

Table of Contents

Preface and Organizing Committee

Chapter 1: Material Science

Brief Review: Electrochemical Performance of LSCF Composite Cathodes - Influence of Ceria-Electrolyte and Metals Element S. Ahmad, M.S.A. Bakar, H.A. Rahman and A. Muchtar	3
Use of Imaging Techniques for Viewing the Internal Structure of Rubberised Asphalt Mixtures N.A. Hassan, G. Airey, R.P. Jaya, M.Z.H. Mahmud and N. Mashros	8
The Characteristics of Oil Palm Shell Biochar and Activated Carbon Produced via Microwave Heating A.M. Abioye and F.N. Ani	12
Surface Characteristics of Porous Coconut Shell Carbon Impregnated with Bimetallic Catalysts Y. Ibrahim, A.M.S. Khairul, N.M. Sutan, Y.H. Taufiq-Yap and M. Surahim	16
Parameter Optimization of AA6061-AA7075 Dissimilar Friction Stir Welding Using the Taguchi Method L.H. Shah, N.F. Zainal Ariffin and A.R. Razali	20
Impacts of Implementation of IBS Score Regulations of CIDB on the Concrete Volumes Required for Building Projects in Malaysia S.M.M.E. Ahmed, N.A.W.A. Zawawi and Z.B. Ghazali	24
Sustainable Removal of Heavy Metal Using Extracted <i>Pandanus amaryllifolius</i> Roxb. N. Ngadi, N.Y. Yahya and R. Abd Rahman	28
Sustainable Analysis in the Product Development of Al-Metal Matrix Composites Automotive Component N. Fatchurrohman, I. Iskandar, S. Suraya and K. Johan	32
Study on Fibre Length and Composition of Kenaf-Polypropylene (K-PP) Composite for Automobile Interior Parts X.H. Loh, M.A. M. Daud and M.Z. Selamat	36
Effect of Benzyl Urea on Properties of Recycled High Density Polyethylene/Ethylene Vinyl Acetate/Egg Shell Powder Composites R.N. Farahana, A.G. Supri and P.L. Teh	40
Synthesis and Characterization of Biochars from Textile Sludge Precursors K.S.A. Sohaimi, N. Ngadi and N.A. Najlaa Yac'cob	44
The Effects of Fibre Contents on the Tensile Strength and Surface Morphology of High Density Polyethylene/Palm Pressed Fibre Biocomposite Film A. Noor Fatheyah, R.A. Majid, M.D. Mohana Hasniza and W.H. Wan Hasamuddin	48
The Natural Frequency of the Shape Memory Alloy Anti-Symmetric Angle-Ply Composite Plates Using Finite Element Method Z.A. Rasid	52
Recycled High Density Polyethylene/Ethylene Vinyl Acetate (RHDPE/EVA)/Taro (<i>Colocasia esculenta</i>) Composites: The Effect of Caprolactam-Maleic Anhydride on Tensile Properties and Swelling Behaviour A.R.H. Fatimah, A.G. Supri and Z. Firuz	56
Effect of Filler Loading and Isophthalic Acid-Maleic Anhydride (IAMA) on Properties of Ethylene Vinyl Acetate/Natural Rubber/Potash Feldspar (EVA/NR/PF) Composites S.H. Ho, A.G. Supri and P.L. Teh	60
High Pressure Cold Spray (HPCS) Process as Coating Treatment for Magnesium Chassis: An Overview O. Nooririnah, A.A. Muhamad, S. Mohamed, R. Sham, R.Z. Raja Mohd Rasi, Y. Yusuf, U.A.A. Haji Azlan and Z. Amir Burhanuddin	64
Stirring Enhances Removal of Oil by Kapok Fiber C.S. Quek, N. Ngadi, M.A.A. Zaini and S. Ramakrishna	69

