

Table of Contents

Preface and Organizing Committees

Chapter 1: Materials Behavior

Combustion and Performance Analysis of Single Cylinder DI Diesel Engine Using Jatropa Biodiesel and its Blends B.R. Prasath, P.P. Tamil, M.F. Shabir, P.K. Devan and S. Vigneshvaran	3
The Effects of Calcium Excess, Water Amount and Mixing Time on the Injectability of Calcium Phosphate Filling Materials A.S.F. Alqap, I. Sopyan, M. Husni and N. Athirah	8
Pile Capacity in Homogeneous Unsaturated Sand Layer A. Uchaipichat and E. Man Koksung	13
A Comparative Performance Study of Soot Formation Models in Methane Elevated Pressure Non-Premixed Flames A. Yunardi, B. Elwina, S. Novi, D. Wusnah and B. Yazid	18
Computational Calculation of Thermal Efficiency in a Space Radiating Fin for Tow Different Materials M.H. Kamrava and F. Bazdidi-Tehrani	23
Computational Analysis of Fatigue Crack Propagation at Elevated Temperature for IN718 G.B. Zhang and H. Yuan	29
Nonlinear Elasto-Plastic Analysis of Axisymmetric Spherical Shell by Chebyshev Spectral Collocation Method under the Pulsating Forces M.S. Barzegar, A.N. Oskooe, K. Najafi, H. Khodarahmi and M. Mohamadi	33
The Application of Non-Esterified Biodiesel in a Diesel Engine Y. Oh, S.H. Choi and A. Janchiv	38
Study on the Addition of Viscous Agents to Fish-Boat-Fuel in Real Ship Trials T.L. Yang	43
Effects of Assembly Pressure on the Gas Diffusion Layer and Performance of a PEM Fuel Cell H.M. Chang and M.H. Chang	48
Study of Self Phase Modulation in Chalcogenide Glass Photonic Crystal Fiber B. Dabas, J. Kaushal, M. Rajput and R.K. Sinha	53
Analysis and Comparison of Dispersion Properties of Hexagonal and Square Lattice Photonic Crystal Fiber B. Dabas, M. Rajput and R.K. Sinha	57
Study of Natural Frequencies and Characteristics of Piezoelectric Transformers by Using 3-D Finite Element Method S. Vacharakup, M. Peerasaksophol, T. Kulworawanichpong and P. Pao-La-Or	61
In House Construction of an Induction Motor Rotor by Using 0.35mm Thickness of Steel Sheet for Efficiency Based Investigation I. Daut, G. Nsurface, Y. Yanawati, M. Irwanto and S. Nor Shafiqin	67
Horizontal Distribution of Illuminance with Reference to Window Wall Ratio (WWR) in Office Buildings in Hot and Dry Climate, Case of Iran, Tehran M.J. Mahdavinnejad, S. Mator, N. Feyzmand and A. Doroodgar	72
Thermodynamic Analysis of Hydrogen Production from Ethanol in Supercritical Water Oxidation N. Srisiriwat	77
The Mechanical Strength of Granular Sulphur and its Relation to Size Distribution and Storage Silo Clogging R. Moradifar, A. Rahi, M.H. Kadivar, F. Eslami and S. Salimi	83
Numerical Solution of an Edge Cracked 2-D Piezoelectric Media Using Extended Finite Element Method R.R. Bhargava and K. Sharma	91

Experimental Study on Combustion and Pollution Characteristic of Gas Oil and Biodiesel K. Bashirnezhad, S.B. Hosseini, A.R. Moghiman and M. Moghiman	99
Dynamic Characterization of Non-Homogeneous Magnetorheological Fluids Based Multi-Layer Beam V. Rajamohan and M. Ramamoorthy	105
Hygrothermal Buckling Response of Laminated Composite Plates with Random Material Properties: Micro-Mechanical Model R. Kumar and D. Singh	113
Study of the Heat and Mass Transfer in a Dehumidification of Liquid Desiccant H. Salarian	120
Extent of Three Parameter Zone and Optimum Strain Gage Location for Eccentric Cracked Configurations H. Sarangi, K.S.R.K. Murthy and D. Chakraborty	127
Performance Evaluation of Thermal Interface Material for Space Applications J. Gandhi and A.V. Pathak	135
The Effect of Preheated Crude Palm Oil on Performance and Emission Characteristics of a Compression Ignition Engine B. Deepanraj, L.A. Raman, A. Santhoshkumar and S. Santhanakrishnan	142
Thermomechanical Analysis in FG Rotating Hollow Disk A.R. Khorshidvand and M. Jabbari	148
Ammonium Perchlorate Decomposition Characteristic Parameters Determination, a Simplified Approach W.M. Abdel-Wareth and X. Xu	155
Development of a Variant of Scalar Constitutive Equations Suitable for Description of the near Super-Plastic Regimes of Deforming K. Bhaskaran, B.B. Jha, B.K. Mishra, O.I. Bylya, M.K. Sarangi, P.V. Chystyakov, A.V. Muravlev and R.A. Vasin	163
Dielectric Properties of Polyester Reinforced with Carbon Black Particles O.G. Abdullah, D.A. Tahir, G.M. Jamal and S.R. Saeed	170
Optical Absorption of Polyvinyl Alcohol Films Doped with Nickel Chloride O.G. Abdullah and D.R. Saber	177
Completable Filiform Lie Algebra M.Z. Wu	183
Derailment Analysis of High-Speed Railway Vehicle Bogies Y.C. Cheng, C.H. Chen and C.J. Yang	186
Effect of Abrasive Flow Rate in Milling with Abrasive Water Jet V.K. Pal and P. Tandon	196
Enhancement of Welded Joints Productivity Effect of Welding Position on Fatigue Strength M.K. Hatami, A.M. Amini and K. Fallahi	202
Driving Characteristics of a Simple Square-Frame Ultrasonic Motor J.W. Kim, C.H. Park, S.S. Jeong, M.H. Kim, T.G. Park and H.H. Chong	210
Generating Characteristics of a Cantilever-Type Unimorph Piezoelectric Generator Depending on the Material and Mass C.H. Park, J.W. Kim, S.S. Jeong, M.H. Kim, T.G. Park and H.H. Chong	217
Tribological Characteristics in Modified Magneto-Rheological Fluid D.W. Lee, J.Y. Choi, M.W. Cho, C.H. Lee, W.O. Cho and H.C. Yun	225
MHD Convection of an Electrically Conductive Fluid with Variable Thermal Conductivity M. Pirmohammadi, M. Ghassemi and M. Hamed	232
Design and Traction Performance of the Track Device Circling Driving Wheel for Truck L.S. Li, X.D. Meng and J.Q. Zhan	239
Antiwar and Extreme Pressure Characteristics of Quinazolin-4-Ones Derivative as the Potential Lubricating Oil Additive P. Ouyang and X.M. Zhang	244
Simultaneous Optimization of Multiple Quality Characteristics in Electrical Discharge Diamond Cut-Off Grinding (EDDCG) S.K.S. Yadav and V. Yadava	250
Models for Component Commonality in Multistage Production M.A. Wazed, S. Ahmed, N. bin Yusoff and N. Ale Ebrahim	258

Performance Analysis of an Otto Engine with Ethanol and Gasoline Fuels R. Ebrahim	267
Effect of Ethanol-Air Equivalence Ratio on Performance of an Endoreversible Otto Engine R. Ebrahim, M.R. Tadayon, F.T. Gandomkari and K. Mahbobian	273
Effect of Plasticizers on Ion Transport Properties of PEO+NH₄PF₆ Polymer Electrolyte System – Dielectric Studies K. Mishra and D.K. Rai	278
A Competition Chemostat with General Variable Yield and Growth Rates in the Presence of a Internal Inhibitor J.M. Luo and Y.M. Feng	285
RETRACTED: Studies of Asymmetric Hysteresis Loops and Leakage Current Behaviors in Pt/Al₂O₃/SiO₂/Si /PZT/Au Structures Prepared by MOCVD Method A. Masruroh and M. Toda	294
Stochastic Trajectories of Beads in the Galton-Board M. Nuñez, A.L. Villa, C.A. Vargas and A. Medina	299
Coexistence of Superconductivity and Magnetism R. Gill and P. Singh	310
Study of Adsorption Properties of O₂, CO₂, NO₂ and SO₂ on Si-Doped Carbon Nanotube Using Density Functional Theory M.R. Sonawane and B.J. Nagare	315
Preliminary Investigation on Atmospheric-Induced Stress Corrosion Cracking of British Intermediate Level Nuclear Waste Containers: Residual Stress Analysis and Four Point Bend Exposure Test Y.J. Janin, S.B. Lyon, J. Wintle, B. Holmes and C.M. Lee	321
Crake Effect on the Dynamic Characteristics of Elastically Coupled Beams S.A.M. Al-Said	328
The Effect of Pre-Ageing on the Mechanical Properties of AA6061 Sheet Products B. Mirzakhani and M. Mansourinejad	337
Macro Characteristics of the Spray from Intersecting Hole Nozzles X.Y. Leng, K.P. Qi, W.Q. Long and S.L. Wei	343
Free Vibration Analysis of a Fiber Reinforced Mindlin Plate by Using Ritz Method S.H.H. Hashemi and S. Fazeli	350
Characteristics of Lean and Stoichiometric Combustion of Compressed Natural Gas in a Direct Injection Engine R. Shahzad, P. Naveenchandran, A. Rashid and A. Aziz	357
Effects of Different Liquid Properties on the Characteristics of Impact-Generated High-Speed Liquid Jets A. Matthujak, C. Kasamnimitporn, W. Sittiwong and K. Pianthong	370
Cubic-Interpolated-Pseudo-Particle Method to Predict Dynamic Behaviour of Fluid in Shear Driven Cavity S.M.R. Attarzadeh, C.S. Nor Azwadi and F. Hagbin	377
Optimum Design of Guide Positions for Decreasing the Permanent Deformation of a Cockpit Module B.Y. Kim, C.M. Jeong, M.W. Suh, H.R. Kim and H.K. Kim	385
Boiling and Convective Heat Transfer Characteristics of Nanofluids S.M.S. Murshed, C.A.N. de Castro, M.J.V. Lourenço, M.L.M. Lopes and F.J.V. Santos	393
Transient Thermal Behavior of Hot-Mix Asphalt Pavement A.F. Khadrawi, A. Al-Shyyab and S.A. Abo-Qudais	400
Steady Hydrodynamics and Thermal Behaviors of Fluid Flows in Micro – Parallel Plates (Couette Flows) A. Al-Shyyab, S.E. Al-Lubani, M.M. Kwafha and A.F. Khadrawi	408
Determination of Mass Properties for the VX-SAT Communication Satellite J. Alvarez	415
A Comparative Study of Two Preconditioners for Solving 3D Inviscid Low Speed Flows K. Hejranfar and R.K. Moghadam	423
Effect of EGR on the Exhaust Gas Temperature and Exhaust Opacity in Compression Ignition Engines Using Jatropha Oil as Fuel A.P. Pandhare, K.C. Zende, A.S. Joglekar, S.C. Bhawe and A.S. Padalkar	431

The Influence of Different Turbulence Models on the FlowField Characteristics of an Aerospike Nozzle S. Noori and A. Shahrokhi	437
Crushing Behavior of Composite Hexagonal Ring System E. Mahdi and A.M.S. Hamouda	444
Star Grain Regression under Spin Induced Acceleration Effect H.T. Soe and H.J. Xiang	451
Effect of Acid Treatment on Silica-Titania Aerogel as Oxidative-Acidic Bifunctional Catalyst S.L. Lee, H. Nur and S.C. Wei	457
Dispersive Correction to Casimir Force at Finite Temperature L.P. Teo	465
CdS-Intercalated Bentonite: A Novel Sulfide Ion Selective Electrode K. Udomphan, A. Wongchaisuwat and L. Meesuk	472
Effects of N₂ Pressure on Properties of Titanium Nitride Films by Filter Cathodic Vacuum Arc for Bipolar Plates in PEM Fuel Cells D. Pejchang, M. Medhisuwakul and S. Sansongsiri	478
Characteristics of Shock Initiation of Single-Shell and Double-Shell Casing Charges X. Liu, Q.M. Zhang, Y.H. He and Z. Zhai	485
Coulomb and Exchange Interaction Effect on Magnetic Properties of MnO C. Thassana and W. Techitdheera	492
Nanoimprint Photonic Crystal Film Enhanced Light-Trapping in a-Si Thin Film Solar Cells W.P. Chu, F.S. Juang, J.S. Lin, T.C. Lin and C.W. Kuo	497
Electrical Characteristics Investigation of Transient Plasma Ignition Y.D. Lan and L.M. He	503
Silver Nanoparticles Supported on Ordered Mesoporous Carbon for Formaldehyde Electrooxidation L.B. Kong, R.T. Wang, X.W. Wang, Z.S. Yang, Y.C. Luo and L. Kang	508
Effect of Propanetriol on the Electrochemical Behavior of Nano Fumed Silica Gel C.F. Sun, F.L. Cheng, M.Q. Chen, M. Zhang and Z.Q. Cai	514
A Renewable Amperometric Immunosensor for hs-CRP Based on Functionalized Fe₃O₄@Au Magnetic Nanoparticles Attracted on Fe (III) Phthlocyanine/Chitosan-Membrane Modified Screen-Printed Carbon Electrode by a Magnet N. Gan, L.H. Meng, F.T. Hu, Y.T. Cao, Y.Z. Wu, L.Y. Jia and L. Zheng	519
Characterization and Cytotoxicity Studies of Mixed Cu-La-Ce Nanocomplexes Prepared by Coprecipitation Approach C.M. Hung	527
Chemical Bonding in Photocatalytic Niobates and Tantalates V.V. Atuchin, N.V. Pervukhina and Z.M. Zhang	534
Nanostructured Mesoporous Thick Films of Titania for Dye-Sensitized Solar Cells J. Wang and Y. Zhang	540
Synthesis of ZnO with Different Morphology and its Photocatalytic Property Y.X. Wang, J. Xu, X.G. Cheng, H.F. Xu and L.J. Liu	547
Magnetoresistance Effects for the Inhomogeneous Perovskite System of Ag Doped La_{0.833}Na_{0.167}MnO₃ J. Wu	553
Photocatalytic Activity of TiO₂ Nanotube Modified by Cobalt X.S. Yang and H. Kim	559
Photoluminescence and Raman Scattering of Cu-N Codoped ZnO Thin Films Z.Y. Lv, Y. Zhao, Z. Li, X.Y. Liang, Z.J. Hou, L.J. Wang and J.H. Min	565
Physical Property and Thermal Physical Property of Microencapsulated Phase Change Material Slurry Y.L. Zhang	571
A New Hydrogen Peroxide Biosensor Based on Hrp/Ag Nanowires/Glassy Carbon Electrode M. Zhang, F.L. Cheng, Z.Q. Cai and M.Q. Chen	577
Optical Properties of One-Dimensional Multi-Layered Structures Containing Plasma Materials B. Guo, M.X. Gao, L. Peng and X. Cai	585

Effects of Negative Bias on the Structure of Ti Film and its Adhesiveness to the Base by Plasma	
Q. Lai, S.H. Huang, D.J. Lan, M. Zou and X.P. Luo	592
Effect of Montmorillonite and Maleic Anhydride Grafted Polypropylene Content on Polypropylene/Wood Flour Composites	
H. Khanjanzadeh and T. Tabarsa	596
Hot Vacuum Tribological Properties of Chromium Nitride Coatings against Austenitic Stainless Steel Type AISI 316LN and Colmonoy	
A. Devaraju, A. Elayaperumal, S. Venugopal, S.V. Kailas and J. Alphonsa	600
Tensile Properties and Microstructural Evolution of Friction Stir Processed Extruded AZ31B Alloy	
S.R. Babu, V.S.S. Kumar, V. Balasubramanian and G.M. Reddy	606
Investigation and Modeling of Compaction Behavior of Plain Fabrics	
P. Ghabezi and M. Golzar	611
Wear Characteristics of Manganese Phosphate Coating with Oil Lubricant	
S. Ilaiyavel, A. Venkatesan, N. Nallusamy and T. Sornakumar	616
Behavior of Carbon and Nitrogen after Low Temperature Thermochemical Treatment on Austenitic and Duplex Stainless Steel	
A. Triwiyanto, P. Hussain and M.C. Ismail	621
Investigating the Effects of Varying Proportions of Waxes in Wax Mix on Surface Roughness and Optimization by Taguchi Method	
J.K. Katiyar, N. Yadav, N. Singh and V.K. Pal	627
Low Velocity Impact Analysis on GFRP Laminates under Different Temperatures	
K. Pazhanivel, G.B. Bhaskar, S. Arunachalam, V. Hariharan and A. Elayaperumal	632

