu and J. Dong	1683
<b>Exploration for the Technology of Tradition Building Materials and Consolidation Mechanism</b> M. Dai, C.S. Peng, W. Zheng, J.L. Wang and X. Qian	1689
<b>Introduction to the Urban Space Stereo Greening</b> B.W. Zheng, Z.L. Li and J.X. Guo	1696
<b>Simulation Analysis of Building Green Facade Eco-Effect</b> X.C. Pan and Y.X. Xiao	1701
<b>CFD Investigation for Indoor Environment of a District Standard Room in Jinan City</b> D. Yang, Q.M. Wen, C.J. Zhang, X.T. Liu and S.J. Wei	1706
<b>Low Cycle Test Research on Seismic Performance of Recycled Concrete Block Wall</b> W. Guo, B. Jia, C.T. Zhang, X. Liu and S.F. Liu	1712
<b>Micro-Analysis Ballast-Geogrid Pull out Tests Interaction</b> G.Q. Jing, X.H. Luo and Z.J. Wang	1716
<b>The Evaluation Method for Tunnel Structure Health Condition Based on Asymmetric Proximity</b> S.W. Zhou, Q.M. Xiang and Y.Q. Wang	1721
<b>Identification of Transverse Crack in Beam like Structure Using PSO</b> D.N. Thatoi, S. Choudhury, P.K. Jena, H.C. Das and A.K. Subudhi	1728
<b>Comparison of Several Extreme Learning Machine Algorithm for Modeling Concrete Compressive Strength</b> J. Tang, D. Yan and L.J. Zhao	1735
<b>The Numerical Simulation and Research and Application of Energy-Saving Effect of Air Curtain of the Dining Room</b> K.R. Ma, Y.J. Wang and X. Wang	1739
<b>Research on Cracks Zone of Clay Aquiclude in Overburden</b> Q.X. Huang	1744
<b>Construction Numerical Simulation of Cable-Supported Barrel Shell Structure Considering Construction Nonlinearity</b> J. Li, J.H. Yu, X.Y. Yan and H.B. Liu	1748
<b>Wind-Induced Performance of Long-Span Bridge with Modified Cross-Section Profiles by Stochastic Traffic</b> J. Wu	1753
<b>Analyses on the BIM Technology Using in the Design of Green Village Buildings</b> Y.F. Li, H.C. Wang, M. Zhao and W.Y. Pan	1758
<b>Numerical Simulation on Embedded Steel Frame Concrete Blast Wall Resisting Air Shock Wave</b> H.J. Wang, Y. Yao, Z.Q. Zhang, X.P. Yang and Y.P. Zhu	1763

<b>The Construction of Modern Residences Based on the Concept of “Ecological” Green Community</b>	
Q. Liu and Z.L. Zhou	1768
<b>Study on Green City Construction and Sustainable Development – Low Carbon City from Theory to Create</b>	
Q. Liu and J.H. Zhuo	1773
<b>Research on Slow Lane System Planning and Design: A Case Study of Guangzhou International Biological Island Greenway</b>	
J.Y. Wu	1778
<b>Establishment and Solution of the RNC Flow Network Model</b>	
L.Y. Sun, L.J. Zhen and Y.T. Li	1783
<b>Research on Detail-Structure Construction Technology of Outside Heat Preservation of Exterior Walls</b>	
X. Zhao, Y.P. Ding and X.Y. Zhang	1790
<b>A Validation Study for CFD Simulation of a Simplified Urban Model</b>	
A.F. Mohammad, S.A. Zaki, M.S.M. Ali, A. Hagishima and A.A. Razak	1795
<b>Real-Time Simulation of Pipe Network Based on EPANET</b>	
G.Y. Zhang	1800
<b>Application of Vertical Planting Technology in Green Building</b>	
J.Q. Pan and T.T. Liu	1804
<b>A Research on Key Technology in Overturn-Preventing of Longxi Tower’s Monolithic Movement</b>	
D.F. Shang, T.C. Wang and Z.F. Yang	1810
<b>Application of Green Lighting Technology in Highway Service – A Case Study of Mt. Lushan West Sea Tourism Highway Service</b>	
X.C. Qin, S.G. Shao and Y. Shen	1815

