

Table of Contents

Preface and Organizing Committee

Chapter 1: Material Science

Tensile Shear Strength of Wood Adhesive from Recycled Polystyrene

M.A.H. Mohd Jasri, M. Afendi, N.Z. Nik, B. Izzawati, S. Nurhashima, A. Nor, S. Yahud and N.A.M. Amin 3

Comparison of Dry and Cryogenic Machining on Chip Formation and Coefficient of Friction in Turning AISI 4340 Alloy Steel

N.A. Raof, J.A. Ghani, J. Syarif, C.H. Che Haron and M.A. Hadi 7

Tribological Characterization of the Cutting Zone in Milling Nickel Based Alloy

M.A. Hadi, J.A. Ghani, C.H.C. Haron and N.A. Raof 12

Effect of Salicylic Acid / Ethanol Treatment on Tensile Properties and Morphology Analysis of Recycled High Density Polyethylene / Wood Fiber Composites

M.P.M. Hanif, A.G. Supri and Z. Firuz 17

Comparison on the Characteristics of Bio-Based Porous Carbons by Physical and Novel Chemical Activation

J. Mohammed, N.S. Nasri, M.A.A. Zaini, U.H. Dadum and M.M. Ahmed 22

Effect of Nano-Clay and their Dispersion Techniques on Compressive Properties of Unsaturated Polyester Resin

M.S. Fartini, M.S.A. Majid, M. Afendi, R. Daud and A. Mohamad 27

The Instability Improvement of the Shape Memory Alloy Composite Plates Subjected to In-Plane Parabolic Temperature Distribution

Z.A. Rasid, R. Zahari and A.B. Ayob 32

A Review of Porous Concrete Pavement: Applications and Engineering Properties

P.J. Ramadhansyah, M.Y. Mohd Ibrahim, M.R. Hainin and M.H. Wan Ibrahim 37

Natural-Synthetic Polymer Blend Composite Scaffold for Bone Tissue Engineering: Study of *In Vitro* Degradation and Protein Adsorption

N. Sultana 42

The Effects of Nickel Underlayer and Solder Dipping as Tin Whisker Mitigations in Tin Surface Finishes

H.P. Lim, A. Ourdjini and T.A. Abu Bakar 47

Fabrication and Characterization of Polycaprolactone (PCL)/Gelatin Electrospun Fibers

M.M. Lim, N. Sultana and A. Bin Yahya 52

Polycaprolactone(PCL)/Gelati(Ge)-Based Electrospun Nanofibers for Tissue Engineering and Drug Delivery Application

L.H. Chong, M.M. Lim and N. Sultana 57

Mechanical Properties of Polyamide 6 (Pa6) / Ethylene Vinyl Acetate (Eva) / Sepiolite Composite

N.T.M. Fauzi and Z. Mohamad 62

The Study of Morphological Structure and Raman Spectra of 3C-SiC Membranes

F.M.N. Nasir, P.W. Leech, G.K. Reeves, B.C. Johnson, P. Tanner and A.S. Holland 66

Effect of Epoxidation Level in Silica Filled Epoxidized Natural Rubber Compound on Cure, Rheological, Mechanical and Dynamic Properties

A.A. Rohadi, A.R. Rahmat and M.M. Kamal 71

Preliminary Study on Bamboo as Sound Absorber

F.A. Khair, A. Putra, M.J. Mohd Nor, N. Atiqah and M.Z. Selamat 76

Influence of Compatibilizer on Mechanical Properties of Polylactic Acid/Natural Rubber Blends

N.N.B. Mohammad, A. Arsad, A.R. Rahmat, M.S. Talib and M.S.Z. Mad Desa 81

Preparation and Characterization of Polyvinyl Alcohol/Starch Blend Film Composite