Chapter 2: Casting and Solidification

Effect of Pressure on Structure and Properties of Lost Foam Casting of Al-11Si Cast Alloy	
A.A. Niakan, M.H. Idris, M. Karimian and A. Ourdjini	639
Analyzing Oscillating Input Flow around a Circular Cylinder	
B.G. Dehkordi and A. Mehrabadi	644
Comparison of Hybrid Rapid Mouldings for Zinc Alloy Castings	
R. Singh	653
Simulation Study of Two Alternative Workstations for Pressure Die-Casting Process	
P. Semanco, M. Fedak and M. Rimár	660
The Combine Effect of Copper and Nickel on Tensile Strength of Ductile Iron	
M.A. Sheikh	665
Comparison of PID and Fuzzy Controller for Automobile Suspension System	
N. Changizi, A. Zare, N. Sheie and M. Moghadas	671
Thermoeconomic Optimization of Cascade Refrigeration System Using Refrigerant Pair R404A-R508B	
A.D. Parekh, P.R. Tailor and N. Sutaria	677
A Genetic Approach for Optimization Design of Gear System in Co-Rotating Twin Screw Extruder	
W.G. Wen and H.J. Jia	685
Analysis of Smoke Agglomeration and Droplet Breakup in SRM	
C.L. Liu, Y. Gao and Z. He	691
Entrance Region Flow of Casson Fluid in a Circular Tube	
A. Kandasamy and R.G. Pai	698
Simulations of the FORMOSAT-5 Cold Gas Propulsion System by Using the Hybrid Continuum-Particle Method	
K.C. Tseng, Y.Y. Lian, Y.S. Chen, T.C. Kuo, B.R. Gu and J.S. Wu	707
A Novel Cupped Solid-State Wave Gyroscope	
T. Yi, X.Z. Wu, D.B. Xiao, X. Xi and Y.Q. Tan	715

Chapter 3: Powder Metallurgy and Ceramic Forming

Surface Modification Using Electric Discharge Machining (EDM) with Powder Addition A.A. Khan, M.B. Ndaliman, Z.M. Zain, M.F. Jamaludin and U. Patthi	725
Optimization of Alkaline Activator/Fly ASH Ratio on the Compressive Strength of Manufacturing Fly ASH-BASED Geopolymer M.M. Al Bakri Abdullah, H. Kamarudin, O.A.K.A. Abdulkareem, C.M.R. Ghazali, A.R. Rafiza and M.N. Norazian	734
Active Tendon Vibration Control of Cantilevered Beam Using Shape Memory Alloy (SMA) Actuators H. Hashim, A.R.A. Ghani, A.K. Makhtar, M.H.M. Ramli and M.N.A.A. Patar	740

Chapter 4: Surface, Subsurface and Interface Phenomena

The Effect of Cutting Parameters on Surface Integrity in Hard Turning S. Saini, I.S. Ahuja and V.S. Sharma	751
The Effect of Surface Roughness on Sursulf, Gas and Plasma Nitride Coatings on Austenitic Stainless Steel Type AISI 316LN A. Devaraju and A. Elayaperumal	758
Surface Plasmon Polaritons: Propagation Characteristics of Surface Plasmon Waves on Au and Ag at Optical Wavelengths N.P. Maity and R. Maity	764
Viscous Potential Flow Analysis of Rayleigh-Taylor Instability of Cylindrical Interface R. Asthana, M.K. Awasthi and G.S. Agrawal	769
Experimental Surface Profile of Dense Granular Media in Cylindrical Couette Flow A. Kumar	776
Numerical Analysis Supersonic Cavity Unsteady Flow O.Z. Liu and J.S. Cai	783
Bead Geometry Optimization of Submerged Arc Weld: Exploration of Weighted Principal Component Analysis (WPCA) A. Biswas, S. Bhaumik, G. Majumdar, S. Datta and S.S. Mahapatra	790
Methods for Creating Uniform Irradiance for LED Luminaries with the Use of Reflectors S.S. Chu, J.C. Hsu, C.M. Sevilla and C.H. Chiang	799
Effect of X-Ray Computed Tomography Scanning Parameters on the Estimated Porosity of Foam Specimens J. Kumar, A.H.G. Abulrub, A. Attridge and M.A. Williams	808
Workpiece Surface Generation with Wavelet Filtering Using CLSM	816
Temperature Field of Repetitive Laser Pulse Irradiation and its Effect on Laser Surface Hardening A. Gupta and A.K. Nath	823
A New Optical Technique for Surface Roughness Measurement of TiO₂ Thin Films C.C. Kuo and Y.R. Chen	831
Natural Convection in a Porous Medium Rectangular Cavity with an Applied Vertical Magnetic Field Using Lattice Boltzmann Method H.R. Ashorynejad, M. Farhadi, K. Sedighi and A. Hasanpour	839
Study of the Parameters in Electro-Discharge Diamond Face Grinding through Response Surface Methodology Approach G.K. Singh, V. Yadava and R. Kumar	847
Prediction of the Temperature of Enclosures for Nuclear Waste Disposal D. Singh	856
The Critical Current of the Superconductor Having an Array of Hole with de Gennes Boundary Condition Harsojo	862
Alfvén Surface Waves in a Partially Ionized Resistive Medium N. Kumar, V. Kumar and H. Sikka	867
Calculation of Viscosity Coefficient of Moderately Dense Fluids from the Modified SAFT-BACK Equation of State A. Maghari and S. Pourasad	874
Super Accelerated Flow in Diverging Conical Pipes G.J. Gutierrez, A.L. Villa, A. Torres, S. Peralta and C.A. Vargas	880

Effect of Vanadium Contaminated Fuel on Bond Coat and Bond Coat/Top Coat Interface of Thermal Barrier Coatings A. Khalid and Z.M. Gasem	886
Enhanced Sensitivity of Microcantilever Surface Stress Sensor P. Heydari and A. Shokuhfar	892
The Processing Method and Discuss of Curved Surface Based on Spatial Linkage Mechanism L.P. Xiao and W.J. Wei	899
Comparison of Different Bearing Couples of Hip Resurfacing Prostheses: A Finite Element Study A.Ç. Çilingir, V. Uçar and I. Çallı	904
Experimental Analysis of Wear and Friction Characteristics of Jatropha Oil Added Lubricants A.M. Liaquat, H.H. Masjuki, M.A. Kalam and A. Rasyidi	914
Inertial Flow Phenomenon Analysis on Piezoelectric Pump Y. Liu, Z.G. Yang and Y. Wu	920
Effect of Hydrostatic Pressure and Depth of Fluid on the Vibrating Rectangular Plates Partially in Contact with a Fluid K. Khorshidi	927
The Laminar Boundary Layer on a Moving Cylindrical Rod with an Applied Magnetic Field K.R. Jayakumar and A.T. Eswara	936
Investigation of Shielding Effectiveness Caused by Incident Plane Wave on Conductive Enclosure in UHF Band A. Keshtkar, A. Maghoul, A. Kalantarnia and N.E. Sadr	940
Optimal Design of Non-Monotonic Heat-Conducting Thin Adhesive Layer Based on Imperialist Competitive Algorithm	949
Find the Optimum Shape Design of Externally Pressurized Torispherical Dome Ends Based on Buckling Pressure by Using Imperialist Competitive Algorithm and Genetic Algorithm B. Abdi, H. Mozafari and A. Amran	956
Energy Saving Inverter Controlled Magnetic Jack C.N. Okoye, O.A. Nwaorgu, C.C. Awah and E.M. Tawada	965
Research on Interference of Electromagnetic Radiation on Micro-Strip Line H.Y. Wang and J.G. Li	971
A New Model for Constriction Resistance of Rough Contacts between Nominally Flat Surfaces J.F. Peng, J. Hong and Y. Zhuang	977
Determining of Infrared Transition of InN Film Grown on C-Plane Sapphire by Photorefectance D.P. Wang and L.W. Tu	985
High-Resolution TEM Observation of AlN/GaN Grown on Si Substrates L.S. Chuah, A. Mahyudin, Z. Hasan and C.W. Chin	991
Synthesis and Formation Mechanism of Solid and Hollow Alumina Microspheres at the Water-Oil Interface L.M. Zhang, L. Han, H. Zhang, S.S. Shen and W.C. Lu	997
Effect of Synthesis Condition on the Solubility of Surface-Modified Calcium Borate Nanoparticles X.H. Xu, Q.J. Xue, J.S. Li and L.F. Hao	1003
Coupling between Localized Surface Plasmons in Metal Nanoparticle Waveguides Z.N. Yin and S. Yang	1009
Surface Plasmon Polaritons Excited by Narrow Beam in Kretschmann Structure S. Yang and Z.N. Yin	1015
First Principles Study on the TiN/BN/TiN Interface B.J. Wang, F. Xie and K.J. Jia	1020
Self-Collimation in Square Lattice Two Dimensional Photonic Crystals with Ring-Shaped Holes Q. Xu, K. Xie and H.J. Yang	1024

Synthesis of Ag Core @ Au Shell Composite Nanoparticles by Spontaneous Deposit Au on the Surface of Ag Seeds	
Y.N. Dong, S. Dong, Z.F. Pan and M.L. Xu	1030
Surface Effects Considerations for the Design of Casimir Actuated Nanoswitches	
J.M.B. Ma, S.F. Asokanthan and L.Y. Jiang	1036

Chapter 5: Coatings and Surface Engineering

Research of Aerodynamic Performance of HP-Turbine with Coolant Injections for Variable Cycle Engine	
Z.G. Liu, X.J. Fang, S.Y. Liu, P. Wang and Z. Yin	1047
Exergetic and Energetic Response Surfaces for Small Turbojet Engine	
O. Turan and T.H. Karakoc	1054
Determining New Baselines of Wear Material in Diesel Engines, Using Oil Analysis Results	
A. Sayyah, M. Sayyah and S. Ramezani	1059
Integrating EIS and Wavelet Multi-Resolution Analysis; Part 1: Enhancing Monitoring of Nonconductive Coatings	
A.M. Gaouda, A.M. Abdrabou, O.A. Abuzeid and F.K. Omar	1065
Application of Fuzzy Rule-Based Model to Predict TiAlN Coatings Roughness	
A.S.M. Jaya, M.R. Muhamad, M.N. Abd Rahman and S.Z.M. Hashim	1072
A Computational Investigation of Thermal Effects on Resin Coating Flows in an Optical Fiber Drawing System	
K.J. Kim, H.S. Kwak and J.S. Choi	1080
Preparation of Amorphous Silicon Oxide Nanowires by the Thermal Heating of Ni or Au-Coated Si Substrates	
J.K. Ha and K.K. Cho	1087
Structural Changes of UHV Deposited Titanium Thin Films in Presence of Oxygen Flow and Temperature	
H. Kangarlou, M.B. Gharahasanloo, A.A. Saray and R.M. Gharabagh	1094
Investigation into Electrorheological Fluid-Assisted Polishing Optical Glass	
Y.W. Zhao, D.X. Geng, X.M. Iu and J.T. Zhang	1099
Research and Analysis of a Laser-Type High Temperature Pressure Sensor Based on SiC Diaphragm	
Y.Q. Hu, G.Q. Hu, S.X. Yi and J.W. Zhang	1107
Experimental Study of Relationship between Wave Interfacial Instabilities and Mechanical Strength of Three-Layer Polymer Structure	
M.M. Ranjbaran	1116
Computer Simulations of Galvanic Corrosion Behaviour of Zinc –Aluminium Based Composites Reinforced with Red Mud by Potentiodynamic Polarization Techniques Leading to Corrosion Control	
H.V. Jayaprakash, M.K. Veeraiah, P.V. Krupakara and C. Gireesha	1121
Research on Vibration-Reduced Characteristics for Dry-Friction Damping Material of Metallic Rubber	
Y.Y. Li and X.Q. Huang	1125
Study of the Distributed Ground-Tunnel Pressure Measurement and Control Method	
H.L. Wang, H.B. Dong, L.H. He and X.Q. Zhuang	1131
Effect of Dye Coating Duration on the Performance of Inverted Type Organic Bulk Heterojunction Solar Cell Based on Eosin-Y Coated ZnO Nanorod Arrays	
M. Yahaya, C.C. Yap and M.M. Salleh	1137

Chapter 6: Composite Materials

Acoustic Absorption Characteristics of Closed Cell Aluminium Foam	
J. Ghose, V. Sharma and S. Kumar	1145
Nonlinear Self-Excited Combustion Oscillations of a Premixed Laminar Flame	
D. Zhao	1150

Fatigue Life Assessment of Fastened Composite (FRP and CRP) Plates: A Comparative Study	1155
K.N. Pandey and Y.K. Tembhurne	
Computational Investigation of Delamination in HAT-Section Laminated Composite Components	1161
H. Soltani, S.M.M. Shakib, M. Asadi and M.K. Ramezani	
Micromechanical Analysis of Nonlinear Viscoelastic Unidirectional Fiber-Reinforced Composites	1166
H. Behzadpoor, S. Masoumi and M. Salehi	
Relationship between Interfacial Instabilities and Tensile Stress of Three-Layer (PP/HDPE/PP) Polymer Structure - An Experimental Study	1171
M.M. Ranjbaran	
Band Gap Optimization by Ga and S Additions in CuInSe₂ for Solar Cell Absorber Applications	1176
B. Munir and K.K. Ho	
Synthesis and Enhanced Proton Conduction in a 20 mol% Ytterbium Doped Barium Zirconate Ceramic Using Zn as Sintering Aid	1181
S.M.H. Rahman, I. Ahmed and S.G. Eriksson	
The Variations of Cu/Ga Ratio on the Structural and Optical Properties of Cu(In, Ga)Se₂ Thin Films by Co-Evaporation Technology	1187
H.I. Chen, J.C. Wang, C.H. Fang, Y.T. Liang, T.P. Hsieh, J.C. Chang and T.E. Nee	
Enhancement of Soil Thermo-Physical Properties Using Microencapsulated Phase Change Materials for Ground Source Heat Pump Applications	1191
P.K. Dehdezi, M.R. Hall and A.R. Dawson	
Fabrication and Thermo-Mechanical Analysis of Pure Silver-Electrode Ionic Polymer-Metal Composite (IPMC) Actuator	1199
D.K. Biswal, D. Bandopadhyaya and S.K. Dwivedy	
Effect of Ag Doping in 2205 Duplex Stainless Steel on Corrosion Resistance	1207
D.Y. Lin, S.M. Yang, Y.C. Chou, Y.Y. Fang and H.S. Wang	
Study of Wear Assessment and Optimization of Multiple Properties of Red Mud Filled Polyester Composites	1213
S.S. Mahapatra and S. Datta	
Composite Materials Damage Characterization under Quasi-Static 3-Point Bending Test Using Fuzzy C-Means Clustering	1221
F. Mohamad, H. Hossein, P. Farzad and M. Ahmadi Najaf Abadi	
Bending Analysis of Composite Sandwich Plates with Flexible Core Using 3D Finite Element Method	1229
M.M. Kheirikhah and S.M.R. Khalili	
The Effect of Nanotube Specifications on Multi-Scale Modeling of Nanocomposites	1237
S.M.R. Khalili and A. Haghbin	
Micropower Generators and Sensors Based on Piezoelectric Polypropylene PP and Polyvinylidene Fluoride PVDF Films - Energy Harvesting from Walking	1245
E. Klimiec, K. Zaraska, W. Zaraska and S. Kuczyński	
The Investigation of Electret Film Durability in Polyethylene Terephthalate (PET) from a Certain Angle of their Application as Pressure Sensors	1252
E. Klimiec, W. Zaraska, S. Kuczyński and M. Machnik	
Effect of Niobium/Molybdenum Microalloying on SS316LN Steel	1259
J.P. Dhal and S.C. Mishra	
Simulation BeSe Nanowires in Two Phases Zinc-Blende and Wurtzite Using Density Functional Theory	1264
M. Alimohammadi and A. Mokhtari	
DIP Coated Thick Films of SnO₂ and it's Ethanol Sensing Properties	1270
B. Bharath and G.P. Reddy	
Optimal Actuators Locations in Smart Fibre Reinforced Polymer Structures Using Genetic Algorithm	1278
D. Chakraborty, P.K. Rathore and T. Roy	
Sinterability and Mechanical Properties of MnO₂-Doped Y-TZP: The Effects of Holding Time Variations	1284
M. Amiriyan, M. Satgunam, S. Sivakumar, S. Ramesh and R. Tolouei	