## **Chapter 13: Traffic and Transportation**

<b>Evaluation for the Location Selection of Airport Based on WLSM-TOPSIS Method</b>	
C.Q. Yang, T. Wu and Y. Liao	1823
<b>Research on the Calculating Method of Low-Carbon City Public Transit Bearing Rate</b>	
Z.Q. Lei, R.L. Wu, J. Yin and P. Wang	1828
<b>Study on the Scheme Selection of Large-Scale Highway Transportation</b>	
H.T. He and X.W. Wu	1835
<b>The Laws and Measurements Analysis about Urban Rail Transit Noise and Vibration Reduction</b>	
C.H. Chen and L.Y. Peng	1839
<b>The City Traffic Service Platform Based on MPI Model</b>	
J. Song, Y.H. Cheng, X.Z. Zhang and Y.F. Zhang	1844
<b>The Simulation of Non-Gaussian Vibration Environment on Railway</b>	
J. Zhao and D.P. Zhu	1848
<b>Research of a MapReduce Model to Process the Traffic Big Data</b>	
W.C. Yang, H. Chen and Q.Y. Qu	1853
<b>Application of Multidimensional Data Model in the Traffic Accident Data Warehouse</b>	
M.Z. Liu and M. Sun	1857
<b>A Study of the Traffic Flow Predictive Model Based on Mathematical Statistics and Stochastic Process</b>	
H. Zhang, H.Y. Zhang and M.X. Liu	1862

## **Chapter 14: Oil and Gas Engineering**

<b>Effective Bridging Agent Particle Sizes of Reservoir Drilling Mud</b>	
A. Azizi, A. Sauki, N.A. Ghazali, N.H. Imam, S.K. Jamaludin and T.A.T. Mohd	1871



<b>Carbon Dioxide (CO<sub>2</sub>) Foam Stability Dependence on Nanoparticle Concentration for Enhanced Oil Recovery (EOR)</b> T.A.T. Mohd, A.H.M. Muhayyidin, N.A. Ghazali, M.Z. Shahrudin, N. Alias, S. Arina, S.N. Ismail and N.A. Ramlee	1876
<b>Determination of Irreducible Water Saturation and its Application in Analysing Water Producing after Fracturing</b> X.W. Zhang, G.S. Cao, L.J. Niu and G.L. Wang	1881
<b>Calculation Method of Earth Stress in Zhenjing Oil Field in China</b> L.M. Ran, H.P. Pan and Y.G. Zhao	1885
<b>Numerical Coupling of Drilling Vibration to Riser's Oscillation</b> W. Pao and F.M. Hashim	1893

## **Chapter 15: Product Design and Industrial Engineering**

<b>Improving the Design of Peripheral IV Therapy by Employing Product Development Approach and Rapid Prototyping Technology</b> Y. Way, M. Azrai and A.H. Mohamad	1901
<b>ε-SVR-Based Predictive Models of Energy Consumption and Performance for Sintering</b> J.K. Wang, F. Qiao, G.C. Li and X.C. Zhu	1905
<b>Application of Variation Weight Fuzzy Comprehensive Evaluation Method on Decision-Making of Stamping Process</b> P. Chen, H.F. Mei and R. Hu	1911
<b>Research on the Methods of Integrated Implementation of ERP and BPR</b> Z.G. Li and F.Y. Shi	1916
<b>Kansei Quality Prediction Method of Product Form Design Based on Quantification Theory</b> Z.Y. Xiong, Y.X. Weng, L.J. Jiang and L.Q. Ruan	1922
<b>A Heuristic Approach to Capacity Assignment in Pharmaceutical Manufacturing Production Line</b> S. Engudomnukul, S. Prombanpong and T. Somboonwiwat	1928
<b>Product Maturity-Driven Collaborative Development Flow Controlling Method for Heavy Military Vehicles</b> J. Ji, G.X. Xue, G.Y. Li and W.Y. Chai	1934
<b>Risk Analysis in Military Operation Network Effectiveness Evaluation</b> C. Li, X.F. Zhang, Y.H. Zeng and L.B. Ye	1939
<b>Sensory Fuzzy Evaluation System Applied in the Cabs of Mine Vehicles</b> Z. Chen, N. Chang and X.L. Ma	1943
<b>Study on the Pharmaceutical Distribution Enterprise IT Adoption Influencing Factors Model</b> C.C. Lin and Y.P. He	1947
<b>The Use of Interval Type-2 Fuzzy TOPSIS in Supplier Selection</b> A. Otheman, A.T.A. Ghani and L. Abdullah	1954
<b>A Novel Integrated AHP-QFD Model for Investment Banks</b> H. Mihanizadeh, Y. Widiatama, M.G. Nik, H. Gholami and Z.A. Laskoukalayeh	1959
<b>Network-Fit in a Disruptive Environment: Assessment of the Strategic Fit among Partners of a Value-Added Network</b> A. Kampker, P. Burggräf and C. Nee	1965
<b>An Empirical Study of Perceptual Factors Underlying Customer Reactions for New Product Positioning in Notebook Industry</b> C.W. Yeh, C.C. Fang and T.Q. Lee	1971
<b>Analysis on Convergence in Green Technology Field Using Patent Information</b> D.H. Jeong and Y.I. Kwon	1981
<b>Enterprise Logistics System and Simulation Control Technology</b> F. Sun and P. Li	1994
<b>Integrated TRIZ-AHP Support System for Conceptual Design</b> M.U. Rosli, M.K.A. Ariffin, S.M. Sapuan and S. Sulaiman	1998