Mechanical Properties of Hybrid Thermosets from Vinyl Ester Resin and Acrylated Epoxidized Palm Oil (AEPO)	
A. Fakhari, A.R. Rahmat, M.U. Wahit, S.N.H. Mustapha and W.N. Wan Tajulruddin	73
The Effects of Evaporation Time on Morphological Structure of Polysulfone/Cellulose Acetate Phthalate/Polyvinylpyrrolidone (PSf/CAP/PVP) Blend Membranes	
A. Ali, R. Mohd Yunus, M. Awang and R. Mat	77
Mix Proportion of Concrete Containing Oil Palm Wastes as Replacement for Conventional Constituents	
E.P.K. Yong, D.C.L. Teo and N.M. Sutan	81
Effect of Fibre Loading on the Flexural Properties of Natural Fibre Reinforced Polymer Composites	
M. Davindrabrabu, P.S. Januar, B. Dandi, M.R. Mohd Ruzaimi and T. Cionita	85
Anticorrosion Epoxy Coating Enriched with Nanozinc and Montmorillonite (MMT)	
M. Nima, Z. Mohamad, A.M. Siti Najihah and N. Ngadi	89
Stabilization of Marine Clay by Biomass Silica (Non-Traditional) Stabilizers	
A. Marto, N.Z. Mohd Yunus, F. Pakir, N. Latifi, A.H. Mat Nor and C.S. Tan	93
Electrochemical Behaviour of High Stress Steel (AISI 4340) in CO₂ Environments with the Presence of H₂ Gas	
Y.P. Asmara, J.P. Siregar, T. Cionita and J. Alias	98
Development of UV LED Hydrogel Formulation Based on Polyacrylamide Hydrogel	
N.F. Ayub, S. Hashim and N. Adrus	102
Hydroxyapatite/ Chitosan Biocomposite for Remazol Blue Dyes Removal	
S. Hamzah and M.F.M. Salleh	106
Anticorrosion Performance of Zinc Ferrite Pigmented Lignin/Phenol Epoxy Novolac Resin Based Coating	
M.M. Ahmed, N.S. Nasri, U.D. Hamza, J. Mohammed, A. Garba and Z.H. Mohd	110
Corrosion Inhibition Study of Upgraded Bio-Oil Derived Empty Fruit Bunch Using Alumina	
N.S. Nasri, M.M. Ahmed, M. Amruddin, U.D. Hamza, J. Mohammed and Z.H. Mohd	114
Atmospheric Pressure Helium Plasma Treatment on 3C-SiC/Si Surface	
N.F. Mohd Nasir, S.K. Zaaba, N. Md Zuki, M.N.F.M. Kazim, M. Mazalan, Y. Wahab, P.W. Leech, P. Tanner and A.S. Holland	118
High Production of Carbon Nanotube Bundles with Fe₂O₃/Al₂O₃ Catalyst	
S. Shukrullah, N.M. Mohamed and M.S. Shaharun	122
Synthesis of Hydroxyl Terminated Epoxidized Natural Rubber as a Binder for Solid Rocket Propellant	
N.E.S. binti Abdul Razak, H. bin Mohd Nor and W.K. bin Wan Ali	127
Preparation and Characterization of High-Density Polyethylene Blends and Recycled Poly(ethylene terephthalate)	
M.N. Salleh, R.S. Chen, M.H. Ab Ghani, F.H. Kasim and A. Sahrim	131
The Deflection of the Shape Memory Alloy Composite Beams Using Finite Element Method	
Z.A. Rasid and R. Zahari	135
Pineapple Leaf Fibers Coated with Polyacrylamide Hydrogel	
S.K. Ghazali, N. Adrus and J. Jamaluddin	139
Flow Assisted Erosion-Corrosion of High Speed Steel (HSS) in Nanofluid Coolant	
Y.P. Asmara, Y.C. Wei, M.F. Ismail and K. Yusuf	143
Substrate Effect on Growth Behaviour of Well-Aligned ZnO Nanorods Using an Aqueous Solution Method	
R. Dalvand and S. Mahmud	147
The Synthesis of <i>In Situ</i> Cu-NbC-VC Nanocomposites by Mechanical Alloying	
W.M.H.H. Wan Omar, N. Bashirom, Z. Hussain, I.P. Almanar and W.A.R.A. Wan Ibrahim	151
Tensile Properties of Hybrid Sugar Palm/Kenaf Fibre Reinforced Polypropylene Composites	
D. Bachtiar, J.P. Siregar, A.S. bin Sulaiman and M.R. bin Mat Rejab	155
Tensile Properties of Pineapple Leaf Fibre Reinforced Unsaturated Polyester Composites	
J.P. Siregar, T. Cionita, D. Bachtiar and M.R.M. Rejab	159
Finite Element Model of Trimming CFRP Aerospace Composites	
R. Izamshah, M. Akmal, M.A. Md Ali, M. Hadzley, M.S. Kasim, M.A. Azam and M.A. Sulaiman	163