Manufacturing of High Toughness Hydroxyapatite Produced by Wet Chemical Method R. Tolouei, S. Ramesh, C.Y. Tan, M. Satgunam and M. Amiriyan	1289
Numerical Analysis on Impact Behavior of Composite Sandwich Plates as Energy Harvesting Structures S. Khalili, S.M.R. Khalili and M. Amidpour	1296
The Effect of Quenching in Polymer and Addition of 0.1% Zr on Properties of Al-5.6% Zn-2.5%Mg-1.6%Cu Alloy J.M. Salman, K.F. Al-Sultani and S.A. Abedulsada	1305
Mechanical Properties Analysis on Elongation Type of Pneumatic Artificial Muscles D.X. Geng, J. Zhao, L. Zhang and Y.W. Zhao	1313
A Study of Basic Aluminized Propellants Characteristics A. Aziz and W.K. bin Wan Ali	1321
Effect of Abrasive Medium Ingredients on Finishing of Al Alloy and Al Alloy/SiC Metal Matrix Composites Using Rotational Abrasive Flow Finishing M.R. Sankar, V.K. Jain and J. Ramkumar	1328
Comprehensive Characterization of Large Piezoresistive Variation of Ni-PDMS Composites G. Canavese, M. Lombardi, S. Stassi and C.F. Pirri	1336
Study on Mixed-Mode Interlaminar Fracture of Laminated Composites X.L. Fan and Q. Sun	1345
An Energy Model for Fatigue Life Prediction of Composite Materials Using Continuum Damage Mechanics A. Movaghghar and G.I. Lvov	1353
Composite Materials Manufacturing Processes M.R. Khosravani	1361
Preparation of Jatropa Biodiesel Using Hydrotalcite Catalyst and its Performance on Diesel Engine A.P. Pandhare, S.G. Waghlikar, R.B. Jadhav Sachin Musale and A.S. Padalkar	1368
Effect of Quenching Media and Ageing Time on Al6061-Beryl Composites H.N. Reddappa, H.B. Niranjana, K.R. Suresh and K.G. Satyanarayana	1374
Effect of Oxidizer-Fuel Mixture Ratio to the Pressure Exponent of Ammonium Perchlorate Based Composite Propellant A. Aziz and W.K. bin Wan Ali	1380
Cooperative Sensitization on Silver Bromiodide (AgBr/I) Grains Emulsion by Oxalate and Sulfur-Plus-Gold W.J. Ma, X.M. Yang, Z. Li, Y. Shi and Y.Q. Li	1387
Investigation into the Electromagnetic Interference Shielding Effectiveness of Silicon Rubber Filled with Carbon Fiber Y.J. Hu, H.Y. Zhang, X.T. Xiao, F. Li, X.L. Cheng and G.H. Hu	1392
Theoretical Study on Cation Vacancy Induced Magnetism in Bulk ZnO P. Liang and L. Wang	1397
Study on the Sol-Gel Process of TEOS by React-IR H.H. Zhou, W. Xue, F. Li and Y.F. Qin	1401
Preparation and Properties of CdS Thin Films Deposited by Chemical Bath Deposition H.Y. Li, Y.L. Wang, S.L. Ban and Y.M. Wang	1406
Synthesis and Characterization of $Ce_{1-x}Zr_xO_2$ Nanoparticles E. Motyeian, H.R. Aghabozorg and H. Aghabozorg	1411
Study on Photocatalytic Degradation of X-3B by TiO_2 Nanotube Arrays F. Rong, J. Liu, Z.J. Zhang and D.G. Fu	1417

Chapter 7: Materials Forming

Ball Milling of WC-Co Powder as Injection Molding Feedstock S.Y.M. Amin, N. Muhamad, K.R. Jamaludin, A. Fayyaza and H.S. Yunn	1425
Finite Element Analysis of Formability of Metallic Sheets in High-Velocity Forming Processes S. Eskandari and B.M. Dariani	1431

Numerical Prediction of Forming Limit in Hemispherical Punch Bulging by Lemaitre's Ductile Damage Model	
F. Haji Aboutalebi and M. Nasresfahani	1437
Quality, Reliability and Maintenance (Q, R & M) Issues in Reconfigurable Manufacturing Systems (RMS)	
D. Srikanth and M.S. Kulkarni	1442
A Functional-Based Stack-up Design System for Stamping Dies	
B.T. Lin and M.R. Chang	1447
Bending Analysis of SMA Embedded Rectangular Laminated Sandwich Plates with Soft Core Using 3D Finite Element Method	
M. Khadem and M.M. Kheirikhah	1458
Improving the Quality of Thermoforming Process Using a Proposed Analysis Algorithm (A Case Study)	
M.S. Ibrahim, M.A.R. Mansour and A.M. Abed	1466
Investigation of Load Path Effect on Thickness Distribution and Product Geometry in the Bulge Hydroforming Process	
M. Elyasi, H. Khanlari and M. Bakhshi-Jooybari	1477
A Study on the Stability of a Mast Structure for Erecting a Large Crane	
H.H. Jung and C.S. Kim	1483
Anti-Windup Compensation for Embedded Cylindrical-Array Magnetic Actuator	
N.C. Tsai and R.M. Lee	1491
A Study on the Stability of Curvic Coupling for Distance to Disk in a Mill Turret	
J.W. Choi and C.S. Kim	1498
Drag Prediction on DLR-F6 Wing-Body Configuration	
Q.Y. Zheng and S.Y. Liu	1506
Numerical Simulation of Multi-Roll Stretch Forming Process with Different Lubrication and Rollers	
H.H. Zhang, M.Z. Li, W.Z. Fu and P.X. Feng	1512
Finite Element Study of the Effect of Canal Diameter on the Stress Distributions in Post-Core Restored Endodontically Treated Maxillary Incisor	
A. Kazemi, V. Khamesi and S. Hajimahamadi	1519
The Effect of Pressure Induced Hoop Stress on Bi-Axially Loaded through Wall Cracked Cylindrical Structures – A Strain Based Method	
M.V.N. Sivakumar, B.N. Rao and S.R. Satishkumar	1525
The Effects of Airfoil Camber on Flutter Suppression Regarding Timoshenko Beam Theory	
A. Rahi, M. Shahravi and D. Ahmadi	1531
Research on the Basic Mechanical Behavior of Masonry Structure	
L.Q. Chen	1539

Chapter 8: Machining

Near Time Optimal Path Control of Kinematically Redundant Manipulators with Bounded Joint Velocities and Torques	
M.H. Ghasemi, N. Kashiri, M. Dardel and M.H. Pashaei	1547
Multi Objective Optimization of Electro Discharge Machining of Resin Bonded Silicon Carbide	
R. Venkataraman	1556
Investigations on Tool Wear in Micro Ultrasonic Machining	
V. Jain, A.K. Sharma and P. Kumar	1561
Engineering Applications of Satellite Structural Optimization Utilizing ANSYS/CATIA	
J. Mao and W.H. Zhang	1567
Influence of Non-Uniform Sinusoidal Periodic Bottom Boundary Condition on Natural Convection in an Isotropic Porous Enclosure	
M.K. Khandelwal and P. Bera	1576
Design and Assembly of an Experimental Fixed Wing Remote Controlled Glider Plane	
S. Khatoon and D. Gupta	1582
Wind Tunnel Experiment for Low Wind Speed Wind Turbine Blade	
M.N. Mohd Hafiz, A.H. Ahmad Hussein, R. Helmi, W. Wirachman and S.N. Mohd	1589

A Solution about Shifted of the Involute Spline Base on some Mechanical Transmission H.W. Yan, L.X. Sun and J. Liu	1594
Synthesis of ZnO by Mechanical Activation and Make the Varistor M.R. Mehran	1599
Noise Reduction of the Transient Electromagnetic Weak Signal under Strong Noise Based on Power Detection of EMD G.F. Wang, P. Deng, F.Q. Zhang and J.C. Ye	1606
Effect of Periodicity of Non-Uniform Sinusoidal Side Heating on Natural Convection in an Anisotropic Porous-Enclosure S. Kapoor and P. Bera	1613
A Continuous Control of Cutter Posture Change for Efficient 5-Axis Machining of Impeller H.C. Jung, J.D. Hwang, K.B. Park and Y.G. Jung	1619
Cutting Performance of Turning Insert with Three-Arcs-Shaped Finishing Edge T. Wada, K. Hiro and N. Jun	1630
A Digital System Implement for Aircraft Sheet Metal Cutting C.L. Lai, C. Liu and X.J. Zhang	1637
Investigation of Process Capability of a Reaming Operation Using Statistical Tools A. Kukreja, A. Monga and P. Khanna	1643
Parametric Optimization in Electrochemical Machining of EN-31 Steel Based on Grey Relation Approach A.V. Gopal and D. Chakradhar	1649
Effects of Coolants on Improving Machining Parameters while Mach-Inability Titanium Alloy (Ti-6Al-4V): A Review M.H. Ali, R. Balasubramanian, B. Mohamed and B.A. Khidhir	1657
Optimum Length for Pin Fins Used in Electronic Cooling M.P. Mafeed, A.M. Salman, C. Prabin, M.K. Ramis, M.A. Ali Baig and S.A. Khan	1667
Capability of Advanced Abrasive Waterjet Machining and its Applications M.C. Kong and D.A. Axinte	1674
Performance Measurement and Data Analysis of Material Removal Rate for Wire Cut Electro Discharge Machining Process V. Parashar, A. Rehman and J.L. Bhagoria	1683
Multi Response Optimization of the Hole Punching Process Parameters in the Leaf Spring Assembly Using the Grey Taguchi Method and Simulated Annealing Algorithm G. Gopalaramasubramanian and K. Zhu	1691
Determination of Stress Distribution around Two Carbon Nonotubes Embedded in Infinite Metal Matrix Using Nonlocal Theory of Elasticity S.A. Niaki and R. Naghdabadi	1696
Symptom Based Analysis for Carpal Tunnel Syndrome in Assembly Line Workers Using ANOVA with Orthogonal Array M. Kumar, R. Beri, A.S. Arora and R. Kumar	1701
Experimental Investigation and Finite Element Analysis on Electromagnetic Compression Forming Processed Aluminum Alloy Tubes S. Rajiv, K. Shanmuga Sundaram and P. Pasquale	1706
A Framework for a Feature Based Machining Using Macro M. Al'Hapis, A. Razak and A. Zakaria	1711
Fabrication of Sn-Doped ZnO Varistor by Solid State Processing N. Yongvanich, P. Visuttpitukul, W. Assawasilpakul, W. Srichan and N. Sungsuwan	1716
A New Design for the Shuttle Fuel Tank G.Z. Ranjbar and H.R. Khoubdeh	1721
The Study of Column Separation in Pumping Stations M.H. Sadafi, A.R. Riasi and A. Nourbakhsh	1725
Determination of Ascorbic Acid Based on a Platinum Nanoparticles Modified Au Electrode J.H. He, Q. Xu, Z.R. Song and H.Y. Kuang	1732
Preparation of Strontium Ferrite Powders by Mechanochemical Process J.H. Luo	1736
Comparison of Welding Distortions between TIG and MIG Welding Technique in Pipes S.M. Naghavi, A. Darvizeh and R.A. Khalkhali	1741

Hydroforming Developments: Insights of other Researchers E. Pavithra and K. Zhu	1748
Numerical and Experimental Investigation of Influence of Weld Line Orientation on Formability in Deep Drawing of Tailor-Welded Blanks B. Zaker and M. Loh Mousavi	1753
Briquetting of Saw Dust P. Jha and P. Yadav	1758
Improved Mayr Model of Electrical Arc Furnace to Analyse Harmonic A.M. Zare Zadeh and R. Ghandehari	1762
Bioethanol Production from Sweet Potato Using Combination of Acid and Enzymatic Hydrolysis E.P. Lily Surayya, Nasrulloh and H. Abdul	1767
An Experiential Optimization Design Method for Orthogonal Rib-Stiffened Thin Walled Cylindrical Shells under Axial Loading J. Mao, Y.F. Chen and W.H. Zhang	1773
Effects of Injection Initial Conditions and Length-to-Diameter Ratio on Fuel Propulsive Droplets Sizing in a Duct M.M. Doustdar, M. Mojtahedpoor and M. Wadizadeh	1784
ANFIS for Predicting Surface Roughness in Turning Operation Performed on CNC Lathe M.A. Vinod Kumar	1793
Indian and International Scenario on Research in Thermal Error Minimization in CNC Machine Tool S.S. Honnungar, V. Prabhu Raja, P.R. Thyla and M. Thirumalaimuthukumaran	1799
Study on Kerf Width in Wire-EDM Based on Taguchi Method K.S. Abinash, R. Siddhartha and N.K. Mandal	1808
Multi-Objective Optimization of Die-Sinking Electric Discharge Machining P.S. Bharti, S. Maheshwari and C. Sharma	1817

Chapter 9: Nanomaterials and Nanomanufacturing

Effect of Internal Heat Source on the Onset of Convection in a Nanofluid Layer Dhananjay, G.S. Agrawal and R. Bhargava	1827
Fluidization Behavior of Alumina Nano-Particles T. Vaidya	1833
Modeling and Simulation of Nano Structures Based on Molecular Dynamics A.K. Hoshier, H.R. Fard, M.M. Kheirikhah and H.R. Fard	1841
Influence of TiO₂ and ZrO₂ Nano Particles Addition in Al₂O₃ Base Coating Using Plasma Spraying N. Dejang and S. Jiansirisomboon	1849
Performance Evaluation of PCD 1300 and 1500 Grade Inserts on Turning A356 Alloy with 20% Reinforcement of SiC Particles K. Kaarmuhilan, S. Karthika and N. Muthukrishnan	1855
Molecular and Electronic Structure of 1-Naphtol : <i>Ab Initio</i> Molecular Orbital and Density Functional Study G. Raja, K. Saravanan and S. Sivakumar	1862
Thermoelastic Damping in Clamped-Clamped Annular Microplate N.A. Ali and A.K. Mohammadi	1870
Study on the Thermal Characteristics of Heat Pipes with Water-Based MWCNT Nanofluids H.J. Ha, J.H. Park and S.P. Jang	1879
Study on First-Principles of Nano-Materials Named Manganese Oxide G.L. Lu, X.L. Wu, Z.B. Li and J.H. Yang	1886
Performance Analysis of Nanoscale Double Gate MOSFETs with High-κ Gate Stack E. Farzana, S. Chowdhury, R. Ahmed and M.Z. Rahman Khan	1892
Synthesis of Silver Nanoparticles by a Sonochemistry Method Useful for Two-Dimentional Nanoparticle Arrays Z.J. Zhang, J.P. Li, W.J. Ma and L.Z. Wu	1900

Preparation of Nano-Ru/[Bmim][BF₄] Catalyst and its Application in the Benzene Selective Hydrogenation	
J.F. Wei, Y.J. Wang, J. Li and W. Xue	1906
Visible-Light Driven BiFeO₃ Nanosized Photocatalysts Prepared by a Sol-Gel Process	
P.S. Tang, H.F. Chen, F. Cao, G.X. Pan, M.H. Xu, K.Y. Wang and Y.H. Tong	1912
Low Temperature Growth of Patterned ZnO Nanowires and their Field Emission Characteristics	
Y.A. Zhang, J.Y. Lin, C.X. Wu and T.L. Guo	1918
Anisotropic Nanocomposite Hydrogels with High Mechanical Strength Using Hydrophilic Reactive Microgels and Self-Assemble	
X.P. Qin, F. Zhao and S.Y. Feng	1923
One-Step Hydrothermal Synthesis and Characterization of ZnO Nanopowders	
Y.X. Wang, X.Y. Li, J. Sun and Y.H. Hu	1928
Preparation of TiO₂ Nanopowders by Non-Hydrolytic Sol-Gel and Solvothermal Synthesis	
Y.X. Wang, M. Xu and J. Sun	1934