N.S. Lani and N. Ngadi 86

Effect of Maleic Anhydride (MA) on Properties of Recycled High Density Polyethylene/Ethylene Vinyl Acetate/Egg Shell Powder (rHDPE/EVA/ESP) Composites R.N. Farahana, A.G. Supri and P.L. Teh	91
Synthesis of a Compatibilizer and the Effects of Monomer Concentrations N.S. Abdullah Sani, A. Arsad and A.R. Rahmat	96
Preparation of Epoxy-Novolac Resin Binder Using Phenolic Rich Fractions of Biomass Pyrolytic Oil as Partial Substitute of Phenol M.M. Ahmed, N.S. Nasri, R. Mohsin, U.D. Hamza and J. Mohammed	101
Performance of RHA Blended Cement Concrete under Sodium Chloride via Wetting and Drying S.J. Dewi, P.J. Ramadhansyah, A.H. Norhidayah, A.A. Md. Maniruzzaman, M.R. Hainin and C.W. Che Norazman	106
Porous Concrete Paving Blocks Using Coarse Aggregate A.H. Nur Hidayah, M.N. Hasanah and P.J. Ramadhansyah	111
The Using Fungi Treatment as Green and Environmentally Process for Surface Modification of Natural Fibres S.M. Khoshnava, R. Rostami, M. Ismail and A. Valipour	116
Effects of Stone Powder on Water Absorption and Biodegradability of Low Density Polyethylene/Palm Pressed Fibre Composite Film N.F. Aris, R.A. Majid, W.H.W. Hassan, M.F. Abd Rahman and Y.M. Ng	123
Double Layer Concrete Paving Blocks Using Waste Tyre Rubber as Aggregate Replacement E. Jusli, H. Md Nor, P.J. Ramadhansyah and H. Zaiton	128
Partial Discharge Characteristic of Low Density Polyethylene and Silica Nanocomposite Aulia, Z. Abdul-Malek, Y.Z. Arief, M.A.M. Piah and M. Jaafar	133
Effect of PEGMAH on Tensile Properties and Swelling Behaviour of Recycled High Density Polyethylene/Ethylene Vinyl Acetate/Waste Tyre Dust (r-HDPE/EVA/WTG) Composites A.R.H. Fatimah, I.H. Abdul Aziz and A.G. Supri	137
Effect of Polyethylene Grafted Maleic Anhydride (PEGMAH) on Tensile Properties and Swelling Behavior of Ethylene Vinyl Acetate (EVA)/ Natural Rubber (NR)/ Feldspar Composites S.H. Ho, A.G. Supri and P.L. Teh	141
Electrical Properties Investigation of Unsaturated Polyester Resin with Carbon Black as Fillers R. Revati, S. Yahud and M.S.A. Majid	145
The Performances of Intimately Mix and Layer Methods in Microwave Assisted Pyrolysis System F. Mushtaq, R. Mat and F.N. Ani	150
Investigation of the Electrical Resistivity of 20µm-Gap Gold-DNA-Gold Structure: Exploiting the Current-Voltage Characteristics under a Variable External Magnetic Field N.M. Khatir, Z. Abdul-Malek and S.M. Banihashemian	155
Stress Analysis of Adhesive Bonding of Urea Granulator Fluidization Bed A. Nor Bakayah, M. Afendi, M.S. Abdul Majid, A.R. Abdullah and A.B. Shahriman	160
Mechanical Properties of Vinyl Ester Resin/Epoxidized Palm Oil/Nanoclay Composite A. Khalili, A.R. Rahmat, A. Fakhari and Z.S. Alsagayar	165
Development of Mathematical Equation for Chip Serration Frequency in End Milling of Titanium Alloy (Ti6Al4V) under the Influence of Magnetic Field from Permanent Magnets S.A. Sulaiman and A.N. Amin	170
Optimization of Preparation of Microwave Irradiated Bio-Based Materials as Porous Carbons for VOCs Removal Using Response Surface Methodology J. Mohammed, N.S. Nasri, M.A.A. Zaini, U.H. Dadum and M.M. Ahmed	175
Effect of Low Current for Machining Pit Using Electrical Discharge Machine S. Syahrullail, M.D. Razak, N. Sapawe, A. Yahya and N. Kartiko	180
Effects of Silicone Surfactant on the Water Absorption and Surface Morphology of Rigid Palm Oil-Based Polyurethane Foam S.M.A. Farhana, D. Mohd Haziq, N. Nurfatmah Pz and R.A. Majid	185
Tensile Strength of Untreated Napier Grass Fibre Reinforced Unsaturated Polyester Composites J.A. M. Haameem, M.S.A. Majid, E.A.H.E. Ubaidillah, M. Afendi, R. Daud and N.A.M. Amin	189