Pervaporation of Ethyl Acetate-Water Mixture through Sago/PVA Blend Membranes Cross-Linked with Glutaraldehyde	
A.M. Alamaria, M.G.M. Nawawi and Z. Zamrud	167
Study on Dissolution of Low Density Polyethylene (LDPE)	
S.L. Wong, N. Ngadi and T.A.T. Abdullah	170
Hydroxyl Terminated Natural Rubber (HTNR) as a Binder in Solid Rocket Propellant	
N. Baharulrazi, H. Mohd Nor and W.K. Wan Ali	174
Investigations on Composite Flexural Behaviour with Inclusion of CNT Enhanced Silica Aerogel in Epoxy Nanocomposites	
N. Mazlan, N. Termazi, S. Abdul Rashid and S. Rahmanian	179
Synthesis and Application of Carbon Cryogel Beads Using Coconut Husk for Dye Removal	
N. Ngadi, M. Jusoh, R.A. Rahman and Z. Mohamad	183
Effects of the Processing Methods on the Gas Permeability of PLA/Sepiolite Thin Films: Solution Casting versus Thermo Compression	
N. Moazeni, Z. Mohamad and N. Dehbari	187
Fabrication of Poly Caprolactone (PCL) Based Microspheres for Drug Delivery and Tissue Engineering Application	
G.C. Nyoke and N. Sultana	191
Fabrication and Characterization of PCL/GE-Based Electrospun Nanofibers for Tissue Engineering and Drug Delivery Application	
L.H. Chong, M.M. Lim and N. Sultana	195
Fabrication of BSA Loaded Poly(Caprolactone) (PCL) Microsphere Incorporated Chitosan Scaffolds for Tissues Engineering Application	
M.J. Rashid, L. Ali Reza and N. Sultana	199
Polycaprolactone(PCL)/Chitosan(Cs)-Based Scaffold by Freeze Drying Technique for Tissue Engineering and Drug Delivery Application	
N.Z. Zarith and N. Sultana	203
Synthesis of Nano-Polyaniline Using Different Ultrasonic Wave	
M.R. Husin, A. Arsad and O.Y. Alothman	207
Identification of Chemical Compound of Dammar Resin Using Various Solvents with Gas Chromatographic–Mass Spectrometric Method	
Jamal, I.N.G. Wardana, N. Hamidi and D. Widyauriawan	211
Thermal Properties Determination of Polypropylene/Rice Straw Biocomposite Foam via DSC	
N. Tugiman, Z. Mohamad and W.A. Wan Abdul Rahman	216
Effects of Different Carbon Sources for High Level Lactic Acid Production by <i>Lactobacillus casei</i>	
S.S. Hassan, R. Bt Abd Malek, A. Atim, S.S. Jikan and S.F.Z. Mohd Fuzi	220
Modification of Montmorillonite with Diamine Surfactants	
M. Zaini, R.A. Majid and H. Nikbakht	224
Pyrolysis of Empty Fruit Bunch (EFB) in a Vertical Fixed Bed Reactor	
K. Azduwin, M.J.M. Ridzuan, A.R. Mohamed and S.M. Hafis	228
Thermogravimetric Analysis of Different Calcination Temperature of Lemon Grass Ash	
N.F. Mohamed Yusof, H. Osman and R. Rahman	232
Green Synthesis and Characterization of Hydroxyapatite from Fish Scale Biowaste	
J. Sukaimi, S. Hamzah and M.S.M. Ghazali	235
Pyrolysis of Palm Pressed Fibre (PPF) towards Maximizing Bio-Oil Yield in a Fixed-Bed Reactor	
K. Azduwin, M.J.M. Ridzuan, A.R. Mohamed and S.M. Hafis	239
Thermal and Flammability Properties of Polypropylene Filled Rice Bran/Sepiolite Composite	
S.N. Aini Ghazali and Z. Mohamad	243
Syngas Production from Microwave Gasification of Oil Palm Biochars	
N. Ismail and F.N. Ani	247
Adsorption of Humic Substances by Using Coconut Copra	
M.F. Atan, K.A. Mapi, S.N.F. Ghazali, N. Abdul Rahman and S.F. Salleh	251
Magnetorheological Elastomers: A Review	
N.H. Rajhan, H.A. Hamid, I. Azmi and R. Ismail	255