Chapter 10: Biomedical Manufacturing

A Comparison of Kinetic Modeling of Fermentable Sugar Production from Walnut Green Skin as a Source of Energy	
A.A. Nodeh	1943
Efficient Feature Selection Model for Gene Expression Data	
P. Saengsiri, S.N. Wichian and P. Meesad	1948
Efficacy and Safety Testing of a New Biologically Based Design Ankle Foot Orthosis in Healthy Volunteer	
M.N.A. Bin Ab Patar, H. Ramli, J. Mahmud and A.H. Yusof	1953
Effect of Plant in Two Atrium Building Comfort: Report on Two Field-Monitored Case Studies	
M. Kazemzadeh and M. Tahbaz	1958
Thermal Study of the Nickel Ion Interaction with Myelin Basic Protein	
M. Mirzaie and G.R. Behbehani	1963
Thermal Study of Lysozyme Binding with β-Cyclodextrin	
G.R. Behbehani and L. Barzegar	1966
Thermal Investigation of P-Phenylene-Bis and Phenyl Dithiocarbamate Binding to Mushroom Tyrosinase	
G.R. Behbehani and M. Mehreshiagh	1970
Productivity Improvement in Plastic Bag Manufacturing through Lean Manufacturing Concepts: A Case Study	
T. Yesmin, M. Masuduzzaman and A. Zaheer	1975
Corrosion Problems in Sugar Factories in Mauritius	
L. Tengur and B.Y.R. Surnam	1983
Fuzzy Based Automatic Insulin Injector Simulation Aided by Online Doctor Consultation Using LabVIEW	
K.A. Sunitha, N.S. Kumar, K. Prema, G.S. Deepthi and J.E. Belinda.E	1990
A Mathematical Model for Indigenous Microbial Enhanced Oil Recovery in Anaerobic Metabolic Process	
J.L. Xiu and L. Yu	1996
Impact Deposition of Radon Progeny (²¹⁸Po, ²¹⁴Po and ²¹⁰Po) on the Surface of Human Blood: <i>In Vitro</i> Study	
A.H. Ismail and M.S. Jaafar	2004
Development of a Portable Drug Delivery System Using Iontophoresis for Alopecia Treatment	
Q. Wei, D.G. Hwang, Z.M. Ud Din and J.H. Cho	2010
ILL Effects of Tuberculosis Drugs: No More a Problem	
Aishvarya, V. Gupta, M. Preet and K. Punyani	2015

Chapter 11: Environmentally Sustainable Manufacturing Processes and Systems

Multi-Objective Approach in Exergoeconomic and Environmental Optimization of the Gas Turbine Cycle S. Ranjbar, H. Ajam and M. Eslamirasekh	2023
Weibull and Hargreaves Methods to Determine the Wind and Solar Energy – Case Study A.N. Syafawati, I. Daut, M. Irwanto, S.S. Shema, Z. Farhana, N. Razliana, C. Shatri and Z. Arizadayana	2030
Maximum Power Point Tracking for Solar PV System S. Gupta, S. Kalika and R.C. Luisito	2034
Water Consumption Reduction by Application of Treated Hygienic Sewage of Yazd Combined Fuel Power Plant to Irrigate the Green Space, Iran R. Nezakati, N. Dehghan, F.F. Majd and M. Dehdashtian	2038
Wastewater Treatment for a Sustainable Future: Overview of Phosphorus Recovery S. Muryanto and A.P. Bayuseno	2043
Controlling CO₂ Emissions from Power Plants: A Environmental View S.G. Kotakar and R. Navthar	2049
Nuclear Fusion and the Moon as a Source of Power for the World - Possibility of ³He Fusion and the International Quest for the Moon U. Guven and P. Kuchhal	2054
Application of Lean Tool (Value Stream Mapping) in Minimisation of the Non-Value Added Waste (A Case Study of Tractor Industry) P. Singh and H. Singh	2062
Effects of Wind on Hot Air Recirculation (HAR) Behavior L. Borghei and R.H. Khoshkho	2067
Zero Energy Building M. Reza Afshari Basir and N. Afshari Basir	2075
Using Solar Energy in Building from the Viewpoint of Sustainable Architecture N. Afshari Basir and M. Reza Afshari Basir	2081
Transfer of Lean Manufacturing to China – Lessons from Two German-Chinese Production Plants M. Bollbach	2087
Performance Evaluation of Quality Drying in a Natural Convection Grain Dryer S.S. Mohapatra and P. Mahanta	2094
Dual Fuel Performance Studies of a Small Diesel Engine Using Green Fuels B.B. Sahoo, N. Sahoo and U.K. Saha	2101
Effects of Water and Steam Injection on Thermodynamic Performance of Gas-Turbine Systems K.H. Kim	2109
Vortex Induced Vibration for Aquatic Clean Energy	2117
Phosphoric Acid Effect on Prepared Activated Carbon from Saudi Arabia's Date Frond Waste A.R. Yacob and H.M. Al Swaidan	2124
The Effect of H₂S on Hydrogen and Carbon Black Production from Sour Natural Gas M. Tazimi, S.M. Javadi and S.S. Nabavi	2131
On the Characteristics of a Novel Floating Sub-Atmospheric Solar Water Desalination System H.M. Pour and M. Ashjaee	2139
A Novel Method to Identify the Nox Emissions of Commercial Aircraft during Descent E.T. Turgut	2148
Analysis of Energy and Exergy of an Annealing Furnace M. Hasanuzzaman, R. Saidur and N.A. Rahim	2156
A New Approach to Exergy Analyses of a Hybrid Desiccant Cooling System Compares to a Vapor Compression System S. Khosravi, Y.H. Yau, T.M.I. Mahlia and M.H. Saidi	2163

An Experimental Study on Banana Drying Using a Combined Rejected Heat from Split-Type Air Conditioner and Solar Energy T. Wessapan and B. Theerapong	2170
A Method for Generating Electricity by Fast Moving Vehicles S. Bharathi, G. Balaji, V.A. Saravanan and S. Suresh	2177
Research on Injection-Production System's Effectiveness of Completely Fractured Well Arrangement H.L. Liu and W. Xiong	2183
Electronic Structure of h-WO₃ and CuWO₄ Nanocrystals, Harvesting Materials for Renewable Energy Systems and Functional Devices V.V. Atuchin, I.B. Troitskaia, O.Y. Khyzhun, V.L. Bekenev and Y.M. Solonin	2188
PI Controller Based for Frequency Control in a Smart Grid with Solar Cell System A.J. Shahrood, A.H. Viky, S.M.M. Tafreshi and A.S. Lahiji	2194

Chapter 12: Rapid Manufacturing Technologies

Technical Development on Rapid Green Silicone Rubber Mold C.C. Kuo, Z.Y. Lin and W.L. Tsai	2201
The Analysis and Improvement of Hydraulic Control System of Sealant-Spreading Machine C.X. Ju and F.G. Li	2206
Utilization of Advanced Manufacturing Technologies in an Indian Manufacturing Enterprise H. Singh and J.S. Khamba	2210

Chapter 13: Nontraditional Manufacturing

The Development of Very Light Jet with Unconventional Arrangement S.Z. Md Dawal, T.Y. Tmys, Y. Khairi, N. bin Yusoff and A.Y. Aznihar	2219
An Exact Solution of Unsteady MHD Free Convection Flow of a Radiating Gas Past an Infinite Inclined Isothermal Plate N. Marneni	2228
Experimental Evaluation of Cooking Oil (Carotene Oil) as Biodiesel Blended on Compression Ignition (CI) Engine A.R. Norwazan, A.K. Zulkiffli and M.S. Abd Rahim	2234
Research of Configuration Design for Supercavitating Vehicles M.D. Lin, F. Hu, W.H. Zhang and Z.Y. Ma	2239
Optimization of Support Material and Build Time in Fused Deposition Modeling (FDM) P.K. Gurralla and S.P. Regalla	2245
Usage of Nuclear Reactors in Space Applications - Space Propulsion and Space Power Concepts V. Gurunadh and U. Guven	2252
Developing the Proper Form of Objective Function to Be Applied in Gradient Optimization Technique for Designing Continuous Radiation Ovens R. Mehdipour, C. Aghanajafi, A. Ashrafizadeh and Z. Baniamerian	2260
A Systematic Design of Tilting Pad Journal Bearing for a 1.2MW Turboblower H. Jo, C. Kim and S. Cho	2268
Application of Homotopy Perturbation Method for Harmonically Forced Duffing Systems X.M. Zhang, B.L. Wang, X.R. Kong and A.Y. Xiao	2277
Adaptive Nonlinear Teleoperation with Time Delay Using Modified Wave Variable Based Controller W. Xiong, H.H. Ju and H.Y. Liu	2284
Producing Hydrogen through Electrolysis M.M. Amirabad, A.M. Amirabad, J. Khodagholizadeh and A.A. Naeimi	2296
Progress on Reflective Terahertz Imaging for Identification of Water in Flow Channels of PEM Fuel Cells P. Buaphad, P. Thamboon, C. Tengsivattana, J. Saisut, K. Kusoljariyakul, M.W. Rhodes and C. Thongbai	2301

Facile Enrichment and Photocatalytical Degradation of Low Concentration MB in Aqueous Solution	
L.X. Zhang and X.L. Wang	2308

Chapter 14: Modeling, Analysis and Simulation of Manufacturing Processes

Design of Compliant Mechanisms of Distributed Compliance Using a Level-Set Based Topology Optimization Method	
Y. Wang and Z. Luo	2319
Design a Fuzzy Logic Based Speed Controller for DC Motor with Genetic Algorithm Optimization	
N. Changizi, M. Moghadas, M.R. Dastranj and M. Farshad	2324
Dynamic Analysis of Sandwiched Composite Foldable Structure under Heavy Vehicle Load	
N.M. Nor, S.T. Agusril, M.Y. Alias, A.M.A. Zaidi and A. Shohaimi	2331
Investigation of Geometrical Defect of AA6061-T4 Cold Embossing Using FEM	
A.B. Abdullah, S.M. Sapuan, Z. Samad, H.M.T. Khaleed and N.A. Aziz	2337
Dynamic Analysis of the Bioprosthetic Heart Valve on Different Fixation	
X. Ye, Q. Yuan, H. Cong and S. Wang	2342
Identification of Replica Modes in Integrally Bladed Rotor	
R.N. Mubarak and J.Y. Chang	2348
Study of Development Status and Future Development Proposals for Pulse Solid Rocket Motor	
C.G. Wang, H.C. Liu, D.M. Yang and C. Chen	2354
Determination of Flow Characteristics and Turbulent Heat Transfer in a Ribbed Roughened Square Duct, Part 1: Turbulence Models	
A. Etminan, H. Jafarizadeh, M. Moosavi and K. Akramian	2359
Determination of Flow Characteristics and Turbulent Heat Transfer in a Ribbed Roughened Square Duct, Part 2: Numerical Simulations	
A. Etminan, H. Jafarizadeh, M. Moosavi and K. Akramian	2364
A Method for Simulation of a Cryogenic Liquid Propellant Engine	
M. Chitsaz, E.A. Tahmasebi and H. Karimi M.	2370
Experimental Investigation of Oil Film Thickness for Hydrodynamic Journal Bearings	
R. Navthar and N.V. Halegowda	2377
Comparison between Multiobjective Population-Based Algorithms in Mechanical Problem	
H.E. Radhi and S.M. Barrans	2383
Exergetic Destruction Effects of Operating Conditions on the Turbojet Engine Components	
T.H. Karakoc and O. Turan	2390
Dynamic Parameter Identification Using Ambient Response Analysis and Ibrahim Time Domain Approach: A Case Study on a Steel Plate Structure	
M.A. Anuar, L. Roslan and A.A. Mat Isa	2395
Transverse Vibration of Non-Uniform Euler-Bernoulli Beam, Using Differential Transform Method (DTM)	
K. Torabi, H. Afshari and E. Zafari	2400
Analytical Study on Wear Interaction between Rail-Wheel	
Windarta and M. Bin Sudin	2406
Finite Element Analysis of Corroded Truck Chassis Using Sub Modeling Technique	
O. Kurdi, R.A. Rahman and M.N. Tamin	2411
Analysis on Dynamic Fault Tree Based on Fuzzy Set	
L.P. Yang	2416
Analysis of Sustainable Development of Inner Mongolia Wind Power	
H.J. Zhai, H.H. Qiao and G.Q. Wang	2421
Modeling and Analysis for Powertrain Dynamics of Electric Vehicle Systems	
G. Park, S. Lee, S.H. Jin and S. Kwak	2426
Finite Element Stress Analysis of Optical Fiber due to Mechanical Expansion of Hydrogel Coating	
I. Yulianti, A. Sahmah M. Supa'at, S.M. Idrus, O. Kurdi and M. Ridwanto S. Anwar	2432

Wide Input Voltage Range 2kW Flyback Resonant Converter Design for Wind Turbine W. Thitayanuwat and B. Neammanee	2437
Adaptive Decision Making Algorithm for Protection of Series Capacitor Compensated Line M. Kumar and H.O. Gupta	2442
Modeling and Optimization of Heat Recovery Heat Exchanger G. Kaviri, M.N. Mohd Jafar and M.L. Tholudin	2448
Electrical Simulation and Characterization of Shunts in Solar Cells R. Gupta, P. Somasundaran and D.K. Nandi	2453
Modeling and Simulation of a Moving-Coil Linear Generator I. Fazal, K.S. Rama Rao and M. Noh Karsiti	2458
Modeling and Simulation of Moving Iron Linear Generator (MILG) I. Fazal, M. Noh Karsiti, K.S. Rama Rao and S.A. Zulkifli	2464
Design and Construction of Pic-Based Excitation Control System for Generator M.M. Ohn and M.H. Thwe	2469
Implementation of New Fission Barrier Model in TALYS Code Y.S. Perkasa, A. Waris, R. Kurniadi and S. Zaki	2475
The Design and Simulation of Wind Turbine Grid Controller L. Ping, K.F. Zhang and Y.L. Xiong	2481
CFD Simulating Research of Integrated Solar Building Skin Y. Yang and Z.M. Li	2487
Development of Object-Oriented Direct Simulation Monte Carlo Code for Modeling of Rarefied Flow around Geometries of Arbitrary Shapes S. Jain and P. Ramachandran	2491
Contribution to Rolling Bearing Reliability Modeling Z. Vintr and M. Vintr	2497
Design and Manufacturing of Sun Motion Simulator Applied to Satellites Attitude Determination F. Kermanshahi, M.H. Mohajerani, M.H. Babini and M. Mortazavi	2504
Suboptimal Guidance and Control Design for a Missile with Onboard Strapdown Seeker N. Singh and M. Sinha	2513
Active Flow Control over the Car D.K. Singh and G. Bandyopadhyay	2521
Flow Maldistribution in a Simplified Plate Heat Exchanger Model - A Numerical Study N. Pawar and R.S. Maurya	2529
A Modified Wave Approach for the Calculation of Natural Frequencies and Mode Shapes of the Rods with Variable Cross Section M.K. Arani, N.R. Saleh and M.N. Bahrami	2537
Modeling and Analysis of the Grinding Parameters P.S. Shinde	2548
Improved Air Turbo Rocket for Space Applications Application to Orbital Vehicles and Reentry A. Dimri and R. Matai	2554
Gear Fault Identification Using Artificial Neural Network and Adaptive Neuro-Fuzzy Inference System A. Soleimani	2562
Experimental Study of Cloud Formation K. Chatterjee, R. Kashyap and J.H. Arakeri	2570
Simulation of the Mathematical Model of a Quad Rotor Control System Using Matlab Simulink M. Akhil, M.K. Anand, A. Sreekumar and P. Hithesan	2577
Complete Powertrain Torsional Vibration Simulation and Correlation with Physical Measurement M. Naser Farooqui and C.S. Wagle	2585
Orthogonal Test Design and Numerical Simulation of 100QJ10 Type Deep-Well Pump L. Zhou, W.D. Shi and W.G. Lu	2590
Empirical Modeling of Turning Parameters Using Grey Relational Analysis L.B. Abhang and M. Hameedullah	2596