Investigation of Plastic Injecting Moulding Process Optimization in Complex Shape Product A.A.B. Abd Aziz, S. Sulaiman, A.L. Moe and A. bin Abu	260
Evaluation of Palm Biodiesel - Diesel Blending Properties, Storage Stability and Corrosion Behavior R. Mat, W.N.A. Wan Nor Yuhaidi, M.J. Kamaruddin and O. Hassan	265
Removal of Reactive Black 5 Dye Using a New Polyacrylamide Grafted Cellulose Flocculant Derived from Pandan Leaves: Optimization Study N.Y. Yahya, N. Ngadi, I.I. Muhamad and M. Jusoh	269
Effect of Carbon Nanotube on the Mechanical Properties of Compatibilized Polylactic Acid/Natural Rubber Blend N.N.B. Mohammad, A. Arsad, A.R. Rahmat, S.Z. Mat Des and N.S. Abdullah Sani	273
Thermal Properties Determination of Polypropylene/Rice Straw Biocomposite Foam via TGA N. Tugiman, Z. Mohamad and W.A. Wan Abdul Rahman	277
Study of Thermal Energy Storage Using Oleic Acid Firman, I.N.G. Wardana, S. Soeparman and N. Hamidi	281
The Thermal Instability Analysis of Functionally Graded Carbon Nanotube Composite Plates Using Finite Element Method Z.A. Rasid and H. Yahaya	285
Optimization of Biodiesel Production from Transesterification of Waste Cooking Oils Using Alkaline Catalysts M.M. Zamberi, F.N. Ani and S.N.H. Hassan	289
Influence of Nanoclay on Mechanical Properties of Vinyl Ester/Acrylated Epoxidized Palm Oil Blends A. Fakhari, A.R. Rahmat, M.U. Wahit, Z.S. Alsagayar and S.N.H. Mustapha	293
The Effect of Polyvinyl Alcohol (PVA) on the Mix Proportion of Oil Palm Shell (OPS) Concrete C.C. Thong, D.C.L. Teo and C.K. Ng	297
Effect of the Formation of CuO Flowers and SnO₂ on the Growth of Tin Whiskers on Immersion Tin Surface Finish N.A. Fadil, S.Z. Yusof, A. Ourdjini and T.A. Abu Bakar	301
Renewable Coconut Shell Activated Carbon Based for Ethyl Orange Dye Removal N. Ngadi, M. Jusoh, H. Alias and Z.Y. Zakaria	306
Tensile Properties of Durian Seed Starch Filled Low Density Polyethylene Composites: Effects of Chemical Surface Modification by Acetic Acid N.M. Ismail, H. Osman and S. Husseinsyah	310
Fe(II) Biosorption Using <i>Pleurotus</i> Spent Mushroom Compost as Biosorbent under Batch Experiment A.N. Kamarudzaman, T.C. Chay, A. Amir and S. Abdul Talib	314
Effect of TiO₂ Mixed CaO Catalyst in Palm Oil Transesterification M. Mohamad and N. Ngadi	319
Effect of Rubber Seed Oil and Palm Oil Biodiesel Diesel Blends on Diesel Engine Emission and Combustion Characteristics I. Khalil, A.R.A. Aziz and S. Yusuf	323
Mechanical Properties of the 'Stretchable' Polyacrylamide-Gelatin Double Network Hydrogel N. Adrus, N.F. Ayub, N.A. Mohd Amer and J. Jamaluddin	328
Evaluation of PCL/GE-Based Electrospun Nanofibers for Tissue Engineering and Drug Delivery Application L.H. Chong, M.M. Lim and N. Sultana	332
Small Scale Pilot Plant Thermal Dryer for Sewage Sludge Dewatering System – A Preliminary Study M.S. Zakaria, S. Hassan and M. Faizairi	336
Effects of Alkaline Treatments on the Tensile Strength of Napier Grass Fibres J.A. M. Haameem, M.S. Abdul Majid, M. Haslan, M. Afendi, E.A. Helmi and F. Idris	340
Characterization of <i>In Situ</i> Cu-NbC-VC Nanocomposite by Mechanical Alloying and Microwave Sintering W.M.H.H. Wan Omar, N. Bashir, Z. Hussain, I.P. Almanar and W.A.R.A. Wan Ibrahim	344

Effect of Carbon Black Loading on Electrical Conductivity and Thermal Degradation of Poly (vinyl chloride)/Poly (ethylene oxide) Conductive Films M.D. Siti Hajar, A.G. Supri and A.J. Jalilah	348
Effect of Cooling and Isothermal Aging on Microstructure Using Electroless Nickel (Boron) Plating H. Wirda Kahar, A.M.Z. Akhtar, S.R.A. Idris and M. Ishak	352
Performance of Home-Scale Incinerator in Releasing NO_x and Hydrocarbon Gaseous M. Mohammad Taha, N.M.M. Mitan, J. Karjanto and M.Y. Nidzamuddin	357