Design of Experimental Platform to Simulate Spacecraft Dynamics M. Thangavel, Dean, M. Aravinth, K.R.S. Gouthamraj, M. Gopalakrishnan and D. Manikandan	2604
Computational Aero Elastic Modelling of Airframes and Turbo Machinery H. Prasanth L. and S. Vivek	2612
Structural Aspect of Symmetry and its Effect on Generation of Planetary Gear Trains I. Rajasri, A.V.S.S.K.S. Gupta and Y. Rao	2619
Analysis of a Complex Shape Chain Plate Using Transmission Photoelasticity N. Dasari and K. Ramesh	2623
Design Anemometer with Transistor H.K. Sharifabad, O. Mirzaei and M.H. Talebi	2628
Optimization of Non-Uniform Optical Waveguide in MOEMS Accelerometer G. Shanbag, N. Venkatesh, V. Varsha and T. Srinivas	2631
Numerical Modeling and Design of Thermoelectric Cooling Systems R.Y. Jou	2639
Modeling and Control of Ultra Precision Positioning System for a Grating Ruling Machine Y. Shen, D.C. Liu, G.F. Lian, J. Guo and C.G. Zhu	2647
A Bayesian Method for Model Optimization in Structural Equation Models with Mixed Continuous and Ordered Categorical Data Y.X. Li	2655
Optimization of Highly Non-Linear Simulation Functions Using Improved Adaptive Response Surface Methodology M.S. Manesh, S.M. Motavallian and P. Fattahi	2662
An Efficient Stochastic Approximation Algorithm and Model Selection for a Class of Nonlinear Random Effect Models with Incomplete Responses L. Dai and Y.Z. Fu	2670
A New Approach for Simulation of Annular Two-Phase Flow Considering the Four Involved Mass Transfer Mechanisms (Annalytical Concept)	2677
FEA of Residual Stresses in Butt Welded Type Low Carbon Steel Using MMAW Technique G.S. Brar and G. Singh	2686
Sedimentation Load Analysis Using ANN and GA D.K. Ghose, P.C. Swain and S.S. Panda	2693
An Interpretive Structural Modeling Approach for Analysis of Interactions among the Barriers in Reverse Logistics S.K. Sharma, S.S. Mahapatra, B.N. Panda and S. Sahu	2699
Three Dimension Finite Element Model for Neck-Spinning Process of Tube at Elevated Temperature C.H. Huang, C.H. Hung, J.C. Hung and C.R. Lin	2708
A Study of Springback in U-Bending Process Using the Finite Element Simulation and Experimental Approach M. Elyasi and V. Daiezadeh	2717
Forming Force Analysis in Fine-Blanking Process by Experimental Approach and Analytical Formulation V. Daiezadeh, M. Elyasi and M. Mollaei	2723
Dynamic Modeling of Energy Efficient Crab Walking of Hexapod Robot S.S. Roy and D.K. Pratihari	2730
Real-Time Computer Simulation of Three Dimensional Elastostatics Using the Finite Point Method P. Kirana Kumara and A. Ghosal	2740
Thermal and Coolant Flow Computational Analysis of Cooling Channels for an Air-Cooled PEM Fuel Cell W.A.N.W. Mohamed, M.F. Remeli, A.H.A. Hamid and R. Atan	2746
Numerical Simulation of Cavitation and Aeration in Discharge Gated Tunnel of a Dam Based on the VOF Method R. Jalalabadi and N.M. Nouri	2754
Running Model for a Compliant Wheel-Leg Hybrid Mobile Robot by Using a Mass-Spring Model Y.S. Kim and D.H. Shin	2762

Modeling and Simulation of a Freeze Concentration Technique for Sugarcane Juice Concentration	2768
A.B. Sahasrabudhe, R.R. Desai and S.K. Jabade	
Real Time Reliability Study of a Model with Increasing Failure Rates	2774
M. Sharifi, E. Hashemi and P. Farahpour	
Numerical Analysis of Thermoelastic Instability in Disc Brake System	2780
S.P. Jung, H.S. Song, T.W. Park and W.S. Chung	
A New Approach to Kinematics Modelling of Snake-Robot Concertina Locomotion	2786
A. Akbarzadeh, J. Safehian and J. Safehian	
Mode Analysis of End-Milling Process by Recursive Least Square Algorithm	2794
J.D. Kim and M.C. Yoon	
Finite Element Modeling of Natural Gas Pipeline Structure in Response to External Loads	2801
Y.Y. Al-Obaid	
Influence of Background Color on Visual Inspector Performance in 3-Dimension Simulation Model	2805
A. Watanapa, S. Kaewkuekool and S. Suksakulchai	
Heat Transfer Approach to Modelling and Analysis of Reverse Logistics Inventory Models	2811
N. Nahavandi, F.H. Rad and S. Farokhi	
Statistical Modeling Approach for Optimization of a Stationary Hook Hopper	2821
A. Kukreja, P. Chopra, A. Aggarwal and P. Khanna	
Analytical Solution for Centrifugal Force Effect in Functionally Graded Hollow Sphere	2829
M. Jabbari and A.H. Mohazzab	
FEM Modeling of Beams Cyclic Loading Based on Ziegler-Prager and Armstrong-Frederick Kinematic Hardening Models	2838
E. Hashemi, M. Sharifi and B. Farshi	
Effects of Cut-Off Ratio on Performance of an Endoreversible Dual Cycle	2847
R. Ebrahim, K. Mahbobian and F.T. Gandomkari	
Modeling and Calculation of the Algorithm Structure of Compound Semiconductor-Type A^3B^5	2854
K.A. Iskakova and R.F. Akhmaltdinov	
Research on Self-Similarity Network Traffic Modeling	2859
Y. Zhang and T.F. Yin	
Study on a Robust Optimization Model for Project Scheduling Policies	2866
Y. Zhang and T.F. Yin	
More Reliable Lifetime Distribution of System: A New Statistical Heuristic Model with Numeric Case Study	2872
M. Mahdavi and M. Mahdavi	
The Effects of Fuel Injection Angle and Injection Velocity on Propulsive Droplets Sizing in a Duct	2879
M.M. Doustdar and M. Mojtahedpoor	
Modeling Abrasion Resistant Materials by Modeling Large Sliding Frictional Contact	2888
S.M.J.T. Mousavi and S.M.T. Mousavi	
Instantaneous and Time-Averaged Flow Structure around Two Heated Square Cylinders in the Laminar Flow Regime	2896
A. Etminan and A. Barzegar	
Design of a New Biomimic Flow Pump Using SMA Actuators	2903
K.V.S.S.D. Prasanth and M. Sreekumar	
Influence of Training with and without Reward on Visual Inspector's Performance in 3 Dimension Model	2911
A. Watanapa, S. Kaewkuekool and S. Suksakulchai	
Derivation of Equal Area Criterion and its Application to Crack Tip Plastic Zone Analysis	2918
L.Y. Lan, C.M. Li, D.W. Zhao, C.L. Qiu and C.M. Li	
Multi Objective Optimization of Turning Process Using Grey Relational Analysis and Simulated Annealing Algorithm	2926
F. Kolahan, R. Golmezerji and M.A. Moghaddam	
Investigation of Effects of Changing Blade Position and Size Reduction on Performance of Axial Pump Used as Turbine	2933
A. Bozorgi, A. Riasi and A. Nourbakhsh	

Tip over Stability Analysis of a Three-Wheeled Mobile Robot Capable of Traversing Uneven Terrains without Slip T. Appala and A. Ghosal	2940
The Selection, Designing and Analysis of Heavy Duty Tractor Gearbox (ITM8200) M.R. Kamandar	2948
A New Mathematical Model Toward Project Selection-A Case Study H. Rafiei, F. Radmehr and M. Rabbani	2958
Modeling of Weld Dilution in Gas Metal Arc Welding Process Using Taguchi's Design of Experiments M. Aghakhani, E. Mehrdad, E. Hayati, M.M. Jalilian and A. Karbasian	2963
Failure Mode and Effect Analysis of a Thermal Power Plant for Enhancing its Reliability N.S. Bhangu, R. Singh and G.L. Pahuja	2969
Thermal Errors Modeling of a CNC Machine's Axis Using Neural Network and Fuzzy Logic S. Eskandari, B. Arezoo and A. Abdullah	2976
Modelling and Control Techniques for a Shorted Turn to Improve High Frequency Coil Response A.R.D. Stamp and B. Hanson	2983
Free Vibration Analysis of Functionally Graded Moderately Thick Annular Sector Plates Using Differential Quadrature Method S.H. Mirtalaie, M.A. Hajabasi and F. Hejripour	2990
Transient Radiative Heat Transfer Analysis of Turbid Tissues Subjected to Short-Pulsed Irradiations K. Kim and J. Kim	2999
Dynamic Modeling and Simulation for Battery Electric Vehicles under Inverter Fault Conditions G. Park, B. Son, D. Kum, S. Lee and S. Kwak	3007
An Insight into Combustion Process in a Spark Ignition Engine Using Three Dimensional Modeling M. Yousefi, F. Ommi and M. Farajpour	3016
Analysis of Radiative Heat Flux for Nozzle Flow S.N. Lee and S.W. Baek	3025
Comprehensive Study of Typical Metamodel Methods Applied in Aircraft Multidisciplinary Design Optimization T. Long and L. Liu	3031
Investigation of Various Parametric Geometry Representation Methods for Airfoils Y.P. Liao, L. Liu and T. Long	3040
Interpretive Structural Modeling (ISM) of Bolted Joint Subjected to Dynamic Loosening under Soft Foot Condition S.S. Kadam and S.G. Joshi	3047
Educational Software for Stress Analysis of an Aircraft Fuselage J.S.M. Ali, I.L.M. Kamal and N. Ismail	3054
Physical Simulation on Temperature and Pressure Fields during Steamflooding through Horizontal Wells in Heterogeneous Reservoir Y.Y. Luo and L.S. Cheng	3063
Elastic Exploring Law Analysis of the Deep Vuggy Reservoir B.H. Chang, J.N. Zhang, W. Xiong and S.S. Gao	3068
Modeling and Analysis of the Current Generated by Compensatory Anticathode in the Electric Fields Protection of Ship Q. Bian, Y. Liu, M. Zhang and F.J. Zhou	3074
The Special Chao and Singularity in a Simple Traffic Model X.R. Gao	3080
Study of Determining the Concentration of Hydrogen Sulfide in Air by Methylene Blue Spectrophotometric Method L. Tai and Y.X. Zhou	3086
Numerical Simulation for Part Effect of Ventilation of Extra-Long Road Tunnel S. Liu, G.L. Zhang and X.W. Liu	3092
Electron Spin in Quantum Hall Effect in $Al_xGa_{1-x}As$: D. C. Tsui's Data K.N. Shrivastava	3097

Reduced Master Equation for Modeling of Ferromagnetic Single-Electron Transistor S. Asgari and R. Faez	3103
3D Model of the Planetary System A. Shrivastava	3111
Feasibility Analysis of Gas Storage in JB Area Caprock Evaluation L. Shi and S.S. Gao	3117

Chapter 15: Meso/Micro Manufacturing Equipment and Processes

Fabrication of High Aspect Ratio SU-8 Microstructures on Piezoelectric Transducers N. Ramakrishnan, H.B. Nemade and R.P. Palathinkal	3127
Frequency Effect on SEU of D Flip-Flop P. Dong, L. Fan, H.C. Zheng and S. Yue	3132
Thermal Behavior of a Flow in a Pulsed Detonation Thermal Spraying Device M.K. Alkam and P.B. Butler	3138
Studies on the Effect of Approach Angle and Process Parameters in Face Milling R.T. Sadasiva, K. Satyanarayana, Y. Praneeth and A.V. Gopal	3147
Condensate Migration Dynamics into Porous Bed in a Nonperforated Chamber E. Siswanto, H. Katsurayama and Y. Katoh	3156
Tool Design and Speed Parameters Effects on Microstructure and Tensile Strength of Friction Stir Welding (FSW) 5052 Al Alloys G. Roudini, S.G. Shiri and M.M. Rahvard	3165
Prediction of Weld Bead Dilution in GMAW Process Using Fuzzy Logic M. Aghakhani, M.M. Jalilian and A. Karami	3171
The Leveling Position Control of a Four-Axial Active Pneumatic Isolation System Using PWM-Driving Parallel Dual-On/Off Valves M.H. Chiang and H.T. Lin	3176
The Solution of Lateral Heat Loss Problem Using Collocation Method with Cubic B-Splines Finite Element N. Bildik and D.D. Demir	3184
Influence of Thermal Simulated and Real Tandem Submerged Arc Welding Process on the Microstructure and Mechanical Properties of the Coarse Grained Heat Affected Zone S. Moeinifar	3191
Feature Selection of Acoustic Emission Signal for the Slow-Speed and Heavy-Load Equipment M. Li and J.H. Yang	3199
Study on Intelligent Control System of Mechanical Press H. Yang and X.H. Zhang	3204
Robust Control of DC Motor Using Fuzzy Sliding Mode Control (FSMC) A. Zare, M. Moghaddas, M.R. Dastranj and N. Changizi	3210
Fuzzy-Based Gas Turbine Engine Fuel Controller Design Using Particle Swarm Optimization M. Montazeri-Gh, E. Mohammadi and S. Jafari	3215
Energy Economical and Environmental Analysis of Industrial Boilers Using VSD A.E. Atabani, R. Saidur, A.S. Silitonga and T.M.I. Mahlia	3223
Experimental Investigation on Improving the Aerodynamic Performance of Swept Aircraft by DBD Plasma W. He, Z.G. Niu, B. Pan and Q. Lin	3234
Study on Intersection Criterion of MEFP Warhead to Target W.L. Yang and C.L. Jiang	3243
Study of Laminar Horseshoe Vortex Using Particle Image Velocimetry Z.Z. Oo, M.Y. Yamin, H. Zhang, M. Zaka and B. Hu	3249
Optoelectronic Properties of <i>Vanadyl phthalocyanine</i> Based Organic-Inorganic Hybrid Devices I. Murtaza, K.S. Karimov, M.H. Sayyad and I. Qazi	3255
Physical Parameters that Influence the Effectiveness of Ionizing Radiation at Low Doses A.A. Yousif, I.B. Bahari and M.S. Yasir	3261

Numerical Investigation of Droplets Breakup in a Microfluidic T-Junction A. Bedram and A. Moosavi	3269
Work around Moore's Law: Current and next Generation Technologies K.S. Mohamed	3278
Study of Two-Step Electroless Etched Si Nanowire Arrays C.B. Li, K. Fobelets and Z.A.K. Durrani	3284
Copper Indium Silicon Nanocomposite Thin Film Deposited by Magnetron Co-Sputtering J.S. Xie, J.H. Li and P. Luan	3289
Synthesis of some New Lariat Ethers as Molecular Motors A.G. Ebadi and S. Alami	3293
The Fixed Point and Hyper Order of Solutions of Higher Order Nonhomogeneous Linear Differential Equations with Meromorphic Function Coefficients J. Jin	3297
Effect of Casting Design to Microstructure and Mechanical Properties of 1 mm TWDI Plate J.W. Soedarsono and R.D. Sulamet-Ariobimo	3301

Chapter 16: Modeling, Analysis, and Simulation of Manufacturing Processes II

Generalized Early Voltage Model of Bipolar Transistors for Linearly Graded Germanium in Base X.B. Xu, H.M. Zhang, H.Y. Hu, J.L. Ma and L.J. Xu	3311
Quantum Spectra and Classical Orbits in Artificial Atom J. Lu	3316
Rotation Invariance for Spatial Dispersion Property of the Elastic Constants H.L. Wang and Y.H. Liu	3322
The Equivalent Numerical Simulation of Fractured-Vuggy Carbonate Reservoir X. Xu, S.S. Tian, T. Xu and Y.X. Su	3327
An Analytical Model for the Subthreshold Current of Fully Depleted Strained-SOI MOSFET S.S. Qin, H.M. Zhang, H.Y. Hu, X.B. Xu and X.Y. Wang	3332
Model of Electron Scattering of Strained Si /Si_{1-x}Ge_x (100) J.J. Song, H.Y. Wu, H.M. Zhang, H.Y. Hu and H.S. Shan	3338
PFCHA: A New Moving Object Tracking Algorithms Based on Particle Filter and Histogram Q. Yang and J.F. Jiang	3343
Optimized Design of Parameters for Wedge-Crystal Depolarizer J.H. Ge, Z. Chen, Y.F. Chen, C.Y. Chen, Y.F. Zhai, J. Zhang, Z. Sui, H.H. Lin, J.J. Wang and Q.H. Deng	3351
Phenomenological Model for Pyroelectric Effects of Nano Graded Ferroelectric Films H. Chen and T.M. Cheng	3358
Modeling and Simulation of VCSEL's Turn-on Delay Based on Rate-Equations X.Z. Shi, C. Qi, G.F. Wang, J.C. Hu and F. Liu	3364
Three-Dimensional Numerical Simulation and Experimental Study of Severe Plastic Deformation of AZ31 Magnesium Alloy S.B. Xu, G.C. Ren, C.N. Jing, Z.K. Zhao and K.K. Sun	3371
Degradation of Metal-Supported SOFC and One Powerful Investigation Method: Multi-Scale Modeling and Simulation Q.A. Huang, S.Z. Mei, L.F. Xu and W.M. Yang	3376
Stability and Bifurcation Analysis in a Food Chain Model with Delay Z. Li	3382
A New Method for OLED Optical Output Simulation Y.M. Xu and C. Liu	3389
Experimental Analysis of the Influence of Length to Diameter Ratio on Erosive Burning in a Solid Tubular Propellant Grain M.R.Z. Sheikholeslam, D. Kazemi and H. Amiri	3394
Force-Line Driving Model for Robot G. Tang, W.J. Mi, D.F. Chang and C.T. Wang	3400