Chapter 2: Thermo, Fluid and Flow Research

Numerical Simulation of Forced Heat Convection Turbulent Magnetic Nanofluid Flow in a Square Channel N.A. Che Sidik and H. Jafni	363
The Use of Lattice Boltzmann Numerical Method for Prediction of Nanofluid Flow in a Square Enclosure N.A. Che Sidik and R. Masoomzadeh	367
The Use of Compound Cooling Holes for Film Cooling at the End Wall of Combustor Simulator N.A. Che Sidik and S. Salimi	371
Analyzes of Film Cooling from Cylindrical and Row Trenched Holes with Alignment Angle of 90 Degrees at Low Blowing Ratio K. Ehsan and N.A. Che Sidik	376
Effect of Combination Factors of Operating Pressure, Nozzle Diameter and Riser Height on Sprinkler Irrigation Uniformity M. Osman, S.B. Hassan and K.B.W. Yusof	380
Numerical Prediction of Contaminant Removal from Cavity in Horizontal Channel by Constrained Interpolated Profile Method N.A. Che Sidik, A.S. Ahmad Sofianuddin and K.Y. Ahmat Rajab	384
Analyzes of Film Cooling Effectiveness from Cylindrical and Staggered Compound Cooling Holes with Alignment Angle of 30 Degree at the End of Combustor S. Salimi, N.A. Che Sidik, L. Jahanshaloo and K. Ehsan	389
Prediction of Fluid Flow in Artificial Cancellous Bone E.S. Abdull Yamin and N.A. Che Sidik	393
Numerical Analysis on Natural Convection Heat Transfer of a Heat Sink with Cylindrical Pin Fin Y.Z. Qin, A.N. Darus and N.A. Che Sidik	398
Numerical Simulation of Nanofluids for Improved Cooling Efficiency in Microchannel Heat Sink N.H. Mohamad Noh and N.A. Che Sidik	403
Development of Pico-Hydro Turbine for Domestic Use M.J.M. Ridzuan, S.M. Hafis, K. Azduwin, K.M. Firdaus and Z. Zarina	408
The Use of Lattice Boltzmann Method for Particulate Flow Analysis N.A. Che Sidik, L. Jahanshaloo, A. Ismail and A. Fazeli	413
Computational Analysis of Nanofluids in Heat Exchanger N.A. Che Sidik, C.S. Wei and A. Fazeli	418
Computational Investigation of Heat Transfer of Nanofluids in Domestic Water Heat Exchanger N.A. Che Sidik, L.Y. Keen and A. Fazeli	423
Removal of Contaminant Effectiveness in Cavity Channel Flow with Different Heated Wall Position N.A. Che Sidik, K.Y. Ahmat Rajab and A.S. Ahmad Sofianuddin	428
Thermogravimetric Kinetic Behavior of Malaysian Poultry Processing Dewatered Sludge (PPDS) during Combustion N. Aniza, S. Hassan, M.F.M. Nor and M. Fadhil	433
Ignition and Burnout Temperature Study of Poultry Processing Dewatered Sludge (PPDS) M. Fadhil, S. Hassan, N. Aniza, A. Hassan and S. Aris	438

Effect of Coolant Temperature on Desalination Process via Progressive Freeze Concentration	
A.H. Farah Hanim, A.R. Norfatiha, N. Ngadi, Z.Y. Zakaria and J. Mazura	443
Progressive Freeze Concentration of Coconut Water: Effect of Coolant Temperature on Process Efficiency and Heat Transfer	
S. Nor Zanariah, M.N. Noor Naimah, N. Ngadi, Z.Y. Zakaria and J. Mazura	447
Behaviour of Ice Crystal Growth in a Vertical Finned Cylindrical Freeze Concentrator	
A. Nurul Aini, S. Shafirah, N. Ngadi, Z.Y. Zakaria and J. Mazura	451
Effect of Circulation Flowrate on the Performance of a Spiral Finned Freeze Concentrator	
S. Shafirah, A. Nurul Aini, N. Ngadi, Z.Y. Zakaria and J. Mazura	455
Effect of Viscosity and Heating Temperature on an Intermittent Spray Jet of Starch Dispersion	
M.Y. Naz, S.A. Sulaiman and B. Ari-Wahjoedi	459
Use of CFD to Study the Resistance of Sprint Master Canoe	
O. Yaakob, Y.M. Ahmed and M.R. Othman	463
Investigation of Auto-Ignition of Heptane-CNG Mixture in HCCI Engine	
Firmansyah and A.R.A. Aziz	468
Sauter Mean Diameter Profiles of Droplets in a Continuous Spray Stream	
M.Y. Naz, S.A. Sulaiman and B. Ari-Wahjoedi	473
Parametric Study on a Thermal Energy Storage Containing Single PCM Sphere	
N.A.M. Amin, A. Mohamad, M.S.A. Majid, R. Daud, M. Afendi, M.A. Said, F. Bruno and M. Belusko	477
Performance and Emissions of a Micro-Gas Turbine Fueled with LPG/Producer Gas in a Dual Fuel Mode	
H. Sadig, S.A. Sulaiman, M.A. Said and S. Yusup	482
Numerical Analysis on the Effects of Mixed Convection of Particles Removal Flow over Heated Cavity Using Multi-Relaxation Time Thermal Lattice Boltzmann Method	
N.A. Che Sidik and A. Ali Khan	487
Effects of Numerical Simulation Geometry on Fluid Solid Particles Interaction Using Multi Relaxation Time Lattice Boltzmann Method	
N.A. Che Sidik and A. Ali Khan	491
An Equilibrium Model of Dewatered Sludge Combustion Using ASPEN PLUS	
A.H. Abbas, S.A. Sulaiman, M.S. Aris and M. Fadhil	495
Carbonated Water Injection for Recovery of Oil and Wettability Analysis	
M.F. Mat Ali, R. Junin, N.H. Md Aziz and A. Salleh	499
Jet Impingement Cooling System on the Pressure Side of Turbine Blade	
M.N. Musa and M.I.M. Khalid	503