Application of Roe's Flux-Difference Splitting for Turbulent Reacting Flow with $k-\epsilon$ Turbulence Model	
S.A. Shourehdeli and M.H. Mesbahi	3405
Optimum Size of a Ground-Based Cylindrical Liquid Storage Tank under Stability and Strength Constraints Using Imperialist Competitive Algorithm	
B. Abdi, H. Mozafari, A. Amran and R. Kohandel	3415
Imperialist Competitive Algorithm for Multiobjective Optimization of Ellipsoidal Head of Pressure Vessel	
B. Abdi, H. Mozafari, A. Amran and R. Kohandel	3422
Optimum Critical Buckling of Functional Graded Plates under Non-Linear Temperature by Using Imperialist Competitive Algorithm	
H. Mozafari, B. Abdi, A. Amran and A. Alias	3429
CFD Simulation for a New Ducted-Fan UAV Configuration	
O. Zamri	3434
The Dynamics Analysis and Vibration Measuring of the 5-DOF Magnetic Suspension Flywheel	
J.C. Fang and T. Wen	3439
Study of Heat Affected Zone (HAZ) in Gas Metal Arc Welding (GMAW/MIG) Process	
A. Moarrefzadeh	3448
A Simple Analytical Model to Simulate Oblique Ballistic Impact onto Fabric	
M.A. Akbari, G.H. Liaghat and H. Sabouri	3453
Artificial Intelligence Model of Surface Roughness for End Milling Operation of Steel and its Verification by Genetic Algorithm	
M.A.U. Patwari and A.K.M.N. Amin	3459
Exergoeconomic Analysis of a Steam Power Plant in Iran	
A. Dehghanipour and H. Ajam	3465

Chapter 17: Precision Molding Processes

Prediction of Laminar to Turbulent Flow over a Sweptback Wing	
S. Arumugam and S. Durairaj	3473
Unsteady Flow past a Combined Pitching and Plunging Aerofoil Using an Implicit RANS Solver	
K.S. Kumar and S.V. Sajjan	3481
Mass Transport in a Microchannel Bioreactor with a Porous Wall	
H.T. Low, X.B. Chen, P. Yu and S. Winoto	3489
Design and Analysis of Flapping Wing	
G.C.V. Kumar and M.R. Juliyana	3495
Flutter Analysis of Wing, Booster Fin and Vertical Tail	
G. Vinayagamurthy, K.M. Parammasivam and S.N. Pillai	3500
Effect of Sheet Thickness on Magnitude and Distribution of Magnetic Force in Electromagnetic Sheet Metal Forming Process	
M. Sedighi, H. Karimi-Nemch and M. Khandaei	3506
Effects of Cyclic Loading on Interface of Liner and Propellant	
K. Qu, X.D. Zhang and J. Zhang	3512
Pipe Displacement by High Order of Accuracy Method	
O. Fathelrhman and B.R. Li	3518
Inverse Kinematics with 3-Dimensional Tool Compensation for 5-Axis Machine Center of Tilting Rotary Table	
C. Tung and P.L. Tso	3525
Effects of Screw Fastening Sequence to Top Cover Loosening in Hard Disk Drive Assembly	
K. Suknikhom, P. Jongpradist, S. Chutima and T. Kamnerdtong	3534
The Determination of Efficient Super Finishing Conditions for the Mirror Surface Finishing of Titanium	
J.S. Kim, J.D. Hwang, Y.G. Jung and O.C. Shin	3541
Analysis of Process Parameters of Plasma Arc Cutting of Stainless Steel Using Taguchi Method	
K.P. Maity, V. Singh and S. Bhartiya	3551

Data Acquisition and Preparation Methods for Continuously Cast Billets Quality Analysis Software	
I.I. Matsko, Y.V. Snegirev and O. Logunova	3557
Experimental Investigations of Cutting Conditions Influence on Main Cutting Force and Surface Roughness Based on Chip Form Types in Cast Nylon Turning	
B. Suksawat	3563
Direct Metal Deposition of Stainless Steel Wire Using Metal Inert Gas as Heat Source for Repair Purposes	
N.I.S. Hussein, M.S.E. Sayuti and M.N. Ayof	3570
Optimization of GMAW Process Using Imperialist Competitive Algorithm	
M. Aghakhani, M.M. Jalilian, A. Karami and M.M. Jalilian	3575
Adaptive Dynamic Surface Control of a Supersonic Flight Vehicle	
W.A. Butt, L. Yan and A.S. Kendrick	3580
Optimal Control for Combined Energy Storage and Attitude Control System (CEACS) in Small Satellites	
B.Y. Siang and R. Varatharajoo	3587
Nonlinear Dynamics of Rotors due to Large Deformations and Shear Effects	
M.R. Shad, G. Michon and A. Berlioz	3593
Recent Advances in Ultraprecision Diamond Turning of Non-Rotationally Symmetric Optical Surfaces	
M.C. Liu, J.Q. Lin and X.Q. Zhou	3600

Chapter 18: Joining Processes

Forced Vibration Behavior of Adhesively Bonded Single-Lap Joint	
X.C. He	3611
The Study of Residual Stress in Welded Specimens of Aluminium Alloy by Using Acoustic Emission Method	
Z. Saeidi Nia, M. Ahmadi Najaf Abadi and D. Jawabvar	3617
A Genetic Algorithm Approach for Multi-Product Multi-Machine CONWIP Production System	
S. Ajorlou, I. Shams and M.G. Aryanezhad	3624

Chapter 19: Nanofabrication, Nanometrology and Applications

Study of Electroosmotic Flow in a Nanotube with Power Law Fluid	
D.D. Ganji, M. Gorji-Bandpy and M. Mostofi	3633
Mechanochemical Synthesis of Hydroxyapatite Nanopowder: Effects of Rotation Speed and Milling Time on Powder Properties	
S.A.S. Abu Bakar, I. Sopyan and M.H. Bin Abd Shukor	3639
Preparation of Dense Biphasic Calcium Phosphate Ceramics Using Eggshell Derived Nanopowders	
I. Sopyan, S.F. Adlina and S.A. Mohamad	3645
Effect of Nanoparticle Concentration on Thermo-Hydraulic Behavior of a Nanofluid in a Horizontal Tube with Constant Heat Flux and Mass Flow Rate	
S. Mirmasoumi and A. Behzadmehr	3650
Numerical Study of Laminar Mixed Convection of a Nanofluid in a Horizontal Curved Tube with Constant Heat Flux and Mass Flow Rate	
S. Alikhani, A. Behzadmehr and S. Mirmasoumi	3657
Analytical Solution of Electrokinetics Driven Flow in a Nanotube with Power Law Fluid by HPM	
D.D. Ganji, M. Gorji-Bandpy and M. Mostofi	3663
Al₂O₃-Water Nanofluids in Convective Heat Transfer	
O.S. Prajapati and A.K. Rajvanshi	3667
Breakup of Droplets in Micro and Nanofluidic T-Junctions	
A. Bedram and A. Moosavi	3673

Mixed Convective Heat Transfer Flow of Nanofluid past a Permeable Vertical Flat Plate with Magnetic Effects: A Finite Element Study P. Rana and R.R. Bhargava	3679
Modeling and Simulation of Controlled Manipulation by AFM Nano Robot A.K. Hoshiar, M.R. Khalili, M.H. Nejad and H.R. Fard	3688
Micro Electrochemical Machining of Tungsten Carbide	3696
Prediction for Constitutive Relationship of Metallic Rubber with Various Parameters by BP Neural Net Y.Y. Li, X.Q. Huang and F.L. Li	3705
Designing a Multi Echelon Flexible Logistics Network Using Co-Evolutionary Immune-Particle Swarm Optimization with Penetrated Hyper-Mutation (COIPSO-PHM) N.C. Hiremath, S. Sahu and M.K. Tiwari	3713
Fluidization of Geldart Type-D Particles in a Swirling Fluidized Bed M.F. Mohideen, S.M. Seri and V.R. Raghavan	3720
Flow Characteristics of Nanofluids According to Nanoparticles Shape K.S. Hwang, I.K. Baek, H.K. Shin and S.P. Jang	3728
The Formation of Diamond-Like Carbon Film at Atmospheric Pressure by the Pulsed Laser/Plasma Hybrid Deposition Method H.P. Wang and J.M. Lin	3737
Research of the Technological Parameters Importance for Plasma Arc Thermal Cutting M. Hatala, J. Zajac, R. Čep and I. Orlovský	3742
One-Dimensional Harmonic Oscillator in Quantum Phase Space J. Lu, X.M. Wang and P. Wu	3750
Property Comparison of CuInSi Films Prepared by Multilayer Synthesized and Magnetron Co-Sputtering J.S. Xie, J.H. Li and P. Luan	3755
Self-Assembly of Nano-Sized Spherical Polyelectrolyte Brushes on Different Substrates as Observed by AFM S.B. Huang, X.H. Guo, L. Li, H.R. Xu and Y.M. Dong	3762
Nano Technology/Networks in Molecular Communication: An Advance Step of Electrical Communications J. Govil, J. Govil, A. Gupta and V. Gupta	3770
Nanostructure Multilayers as Broadband Antireflection Coating Used at Terahertz Frequencies Region W.L. Wang and X.H. Rong	3777
Photocatalytic Hydrogen Generation of CuO and WO₃ Co-Loaded TiO₂ Nanotubes X.S. Yang and H. Kim	3781
Crystallization Time Dependence of Nanohybrid Shish-Kebab Structure in HDPE/PA66 Nanofibers Composites via Solution Crystallization W.J. Han, G.Q. Zheng, Y.Y. Liang, C.T. Liu and C.Y. Shen	3786
Preparation of Nano-Coenzyme Q10 by Water Jet Comminution J.Z. Li, Z.G. Shen, S.L. Ma and Y.S. Xing	3791
Immobilization of Nano-TiO₂ on Expanded Perlite for Photocatalytic Degradation of Rhodamine B X.Z. Wang, W.W. Yong, W.Q. Yin, K. Feng and R. Guo	3795
Synthesis of NanoTiO₂/CTMAB-Expanded Perlite Applied to the Degradation of Methyl Orange X.Z. Wang, Q.Q. Gao, H.T. Zhao, K. Feng and R. Guo	3801
Synthesis of Nano Machines Based on Catenanes and Rotaxanes A.G. Ebadi and S. Alami	3807
New Method for Preparing Rubber/Clay Nanocomposites J.H. Tan, X.P. Wang, Y.F. Luo and D.M. Jia	3810
Structure and Properties of Hydrogenated Nitrile-Butadiene Rubber/Organo Montmorillonite Nanocomposites X.P. Wang, D.M. Jia and A.M. Huang	3818
The Study of Nano Optical Antenna Based on Surface Plasmon Resonance Z.H. Yuan, D.D. Zhu and P. Wang	3825

Buckling Behaviors of Imperfect Single-Walled Carbon Nanotubes: A Molecular Dynamic Simulation	
Y. Li, Z.Y. Guo and B. Peng	3831
A Novel Method of Developing ZnO-Based Nano Hetero Strucutre on Flexible Substrate for UV Photo Detecting Application	
T.M. Chen, K.M. Uang, H.X. Chen and S.K. Lin	3838
Nanosize Beta-Spodumene Glass-Ceramic Powders Synthesized by Sol–Gel Route	
Z.H. Xiao and W.Y. Luo	3844
A Study on the Nanotechnology Researchers' Information Needs and Information Retrieval Behavior	
T. Hasoomi and S. Mehraban	3849
Nano-Particles in Concrete and Cement Mixtures	
A.S. Nik and A. Bahari	3853
Production of Transparent Heat Windows of TiO₂/Ag/TiO₂, and Investigation of their Nanostructures	
M.R. Behforooz and H. Kangarloo	3856
The Analysis of Ag Nanospheres and Arrays LSPR Phenomena Based on DDA and FDTD Method	
W. Zhang, C. Wang, W. Zhou, Z. Yue and G.H. Liu	3860
The Comprehensive Utilizing Method for Urban Rain-Flood Based on Nanotechnology	
J. Yan, J. Zhang, Y.H. Zhang and X.B. Yang	3867
Turbulent Convective Heat Transfer of Nanofluids	
S.H. Hosseini, S.M. Javadi and E. Ebrahimnia-Bajestan	3873
Two-Phase Study of Fluid Flow and Heat Transfer in Gas-Solid Flows (Nanofluids)	
H. Afshar, M. Shams, S.M.M. Nainian and G. Ahmadi	3878
Nanocomputation of Mechanical Properties in Nanobio Membrane	
N. Maftouni, M. Amininassab, M.N. Mello and S. Marink	3883
Nanocomputational Observation of Interaction of Two Cytotoxins and Nanobio Membrane: Molecular Dynamics Simulation Study	
N. Maftouni, M. Amininassab and F. Kowsari	3888

Chapter 20: Manufacturing Process Planning and Scheduling

Construction of Advanced Equipment Manufacturing Base with International Competitiveness	
H.Q. Rong and Y. Yang	3895
A New Solution Seed for Job Shop Scheduling Problem	
P. Fattahi, M.S. Manesh and A. Roshani	3899
Minimizing Total Weighted Tardiness on Parallel Batch-Processing Machine Scheduling Problems with Varying Machine Capacities	
F.D. Chou and H.M. Wang	3906
Hybrid Flow Shop Scheduling Problems with Multiprocessor Tasks	
H.M. Wang, F.D. Chou, F.C. Wu and M.Y. Ku	3914
Advanced Cost-Efficient Production Scheduling in Hi-Tech Manufacturing Industry at Test Operation	
T. Sillapa-Archa, P. Thaninthanadech and D. Smitasiri	3922
A Genetic Algorithm-Based Approach for Flexible Job Shop Scheduling	
R.K. Phanden, A. Jain and R. Verma	3930
Developing Capability–Based Virtual Cellular Manufacturing Systems and Comparison with Capability–Based Classical Cellular Manufacturing Systems	
M. Hamed, G. Esmaeilian and N.B. Ismail	3938
The Study of Lean Layout in an Automotive Parts Manufacturer	
M.M. Salleh and M.Z.M. Zain	3947
Systematic Layout Planning to Assist Plant Layout: Case Study Pulley Factory	
A. Watanapa and W. Wiyaratn	3952
A Study of Relationship between Competency Program and Mold and Die Occupation	
S. Thong-u-thai and S. Kaewkuekool	3957

A Hybrid GA-SA Algorithm for Multi-Objective Sequencing Problem in High-Product Mix Shop-Floor	
A. Norozi, M.K.A. Ariffin, N. Ismail and F. Mustapha	3964
A Stochastic Savings Algorithm for Vehicle Routing Problem with a Centralized Distribution Center and Delivery Time Window	
M. Sanjaiya, J. Buddhakulsomsiri and P. Parthanadee	3972
Output Regulation of the Liu Chaotic System	
V. Sundarapandian	3982
Multi-Criteria Decision Making for Mechanic Product Design Schemes Based on Layered Ordinal Relation Analysis	
G.F. Lian, X.S. Bai, Y. Shen, D.C. Liu and C.A. Zhu	3990
A Framework for Implementing Lean Manufacturing System in Small and Medium Enterprises	
J. Wanitwattanakosol and A. Sopadang	3997
The Evaluation of Priority Rules in Operations Scheduling	
M. Iringová, P. Važan and D. Jurovátá	4004
Viability of Lean Manufacturing Tools and Techniques in the Apparel Industry in Sri Lanka	
S.K.P.N. Silva, H.S.C. Perera and G.D. Samarasinghe	4013
Application of Statistical Process Control Tools to Improve Product Quality in Manufacturing Processes	
O. Bataineh and A. Al-Dwairi	4023
Total Quality Cost Reduction in Head Stack Assembling	
W. Dansakuncharoenkit and D. Thawesaengskulthai	4028
Overall Maintenance Time Reduction by Optimizing the Distance of Service Center in Manufacturing Unit through Single Facility Location Planning	
M. Vishwakarma and V.K. Khare	4036
Hybrid System Model Simulation Framework for Cyber-Physical Systems	
S.Y. Moon, H. Park, T.H. Cho and W.T. Kim	4043
An Investigation of Lean Implementation Status in Thai Manufacturing	
J. Pradabwong, N. Sriariyawat and C. Temiyasathit	4050
The Application Effect Analysis of Lean Production in China	
H.L. Zhang, C.H. Wu and Z.W. Niu	4057
Minimizing the Number of Tardy Jobs in Flow Shop Sequence Dependent Setup Times Scheduling Problem	
M. Varmazyar and N. Salmasi	4063
Towards Lean Factory-Combining Lean Thinking with Promising Manufacturing Method - A Case of Finnish Boating Industry	
M. Ehlers, A. Rymaszewska and J. Pekkala	4070
Research on Intelligent Variable Frequency of Air-Conditioner Control System Based on Fuzzy Control	
H.C. Du	4076
A New Fuzzy Approach for Minimizing Conveyer Stoppages in Mixed-Model Assembly Lines	
F. Radmehr, N. Manavizadeh, H. Rafiei and M. Rabbani	4085
Metal Parts Visual Inspection Based on Production Rules	
S.H. Haider, A.S. Prabuwnono and N.H.S.A. Siti	4091
Path Planning of UAVs in Urban Region Using Pythagorean Hodograph Curves	
M. Shanmugavel, A. Tsourdos, B.A. White and R. Zbikowski	4096
Designing and Fabricating of Low Cost Thermoelectric Power Generators	
T. Seetawan	4101