Chapter 3: Applied Mechanics, Mathematical Modelling, Algorithms, Numerical Methods and Simulation

Strong Shielding Interaction Analysis Using J-Integral	
R. Daud, M.S.A. Majid, M. Afendi, N.A.M. Amin, A.K. Ariffin and S. Abdullah	511
Stochastic Homogenized Properties for Honeycomb Microstructure Based on First Order Perturbation	
K.S. Basaruddin	516
Mathematical Models for Productivity Rate of Automated Lines with Reliability Attributes of Mechanisms	
R. Usubamatov and T.C. Sin	521
Analysis of Soil Nailing under Earthquake Loading in Malaysia Using Finite Element Method	
M.F. Mohammad Zaki, W.A.A. Wan Ahmad, A. Ayob and T.K. Ying	526
Modelling of Flow Structure and Pollutant Dispersion in Symmetric Street Canyon	
N.H.M. Yusoff and N.A. Che Sidik	530
Finite Element Analysis on Brake Disc of an Educational All-Terrain-Vehicle	
M.Z. Hassan, A.M. Fudhail and M.A. Salim	535
Computational Analysis of Nanofluids in Vehicle Radiator	
N.A. Che Sidik, N.G. Yen Cheong and A. Fazeli	539

The Deformation of Human Eyeball when Undergoing Scleral Buckling Z. Ismail, A. Fitt and C. Please	544
New Phrase Chunking Algorithm for Myanmar Natural Language Processing M.P. Aung and A.L. Moe	548
Mathematical Modeling on Thermal Energy Storage Systems N.A.M. Amin, M.A. Said, A. Mohamad, M.S. Abdul Majid, M. Afendi, R. Daud, F. Bruno and M. Belusko	553
Implementation of Ant Colony Optimization Algorithm to Minimize Cost of Turning Process M.F.F. Ab Rashid, N.M.Z. Nik Mohamed, A.N. Mohd Rose, S.A.C. Ghani and W.S.W. Harun	558
Model Sensitivity Test of Large Eddy Simulation for Wind Flow and Pollutant Dispersion in a Street Canyon A.W.M. Yazid, N.A. Che Sidik, S.M. Salim and S. Mansor	562
A Narrative Review of Morphology of Cancellous Bone at Different Human Anatomy - Methods and Parameters A.A.R. Rabiatal, S.J. Fatihhi, M.N. Harun, M.R.A. Kadir and S. Ardiyansyah	567
Effect of Surface Roughness Parameters and Surface Texture for Reduced Friction S. Syahrullail and N. Nuraliza	572
Calculation of Axial Loads on Columns by Tributary Area Method and Finite Element Method M.F. Mohammad Zaki, M.Z.A. Mohd Zahid, A. Ayob and T.C. Fang	576
Variation of Stress Intensity Factor and Crack Distance Length for Double Edge Crack in Human Femur Bone N.A. Md Zain, R. Daud, W.Z.A.W. Muhamad, K.S. Basaruddin, Y. Bajuri, S.A. Abdul Halim and N.N. Mansor	580
Numerical Simulation of Stress Shielding Induced by Crack Interaction in Human Phalanx Bone S.A. Abdul Halim, N.A. Md Zain, N.N. Mansor, R. Daud and Y. Bajuri	584
The Effect of Trabecular Bone on the Mechanical Response of Human Mandible with Implant K.S. Basaruddin and R. Daud	588
rHDPE/Wood Fiber Composites: Effect of Maleic Anhydride on Tensile Properties and Morphology Analysis M.P.M. Hanif, A.G. Supri and F. Zainuddin	592
Enhancing Rollover Prevention and Vehicle Stability of Heavy Vehicle under Disturbance Effect F. Yakub and Y. Mori	596
Design Studies and Analysis of Single Phase 8S-12P Field Excitation Flux Switching Motor Z.A. Husin, E. Sulaiman, F. Khan, M.M.A. Mazlan and M.F. Omar	601
Dynamic System Modeling of Flexible Beam System Using Multi-Objective Optimization Differential Evolution Algorithm M.Z. Zakaria, M.S. Mohd Saad, H. Jamaluddin and R. Ahmad	605
Experimental Investigation and FE Stress Analysis of Adhesive T-Joint with and without Crack in Fluidization Bed A. Nor, M. Afendi, M.S. Abdul Majid, B. Izzawati, S. Nurhashima and A.R. Abdullah	609
Analysis of Raft Foundation with EPS Geofom for Earthquake Resistant M.F. Mohammad Zaki, M.F. Ramli, A. Ayob and M.T. Ahmad	613
Strength Classification of Aras as Fast-Growing Indigenous Species Timber in Sarawak G. Ismaili, K.K. Abdul Rahim, A. Duju, I. Openg and Z. Ismaili	617
Air Flow Analysis in Square Duct Bend M.N. Musa and M.N.H. Mukhtar	622
An Initial Study of the Effect of Minimum Quantity Lubricant of SiO₂ Nanoparticle with PEG on Surface Roughness during Milling of Mild Steel A.N. Mohd Khalil, A.N.M. Khalil, A.I. Azmi and M.A.M. Ali	627
Application of Flexural Timber Reinforcement in Light Concrete Beam Structure M.A. bin Zubir and N.J. Mohamad	631
FE Modeling and Analysis of Structural Adhesive T-Joint at Elevated Temperature B. Izzawati, M. Afendi, S. Nurhashima, A. Nor, A.R. Abdullah and R. Daud	635

The Effects of Winding Angles and Elevated Temperatures on the Crushing Behaviour of Glass Fibre/Epoxy Composite Pipes	
S.N. Fitriah, M.S. Abdul Majid, R. Daud and M. Afendi	639
Physical and Mechanical Properties of Industrial Waste Modified Mortar	
N.M. Sutan, I. Yakub and H. Jau	643
Influence of Mortar Incorporating Silica Based Waste Material on the Formation of C-S-H and Mechanical Strength Properties	
N. Tamanna, N.M. Sutan, I. Yakub, D.T.C. Lee and E.F. Ahmad	647
Determine Aerodynamic Characteristics for FX63-137 Aerofoil by Using Subsonic Wind Tunnel	
M.M. M. Saad and N. Asmuin	651
Mechanical Properties of Epoxidized Palm Oil/Epoxy Resin Blend	
Z.S. Alsagayar, A.R. Rahmat, A. Arsad, A. Fakhari and W.N. binti Wan Tajulruddin	655
Design Parameter to Develop Secondary Flow in Twin Screw Extruder	
S.A. Salahudeen and A.R. Rahmat	659
Study on Influence of Moisture Absorption Strength of Adhesive T-Joint	
S. Nurhashima, M. Afendi, B. Izzawati, A. Nor, A.R. Abdullah, N.A.M. Amin, M.S. Abdul Majid and R. Daud	663
Stability Condition for Single-Relaxation Time Isothermal Lattice Boltzmann Formulation	
N.A. Che Sidik and S.A. Razali	667
Numerical Validation for Wind Flow Field in a Street Canyon under Unstable Atmospheric Condition	
A.W.M. Yazid, N.A. Che Sidik, S.M. Salim and S. Mansor	671
Effect of Pressure and Nozzle Angle of Minimal Quantity Lubrication on Cutting Temperature and Tool Wear in Turning	
A. Yassin and C.Y. Teo	676
Recent Development on Fracture Analysis of Solder Joints	
E.P. Ooi, R. Daud, N.A.M. Amin and T.W. Hong	680
Review on Pipelines in Offshore Platform Processing System	
M.N. Ervina Efzan and S. Kesahvanveraragu	684
Numerical Simulation of Stress Change during Wellbore Injection	
M. Bataee and S. Irawan	688
Specific Properties of Novel Two-Dimensional Square Honeycomb Composite Structures	
M.R. Mat Rejab, W.A.W. Hassan, J.P. Siregar and D. Bachtiar	694
Evaluation of Palm Stearin as Shaft Lubricant	
N. Sapawe, S. Syahrullail and M.F. Idris	699
Aerodynamic Analysis on Proton Inspira by Simulation	
M. Nor Musa and M.Z.Z. Mohamad Zainol	704
The Effect of Binder on Mechanical Properties of Kenaf Fibre/Polypropylene Composites Using Full Factorial Method	
M. Amran, R. Izamshah, M. Hadzley, M. Shahir, M. Amri, M. Sanusi and H. Hilmi	709
New Approach for Fabrication of Auxetic Foam and Determination of Poisson's Ratio	
S.R. Mozafar and A. Zaini	713
Ageing Effects on Burst Pressure Test of Impacted Glass Fibre Reinforcement Epoxy (GRE) Pipes	
A. Hawa, M.S. Abdul Majid, M. Afendi, M. Haslan, K. Pranesh and N.A.M. Amin	717
Vibration Response Behaviour of Glass Fibre/Epoxy Laminates at Various Volume Fractions	
N.I.E. Farhana, M.S. Abdul Majid, M.P. Paulraj and E.A. Helmi	721
Performance Simulation of Glass Fibre/Epoxy Composite Pipes under Multiaxial Stress Loading	
Z.S. Nazirah, M.S. Abdul Majid and R. Daud	725
Analysis of Lightweight Concrete “Cakar Ayam” Foundation for Road Construction using Plaxis 3D Foundation Software	
A.H. Mat Nor, A.H. Yahuda and F. Pakir	729
Plasticity Behaviour of Sand Matrix Soils	
C.S. Tan, A. Marto, A.M. Makhtar and F. Pakir	734