Chapter 21: Laser Based Manufacturing

Neuro Fuzzy Modeling of Laser Beam Cutting Process	
A.K. Pandey and A.K. Dubey	4109
The Use of Laser Scanning Technology to Improve the Design Process	
E. Kiraci, A. Attridge and M.A. Williams	4118

Study of Atmospheric Channel Characteristics in Space Laser Communication System J. Sun, D.G. Li and X.J. Cui	4123
Study of Nuclear Magnetic Resonance on Imbibition Mechanics of Conglomeratic Cores R. Shen and Z.M. Hu	4128
The Analysis of the Two-Wire Transmission Line in a Cavity with Apertures Illuminated by a Plane Wave Based on Electromagnetic Topology Q. Yu, Y.D. Wang, J.H. Han, H.S. Kong and Y.C. Zhang	4133
Study of End Surfaces' Deformation and Thermal Stress in Solid State Laser K.M. Firoozeh	4140
A Ray Transfer Matrix Model for an Elastomeric Lens J.M.M. Indias and C.K.C. Go	4145

Chapter 22: Metrology and Measurement

Study on the Status of Offshore Oil Storage Technology and Non-Pollution Oil Storage Technology Underwater X.J. Chu	4151
The Effect of Canard on Aerodynamics of Blended Wing Body M.A. Zurriati, K. Wahyu, W. Wisnoe and E.M.N. Rizal	4156
New Approach to Salve Single Event Upsets Faults in Satellite Communications M. Ghodrati, A. Masoomi, R. Hamzehyan and N.C. Shirazi	4161
Parametric Study of an Ideal Rankine Cycle with a Reheat A. Vosough and S. Keshavarzi	4166
Creep Analysis in Anisotropic Composite Rotating Disc with Hyperbolically Varying Thickness V. Gupta and S.B. Singh	4171
Nonlinear Effects on Resonance Behaviour of Beams in Micro Scale H. Nourbakhsh, R. Mohammadzadeh, M. Rafiee and R. Rafiee	4178
Study of Heat Transfer and Hydrodynamics in a Gas-Solid Fluidized Bed Reactor Experimentally and Numerically M. Hamzehei, H. Rahimzadeh and G. Ahmadi	4187
Extracting Modal Parameters of Constrained Structure from Free Test Data B. Wu, Y. He and S. Feng	4198
Miniature Test Technique for Acquiring True Stress–Strain Curves for a Large Range of Strains Using a Tensile Test and Inverse Finite Element Method H. Farrukh, M.N. Desmukh, H. Asif and D.K. Sehgal	4204
Finite Element Analysis of Cantilever Beam for Optimal Placement of Piezoelectric Actuator A.M. Khalatkar, R.H. Haldkar and V.K. Gupta	4212
Parameter Optimization of a Snake Robot Using Taguchi Method H. Kalani and A. Akbarzadeh	4220
Optimization of Shrinkage in Plastic Injection Molding Process Using Statistical Methods and SA Algorithm A. Akbarzadeh and M. Sadeghi	4227
Research on Design for Testability of Marine Diesel Engine P. Zhou and D.F. Liu	4234
Reliability Analysis of a Small Pneumatic Cylinder Life J.Z. Zhang, C.L. Wang and X.F. Fang	4240
Computational Fluid Dynamic Analysis for Modified Steam Duct in Air Cooled Condenser F. Salehi and R.H. Khoshkho	4246
Fault Detection in Tennessee Eastman Process Using Fisher's Discriminant Analysis and Principal Component Analysis Modified by Genetic Algorithm M.N. Nashalji, S.M. Razeghi, M.A. Shoorehdeli and M. Teshnehlab	4255
The Effects of Object Independent Vibration on Visual Identification Efficiency B. Wang, Y.J. Li, Z.M. Song, J.G. Sheng and H. Cao	4263
Numerical Investigation of Flow past a Wavy Airfoil K. Lam, Y.F. Lin, Y. Liu and L. Zou	4269

The Optimization Design of Hospital Bed Structure for Independently Separating Left and or Right Leg Using Genetic Algorithms A. Ariyarit and R. Kittipichai	4276
Numerical Scheme for Fredholm Integral Equations Optimal Control Problems M. Sanchooli and O.S. Fard	4284
Determination of Complex Permittivity of Fly Ash for Potential Electronic Applications V.N. Sreenivas, D. Karthik, V.A. Kumar, V.D. Sidharth, T.M. Sundaram, S. Sarkar and N.B. Sabarish	4292
Effects of Aeroelastic Nonlinearity on Flutter and Limit Cycle Oscillations of High-Aspect-Ratio Wings K. Eskandary, M. Dardel, M.H. Pashaei and A.M. Kani	4297
A New Genetic Algorithm for Designing Cellular Manufacturing Systems with Labor and Tools Issues A. Gharbi, A.M. Al-Ahmari, M.K. Msakni and H. Al-Khalefah	4307
Absorption and Evaporation Mass Transfer Simulation of a Droplet by Finite Volume Method and SIMPLEC Algorithm S. Torfi and S.M.H. Nejad	4315
Sequencing Mixed-Model Assembly Line under a JIT-Approach N.B. Tavakoli and P. Fattahi	4324
Numerical Investigation of Formation and Development of in-Cylinder Rotational Flow in a Spark Ignition Engine M. Yousefi, F. Ommi and M. Farajpour	4330
Study of close-Range Photogrammetric Method Using Ordinary Digital Camera Y.D. Mao	4337
Lateral-Directional Aerodynamics of a Canard Guided Spin Stabilized Projectile at Supersonic Velocity X.L. Ji, H.P. Wang, S.M. Zeng and C.Y. Jia	4343
Numerical Study on Plasma-Based Control of Flow over a Square Cylinder D.J. Kim and J. Kim	4351
A New Knowledge Representation and Processing Method of Radar Fault Diagnosis S.X. Du, W.J. Hu and B.M. Li	4358
Accurate Numerical Prediction of Incompressible Fluid Flow in Lid-Driven Cavities A.M. Fudhail, M.R.M. Zin, N.C.S. Azwadi and M.A. Salim	4365
Intelligent Parking Method for Trucks in Presence of Fixed and Moving Obstacles Randomly J. Rohani, M. Sharafi and A. Zare	4373
Adaptive Dynamic Surface Control for a Parametric Strict Feedback System with Actuator Failures A.S. Kendrick, L. Yan and W.A. Butt	4381
PID Parameters Tuning for the Control of Nonlinear Systems Using Measure Theory A. Zare and A.V. Kamyad	4389
Numerical Analysis of Single Phase Flow Pressure Drop in a Horizontal Rifled Tube S.P. Lam, A.W. Abas, S. Ariffin and W.K. Lee	4398
Satellite Fault Detection and Isolation through Decoupling Parity Space Z. Wang, Y.J. Li and X.W. Sun	4406
Novel Approach for Nonlinear Maneuvering Target Tracking Based on Input Estimation H. Rahmati, H. Khaloozadeh and M. Ayati	4415
An Investigation on the Sensitivity of Limit Cycle Oscillations for Detecting Damage in an Aeroelastic Panel S.A. Eftekhari, F. Bakhtiari-Nejad and E.H. Dowell	4424
An Evaluation of Model Ship Total Resistance by Measured and Different Methods K. Thwe and G. Gao	4433
Numerical Prediction of Natural Convection Heat Transfer through Porous Media by the Lattice Boltzmann Method I.M.A. Mohd and N.C.S. Azwadi	4439
Development a Device for Measuring Soil Mechanical Properties G. Shahgoli, J.N. Azar and Y. Abbaspour-Gilandeh	4445

Numerical Investigation of Natural Convection Heat Transfer from Square Cylinder in a Vented Enclosure G.Y. Kahwaji, A.S. Hussien and O.M. Ali	4451
MEMS Vector Hydrophone Structural Error Analysis and Testing G.X. Shi, G.J. Zhang, X.B. Liu, X.Y. Wang and J. Xu	4465
Study to Improve the Computation of the Oil Spill D.T. Nga	4471
Measurement of Multiple Mechanical Properties of Fabrics in One Test Z.Q. Du, G. Zheng, H. Shen and W. Yu	4480
Fossil Epithea Measurement as a New Method: Retrieval of the Earth's Climate 310 Million Years Ago the Oldest Weather Glass W.J. Zhang and H.J. Yu	4487
Attractive Nonlinear Schrödinger Equation and Bose-Einstein Condensate in Phase Space J. Lu	4492
Optimization of Optical Wavelength Conversion in SOI Waveguide A. Hussain, X.Z. Sang, C.X. Yu, A. Muneer, A. Latif, A. Hussain and Freeha	4498
Measurement of Single Event Upsets in the ALICE-TPC Front-End Electronics M. Mager, L. Musa, A. Rehman and A. Szczepankiewicz	4505
Study on the Rubrene Emission Sensitized by a Phosphorescent Ir Compound in the Host of CBP D.H. Xu and X. Li	4512
Biomechanical Research on Plantar Pressure Distribution in Different Landing Condition J.J. Chen, J.S. Li and Y.D. Gu	4518
Analysis of an Engine Mounting Structure of an Aircraft with the Purpose of Accurate Adjustment M. Ebrahimi, S.A. Niaki and H. Salarieh	4522
A Numerical Study of the Effect of Pressure on Propulsive Droplets Sizing in a Duct by KIVA-3V Code M.M. Doustdar and M. Mojtahedpoor	4527
Solution of Free Vibration Equations of Euler-Bernoulli Cracked Beams by Using Differential Transform Method K. Torabi, J.N. Dastgerdi and S. Marzban	4532
Active Stabilization of a Two-Satellite Tether in Elliptic Orbits Using Coulomb Forces H. Zhang, Y.S. Zhao and P. Shi	4537
Pervading Cold Testing of Engines in the Automobile Zone A. Khurana	4544
ICA and BP Neural Network Based Fault Detecting Algorithm for Large Engine Y.M. Jiang	4549
Tilt Angle Optimization for Grid Interactive Solar Photovoltaic Array R. Chauhan, N.S. Thakur and S. Chamoli	4554
Investigation of Hand Worn Jewellery Effects on the Specific Absorption Rate in the Human Head and Hand M.I. Tariqul, Z.A. Hafizah, R.I.F. Mohammad and M. Norbahiah	4559
Combustion Properties of Norwegian Biomass: Wood Chips and Forest Residues E. Houshfar, J. Sandquist, W.B. Musinguzi, R.A. Khalil, M. Becidan, Ø. Skreiberg, F. Goile, T. Løvås and L. Sørum	4564
A Cost-Effective Hardware Approach for Measuring Power Consumption of Modern Multi-Core Processors K.Y. Chen, F.G. Chen and J.S. Chen	4569
Effect of Steam Injection in Gas Turbine Combustion Chamber on the Performance of a Natural Gas Fired Combined Cycle Power Generation Unit I. Alaefour and B.V. Reddy	4574
Investigation of Nonlinear Acoustic Effects in Two-Dimensional Open Cavity Flow M. Ebrahimi	4578
Unsteady Compressible Flow over Heaving Bodies Using an Implicit RANS Solver K.S. Kumar and S.V. Sajjan	4589
Accurate Calculation of the Natural Frequencies of Reticulated and Solid Cylindrical Composite Shells A.H. Hashemian, M.H. Kargarnovin and J.E. Jam	4598

Failure Analysis of Low Pressure Evaporator Tubes in a Typical Combined Cycle Power Plant	
M. Nematollahi and M. Rezaeian	4607
Reynolds Study of the Flow Induced Noise	
D.K. Singh and G. Bandhyopadhyay	4615
The Tribological Study of a Quinazolin-4-Ones Derivative as Additive in Liquid Paraffin	
P. Ouyang and M. Zhang	4623
Pressure Corrections for the Potential Flow Analysis of Kelvin-Helmholtz Instability	
M.K. Awasthi, R. Asthana and G.S. Agrawal	4628
Effect of Building Height on Energy Consumption of Radiator and Floor Heating Systems	
V. Golkarfard, P. Talebizadeh and M. Salmanzadeh	4636
Study on Shear-Mode of Piezoelectric Patch/Complete Layer in Smart Laminated Shell Panels	
A.R. Daneshmehr, A.M. Fakhar and A.R. Nateghi	4643
An Aerothermodynamic Design Approach for Scramjet Combustors and Comparative Performance of Low-Efficiency Systems	
A. Sarosh, D.Y. Feng and M. Adnan	4652
Efficiency Improvement of an Axial Flux Permanent Magnet Brushless DC Motor for LVAD Application	
S. Neethu, K.S. Shinoy and A.S. Shajilal	4661
Exact Elasticity Solution for the Density Functionally Gradient Beam by Using Airy Stress Function	
A.R. Daneshmehr, S. Momeni and M.R. Akhloumadi	4669
Experimental Investigation of Manifold Induced Flow Maldistribution in U-and Z-Turn Flow Configurations	
S.B. Ingle and R.S. Maurya	4677
Analysis on Characteristics of Heavy Vehicle Electrical Cooling Fan with CFD and Motor Test Results	
J.H. Kim, I.S. Jung, N. Hur and W. Kim	4684
Some Anomalies in the Experimental Results of EDM	
G. Bhiksha and K. Buschaiah	4691
Induction Heating of an Aluminum Billet: A Numerical Study of the Thermal Behavior	
U. Ray, A. Sarkar, S. Sen, B. Roychowdhury and N. Barman	4697
Large Deflection of Various Functionally Graded Beam Using Shooting Method	
A. Soleimani	4705
Product Design Aspects for Design of Accurate Mass Properties Measurement System for Aerospace Vehicles	
K. Gopinath, K. Raghavendra, M.K. Behera, E.V.S. Rao, M. Umakanth and S. Gopinath	4712
Turbulence Pattern in Triangular Cylinder	
V. Parthiban and A. Russelle	4719
A Study on Variation of Microstructural Parameters in Titanium Alloys during near Superplastic Regime of Deformation	
R.K. Sahoo, B.B. Jha, T.K. Sahoo, B.K. Mishra, O.I. Bylya and M.K. Sarangi	4723

Chapter 23: Computer-Aided Design, Manufacturing and Engineering

Research of the Key Techniques of Monitoring On-Orbit Docking for BLRU	
W. Ni, Z. Xiong, Q. Xiong, N. Tan, X.D. Yuan, Z.J. Xie and W.G. Zheng	4733
Design of a Remote Mine Gas Concentration Detector	
S. Xu	4739
Design and Fabrication of 3D Syskevis Metrisis	
M. Arunachalam, K. Padmanaban, K. Asvin, R.S. Kumar and B. Vijaya Ramnath	4744
Comparative Dynamic Response of a Optimized Single Link Flexible Manipulator	
S. Mahto and U.S. Dixit	4748
Design and Development of Swarm Robots for Security Applications	
M. Thangavel, S. Raghavan, R. Raviprakash, V.R. Raja and S. Manickam	4757