A Study of Soil Stabilization by Hydrated Lime at Kampung Kedaik Asal, Rompin, Pahang, Malaysia	
A. Zukri and N.A.A.A. Ghani	738
Design of Chassis Frame for All-Terrain Vehicle for Educational Purposes	
M.Z. Hassan, J. Hendrie, A.M. Fudhail and M.A. Salim	742
Wall Thickness Optimization of High Powered Portable Multifunction Air Compressor Tank Using Finite Element Method	
O. Kurdi, S. binti Samat, M.A. bin Mohd Adnan, M.I. bin Khalit, Z. bin Idris, M.N. bin Mohammed Khalid, I. Yulianti and R. bin Marawi	746

Chapter 4: Power and Energy Applications, Electrical Research

Review of Photovoltaic/Thermal System Design and Heat Transfer Enhancement Methods	
A. Mohamad, N.A. Mohd Amin, W.C. Chong, M.S. Abdul Majid and R. Daud	753
Modeling of Piezoelectric Acoustic Energy Harvester	
S. Sidik, A. Putra and S.L. Kok	757
Design Optimization of Single-Phase Outer-Rotor 8S-8P Hybrid Excitation Flux Switching Motor for Electric Vehicle	
M.M.A. Mazlan, E. Sulaiman, M.Z. Ahmad, Z.A. Husin and H.A. Soomro	761
Parameter Sensitivity Study for Optimization of 12Slot-8Pole Three-Phase Wound Field Switched-Flux Machine	
F. Khan, E. Sulaiman, M.Z. Ahmad and Z. Aizat	765
Optimization of 6S-14P E-Core Hybrid Excitation Flux Switching Motor for Hybrid Electric Vehicle	
S.N.U. Zakaria and E. Sulaiman	770
Magnetic Flux Analysis of E-Core Hybrid Excited FSM with Various Rotor-Pole Topologies	
S.N.U. Zakaria and E. Sulaiman	774
Performance Comparison and Analysis of (HEFSM) and (FEFSM) Using Segmental Rotor Structure	
H.A. Soomro, E. Sulaiman and M.F. Omar	778
New Topology of Single-Phase Segmented Rotor Field Excitation Flux Switching Machine for High Density Air-Condition	
M.F. Omar, E. Sulaiman and H.A. Soomro	783
Analysis of a New Dual Excitation Flux Switching Machine with Outer-Rotor Configuration for Direct Drive EV	
M.Z. Ahmad, E. Sulaiman, Z.A. Haron, F. Khan and M.A. Mazlan	787
An Overview of Waste-to-Energy in Malaysia	
O. Sadeghi, A. Fazeli, M. Bakhtiarinejad and N.A. Che Sidik	792
Simulation of a Double-Effect Solar Absorption System for Traditional House in Yemen	
O. Zaid Ahmed and F.N. Ani	797
Review of Analysis on Vertical and Horizontal Axis Wind Turbines	
A. Mohamad, N.A. Mohd Amin, H.T. Toh, M.S. Abdul Majid and R. Daud	801
Potential Surplus of Rice Straw as a Source of Energy for Rural Communities in Indonesia	
M. Anshar, F.N. Ani and A.S. Kader	806
Solar Pumping System for Rural Areas Water Supply in Nigeria	
M.M. Muhammadu	811
Combustion Characteristics Modeling of Rice Husk as Fuel for Power Plant in Indonesia	
M. Anshar, F.N. Ani and A.S. Kader	815

Chapter 5: Detection, Measurement, Instrumentation, Assessment

Assessment of Subsurface Profile at SILC, Nusajaya by 2D Resistivity Method	
S.N. Mohd Akip Tan, E.T. Mohamad, R. Saad and M.M. Nordiana	823
Vehicle Brake Light Detection Using Hybrid Color Model	
S.A. Mohd Chachuli, K.A. Ishak and N. Yusop	828
Feature Extraction of Knee Joint Vibroarthrographic (VAG) Signal Using Statistical Means	
H.L. Tan, A.F. Bin Salleh, A.R. Norasmadi and Z. Wan Mohd	832

Investigation of Lightning Distribution Using LIS Data from TRMM Satellite N. Yusop, S.H. Zainal, N.A. Mohd Aris, S.A.M. Chachuli and M.M. Yunus	836
Fault Interpretation Using Image Logs M. Alizadeh, Z. Movahed, R. Junin, W.R.W. Sulaiman and M.Z. Jaafar	840
Design and Implementation of Shift Frequency Measurement System for Metal Detector Y.T. Win, A.L. Moe and A.K.K. Thet	844
Estimating the Lengthy Missing Log Interval Using Group Method of Data Handling (GMDH) Technique M. Ayoub and A.A. Mohamed	850