Multidisciplinary Design Optimization Approach for a Small Solid Propellant Launch Vehicle Conceptual Design Using Hybrid Simulated Annealing M. Ebrahimi, J. Roshanian and F. Barzinpour	4765
Design and Implementation of an Efficient Biomass Drier System for a Wood Gasification Based Power Plant K. Ashlesh, R. Vadera and K. Ramachandra	4772
Optimization of New Metal Gasket Design Based on Contact Width Involving Contact Stress Consideration M.A. Choiron, S. Haruyama and K. Kaminishi	4780
Control System Development of Grating Ruling Engine Based on MATLAB/Simulink D.C. Liu, Y. Shen, J. Zhong, G.F. Lian and C.A. Zhu	4788
Design and Fabrication of Floor Conveyor L. Srinivasan	4795
An Implementation of Lean Technology in an in-Plant Manufacturing System, a Furniture Company L. Le Ngoc Quynh, N.H. Do and K.C. Nam	4799
Optimal Design of Supercavitating Underwater Vehicles for Mass Distribution Z.Y. Ma, F. Hu, M.D. Lin and W.H. Zhang	4808
Single Board Computer Based Building Security Management System: Contactless Smart Card for Automatic Door Access Control System U.D. Atmojo, Litasari and A.N. Irfansyah	4816
A New Computerized System for Piercing and Bending Progressive Die Design M.A. Farsi	4823
Medical Image Segmentation and Reconstruction Based on Bayesian Level Set Method and Marching Cubes Algorithm Y.T. Chen	4832
A Stable Adaptive Control Method in Networked Control System Y. Zhang, P. Cheng and T.F. Yin	4837
Fuzzy Logic Controller Designing of an Active Roll Control System for Medium and Large Size Vehicles P. Hajishafieiha	4845
Extraction Method of Version Number in Engineering Drawing M.F.M. Amran, R. Sulaiman, S. Marjudi, S. Kahar and Z. Adnan	4856
Planar Maximal Covering Location Problem with Inclined Ellipses H. Charkhgard and M.R.A. Jokar	4861
Korean Products and Appeal Design L. Wang and Y. Xue	4867
JIT Quality Control System Design Based on Simultaneous Engineering Y.Y. Yang and Z.Q. Xu	4872
Design Optimization Method about the Spring Stiffness Used in Active Engine Hood of Pedestrian Protection H. Ye, M. Zhu and P. Hu	4876
Design of Alarm System with Pyroelectric Infrared Sensor X.Y. Shang, J. Wu and X. Wang	4883
Increasing the Image Contrast of Atomic Force Microscope by Using Improved Rectangular Micro Cantilever A. Sadeghi	4888
A Quantitative Approach to Assessing Product Design for Remanufacturing J. Li and G.Q. Liang	4893
Computed Extinction Limits and Flame Structures of Opposed-Jet Syngas Diffusion Flames H.Y. Shih and J.R. Hsu	4899
Automatic Global Registration of 3D Point Clouds for Reverse Engineering and Inspection Processes M. Imbert and X.X. Li	4907
Design and Construction of a High Speed Inter-Row Cultivator Y. Abbaspour-Gilandeh, Z. Fazel-Niari, G. Shahgoli and M. Bavafa	4914
Enhancing the Starting Torque of Turbocharged SI Engine Using 1-D CFD Simulation A. Sajedin, S.A. Jazayeri, M. Ahmadi and O.F. Marandi	4919

Library Structure of Dynamic Simulation for Combined Heat and Power Plant in Modelica Language A.A. Razak	4925
Performance Analysis of the Computed Torque Based Active Force Control for a Planar Parallel Manipulator A. Noshadi, A. Zolfagharian and G. Wang	4932
An Experiment on Electric Power Steering (EPS) System of a CAR M. Akhtaruzzaman, N.A.B.M. Razali, M.M. Rashid and A.A. Shafie	4941
Design and Prototyping of a Linear Electromechanical Actuator A. Figueroa and Y. Lin	4951
Station-Keeping Control Law Design of Near-Space Airship with Wind Interferences Based on Control Allocation Strategy X.G. Di, Y.F. Yang, X. Han and K.M. Ma	4962
Design of a Wind Water Heater M.A. Al-Nimr and W.A.M. Al-Shohani	4970
Novel Method on Using Evolutionary Algorithms for PD Optimal Tuning R.A. Khoshrooz, M.A.D. Vahid, M. Mirshams, M.R. Homaeinezhad and A.H. Ahadi	4977
Error Recovery System Encoder/Decoder Method and VHDL Design for Saving Memory of Embedded System B.J. Kim, R.C. Sung and S.H. Jin	4985
Compensation of Input Disturbance in EPS System Using Sliding Mode Observer B. Son, G. Park, D. Kum and S. Lee	4992
Design of Neural Network for Satellite's Attitude Control Systems S. Montenegro and L. Luna	5001
Application of Neural Networks and PID in on Line of Real-Time Temperature Control System S.A. Elfandi, M.A. Osman, N. Ali and N. Agab	5009
A New Hybrid Design of Experiments Approach for Optimization in Structural Acoustics M. Ranjbar, S. Marburg and H.J. Hardtke	5015
Machine Fault Diagnosis Using MLPs and RBF Neural Networks G.H. Payganeh, M.N. Khajavi, R. Ebrahimpour and E. Babaei	5021
Design of Gas Injection Unit in an Iranian Onshore Oil Field Development Project A. Koosha, M.R. Mogadam and M.M.A. Fard	5029
Design and Simulation of MEMS Based Tuning Fork Micro-Gyroscope S. Khankhua, M.W. Ashraf, N. Afzulpurkar, S. Tayyaba and C. Punyasai	5036
Two Output OTA Biquad Filter A. Qadir	5044
Solving Problems in Chaos Control though an Differential Evolution Algorithm with Region Zooming F. Gao, Y.B. Qi, Q. Yin and J.Q. Xiao	5048
Hybrid Reconfigurable PC Add-on Card for Parallel Image Processing A. Ravi, E.E.A. Moorthy, D. Vidya and G.M. Kumar	5057
Statistical Mechanical Approach to Image Processing Technology Bayes-Optimal Solution to Inverse Halftoning via Super-Resolution Y. Saika	5063
Estimate Permeability from Nuclear Magnetic Resonance Measurements Using Improved Artificial Neural Network Based on Genetic Algorithm Y. Zhou, G.Q. Wei and H.K. Guo	5072
Improving Elmore Model of RLC Networks for Applying to SWCNT Interconnects B. Behtoei and R. Faez	5078
Design of Quaternary Half Adder Using Hybrid SETMOS Cell K. Feizi and A. Shahhoseini	5085
Research on TCAM Match Algorithm in High-Speed DPI System Z.H. Chen and J.L. Lan	5090
The FPGA Implementation of Digital Correlator in PCS H.Y. Jiang and Y.L. Ma	5095
A HDR-Based Multiple Post Process Effects Rendering Method G.F. Ding, L.T. Chen, W. Zhao, J.Z. Zhang and Y.L. Yu	5101

Computer-Aided Process Planning of Strip Layout in Progressive Dies A.C. Lin and D.K. Sheu	5106
Design of a Mechatronic Drive Train with Regenerative Braking S.V. Ragavan, J.M. Kumar and S.G. Ponnambalam	5111
An Adaptive Surrogate Model Applied to the Design Optimizations of Waverider-Based Hypersonic Vehicle P. Li and W.C. Chen	5118
Autogeneration of Fuzzy Logic Rule-Base Controllers M.O. Abdalla and T.A. Al-Jarrah	5123
Study on Human Musculoskeletal Biomechanics Based on China Digital Human Project G.F. Wei, F. Tian and C.T. Wang	5131
CROPS - A Decision-Making Aid Tool for Product Redesign F.I. Romli, K.H. Cheang and J.X. Chew	5136
A Method of Optimizing the Scheduler for Improving the Performance of the OSEK OS J. Hong, D. Kum, S.H. Jin and J.H. Cho	5141
Capacitive Micromachined Ultrasonic Transducer Based Gas Sensor Modeling and Simulation K.S. Kumar, S. Saha, P.C. Pradhan and S.K. Sarkar	5146
Analytical Modeling for Short Channel SOI-MOSFET and to Study its Performance K.S. Kumar, S. Ghosh, A. Sarkar, S. Bhattacharya and S.K. Sarkar	5150
Telerobot Arm (TRA) C. Pornpanomchai and P. Sukklay	5155
Curvilinear Bipedal Walk Learning in Nao Humanoid Robot Using a CPG Based Policy Gradient Method H. Shahbazi, K. Jamshidi and A.H. Monadjemi	5161
Postprocessor and Optimization of Rotations for Six-Axis Machining with Sequencing Technique A. Mudcharoen and S.S. Makhanov	5167
Design Considerations for Electrostatic Energy Harvester R.T. Abdulmunam, L.Y. Taha and P. Ivey	5173
Novel MPPT Control in Permanent Magnet Synchronous Generator System for Battery Energy Storage T.L. Tiang and D. Ishak	5179
A New Method to Improve the Voltage Distribution and Electric Field Control for Conceder Bushing M. Hassani, S.S.K. Madahi, H.F. Farahani and H. Sarabadani	5184
Controlling a Robot Arm by Thai Voice Commands C. Pornpanomchai and P. Sukklay	5189
Determining the Optimal Capacity and Place of DGs in Distribution Systems S.A. Hosseini, M. Karami, S.S.K. Madahi, F. Razavi and A.A. Ghadimi	5195
Fuzzy Enhancement of Power System Stability Using FACTS Devices J. Hamad, K. El-Bahrawy and R. Sharkawy	5200
Comparison of Multi Agent Based PSO Approach for Optimal Power Flows with Security Constraints K.R. Kumar, S. Anand and M. Sydulu	5206
Modeling and Simulation of Turbogenerator Using Computational Intelligence M. Hayati and K. Darabi	5211
Optimisation Design of Six-Bar Double Dwell Mechanisms: A New Approach M. Jagannath	5216
Trajectory Optimization for Hypersonic Vehicle Satisfying Maneuvering Penetration K.N. Zhang and W.C. Chen	5223
Trajectory Optimization of Hypersonic Vehicle Using Gauss Pseudospectral Method R. Tawfiqu, H. Zhou, Y.Z. Sheng, Y.M. Younis and K.N. Zhang	5232
Comparative Evaluation of Mode Combination Methods in Seismic Analysis Using Response Spectrum Method for Tank Structure Using FEA - Seismic FEA S. Shelke, H.V. Vankudre and V. Patil	5240

A New Angular Acceleration Guidance Law with Estimation Approach Based on Sliding Mode Observer against High Maneuvering Target Y.Y. Song, W.C. Chen and X.L. Yin	5249
A Tool for Decision Making in K-Out-of-N System Maintenance Z. Vintr and D. Valis	5257
Micro-Hydro Power Generation Design and Fabrication of Micro-Hydro Turbine for Water Treatment Plant N.P. Patrike and S. Patro	5265
Simulation of Solid Particles in Combined Conduction, Convection and Radiation Gas Flow over a Backward-Facing Step in a Duct V. Golkarfard, S.A.G. Nassab and A.B. Ansari	5276
Spacecraft Adaptive Sliding Mode Attitude Tracking Control Using DGCMG L. Wang, Y.S. Zhao and P. Shi	5283
Thermo-Elastic Design of Flexure for Spaceborn Opto-Mechanical Payloads N. Patel, J.B. Rami, A.P. Vora, C.P. Dewan and D. Subrahmanyam	5292
Study of Different Nozzle Configurations for Supersonic COIL System G. Singhal, Mainuddin and R.K. Tyagi	5301
Selection of Grippers-A Fuzzy Graph Theoretic Approach S. Goyal and S. Grover	5308
Engine Rotational Dynamics Calculation with Stroke Identification for Scooter Engine Using FPGA Y.Y. Wu, B.C. Chen, H.C. Tsai and Y.C. Wang	5314
Computational Analysis and Studies on Differential Ejector A. Tyagi, B. Gudwani and G. Singhal	5322
Identification of Aerodynamic Derivatives of a Flexible Aircraft Using Output Error Method M. Majeed and I.N. Kar	5328
Optimal Damage Detection Sensor Placement Using PSO M.O. Abdalla and E. Al-Khawaldeh	5336

Chapter 24: Semiconductor Materials Manufacturing

Fuzzy Logic Based Impedance Control to Monitor on Torque under Impulsive Loading M.R. Dizaji, M.R.H. Yazdi and M.A. Shirzi	5345
Design and Implementation of a System on FPGA for Fault Detection on Industrial Machines through Vibration Sensing P.K. Kannoju and Krishnaveni	5351
Development and Implementation of an Integrated Sensor Platform Based on Graphical Monitoring and Control W.J. Shyr and C.M. Lin	5358
Semi Active Control of Chaos in Systems Excited by Non-Ideal DC Motor S. Farokhi, A.Y. Komma and Z. Bayat	5367
Characterization of Capacitively Coupled Radio-Frequency Argon Plasma by Electrical Circuit Simulation B. Bora, H. Bhuyan, M. Favre, E. Wyndham and H. Chuaqui	5373
Novel Materials as Interlayer Low-K Dielectrics for CMOS Interconnect Applications T.R. Naik, V.R. Naik and N.P. Sarwade	5380
PLC Based POKE-YOKE System for Output Shaft Assembly K.R. Ghadge and P.P. Mone	5384
Walking Assist Device: The Electronic and Firmware Design K.S. Sim, K.Y. Low, C.P. Tso, H.Y. Ting and C.T. Lee	5390
An Architecture Analysis of ADCS for CubeSat: A Recipe for ADCS Design of ICUBE N.N. Abbas, H. Xiao, L.Y. Jun and M. Raza	5397
A Study on Nanocutting of Monocrystalline Silicon by Molecular Dynamics Simulation Z.W. Zhu, M.C. Liu and X.Q. Zhou	5405
The Research of Micro-Satellite Attitude Determination Based on Predictive Filter L. Cao, W.W. Yang, X.Q. Chen and Y.Y. Huang	5413

Solar Energy Electric 4400 Va, 3x220 Volts, 50 Hertz with Sliver Cells and Changeover Switch Based PLC Festo FC-34 S. Widodo and N. Ismail	5420
The Methods of Synthesis of Multilevel Circuits of Compositional Micro Program Control Units A.I. Al Rabea, M.S. Alkoffash, F. Almatarneh and B. Alhadidi	5429
Electrical and Magnetic Properties of $(\text{BiLi})_{1/2}(\text{FeV})_{1/2}\text{O}_3$ S.K. Barik and S.K. Bera	5437
The Study of Direct Tunneling Current in Strained MOS Device with Silicon Nitride Stack Gate Dielectric L.J. Xu, H.M. Zhang, H.Y. Hu, X.B. Xu and J.L. Ma	5442
Analytical Threshold Voltage Models for Strained Si/Strained $\text{Si}_{1-x}\text{Ge}_x$/Relaxd $\text{Si}_{1-y}\text{Ge}_y$ PMOSFET S.S. Qin, H.M. Zhang, H.Y. Hu, X.Y. Wang and G.Y. Wang	5447
Collector Resistance of Accumulation-Subcollector Transistors for SOI SiGe BiCMOS Technology X.B. Xu, H.M. Zhang, H.Y. Hu, S.S. Qin and J.T. Qu	5452
The Impact of Drain-Induced Barrier Lowering Effect on Threshold Voltage for Small-Scaled Strained Si/SiGe nMOSFET J.T. Qu, H.M. Zhang, H.Y. Hu, X.B. Xu, G.Y. Wang and X.Y. Wang	5457
Detemining the Thickness of Barriers and Well of Resonance Tunneling Diodes by Specified I-V Characteristic A. Shahhoseini, S. Ghorbanalipour and R. Faez	5464
The New Material Structure Design and Research of the GaAs-Based Resonant Tunneling Diodes J. Wang and B.Z. Zhang	5471
Study of a Novel Electrostatic Detection Sensor Y.X. Li and L.X. Xu	5476
Studies on the Preparation and Characterization of Ferroelectric PLZT Film Capacitors L. Liu, H. Wang, J.W. Xu, M.F. Ren and L. Yang	5483
Synthesis of Carbon Encapsulated Nickel Nanoparticles by Laser Ablation in Liquid K.Y. Niu, J. Sun and X.W. Du	5487
Electronic Transport Properties of SiC Nanotube with Antisite Defect J.X. Song and H.X. Liu	5495
A High Efficiency CMOS Power Amplfieur with a Diode Linearizer and Voltage Combining Transformers K.J. Kim, T.H. Lim, S.H. Park and K.H. Ahn	5500