The Effect of Blending Ratio on Mechanical Properties of Polylactic Acid (PLA) / Ethylene Vinyl Acetate (EVA) A.M. Siti Najihah and Z. Mohamad	194
Effect of Polypropylene Fiber on the Flexural Strength of Ferrocement F. Usman, S. Shaharudin and M.F. Abd Ghani	199
Effect of Rice Husk Ash Fineness on the Properties of Concrete S.J. Dewi, P.J. Ramadhansyah, A.H. Norhidayah, A.A. Md. Maniruzzaman, M.R. Hainin and M.H. Wan Ibrahim	203
Effects of Elevated Temperatures on the Compression Strength of Nanoclay Filled Unsaturated Polyester Resin M.S. Fartini, M.S.A. Majid, M. Afendi, N.A.M. Amin and A. Mohamad	208
Effect of Zinc Coating Thickness on Corrosion Performance of Mild Steel in Atmospheric and Seawater Environment M.S.N. Idora, M.M. Rahman, M. Ismail and W.B.W. Nik	213
The Influence of Seawater Velocity to the Corrosion Rate and Paint Degradation at Mild Steel Plate Immersed in Sea Water M. Ferry, W.B. Wan Nik and C.W. Mohd Noor	218

Chapter 2: Thermo and Fluid Research

Computational Investigation of Film Cooling from Cylindrical and Row Trenched Cooling Holes near the Combustor End Wall N.A. Che Sidik and K. Ehsan	225
Application of the Lattice Boltzmann Method for Fluid Flow around Complex Geometry L. Jahanshaloo, N.A. Che Sidik and E. Kermani	230
Film-Cooling Techniques at the End of Combustor and Inlet of Turbine in a Gas Turbine Engine: A Review N.A. Che Sidik and K. Ehsan	236
COP Improvement of Thermoelectric Cooler through the Optimization of Heat Dissipation System M.B.S. Hafis, M.J.M. Ridzuan, A.Z.A. Firdaus, S.M. Shahril, R.N. Farahana and C.K. Chong	241
ANFIS Direct Inverse Control of Substrate in an Activated Sludge Wastewater Treatment System M.G. Sani, N. Abdul Wahab, Y.M. Sam, S.I. Samsudin and I.W. Jamaludin	246
The Effect of Water Hammer on Pressure Oscillation of Hydrogen Natural Gas Transient Flow G.A. Baba and A. Norsarahaida	251
Energy Savings on Automotive Air Conditioner Using Liquid-Suction Heat Exchanger Subcooler B.M. Wahyu, K. Sumeru, A.A. Azhar and N. Henry	256
Numerical Analysis of Modified Ejector Cycle on Ejector as an Expansion Device on Residential Air Conditioner K. Sumeru, H. Nasution and F.N. Ani	261
Bio-Oils Characteristic from Oil Palm Biomass from Different Fast Pyrolysis Techniques F.N. Ani, A.A. Salema and I. Hasan	266
Evaluation of the Prospects of Using Solar Thermal Air-Conditioning Systems in Saudi Arabia I. Mazharul, R.A. Muhammad and F.N. Ani	271
Potential Analysis of Rice Straw as an Alternative Energy Source for Substitute Coal in Indonesia Makhrani	276
The Oxidation Effect of Palm Oil Based Lubricant Using Four – Ball Tribotester S. Syahrullail and P. Zulhanafi	281
The Influence of Normal Load in Wear Resistance Characteristic of Palm Fatty Acid Distillate S. Syahrullail, H.M. Norhakem, N. Sapawe and A. Khalid	286
The Effect of Lubricant Viscosity in Cold Work Forward Extrusion S. Syahrullail, S. Kamitani and K. Nakanishi	291

Simulation of Flow over a Cavity Using Multi-Relaxation Time Thermal Lattice Boltzmann Method	
N.A. Che Sidik and A. Ali Khan	296
Study of Effect of Thermal Diffusivity on Ground Temperature for Malaysian Climate	
T.M. Yusof, S. Anuar and H. Ibrahim	301
Microwave Assisted Pyrolysis of Waste Biomass Resources for Bio-Oil Production	
F. Mushtaq, A.S. Channa, R. Mat and F.N. Ani	307
Transient Removal of Contaminants in Cavity of Mixed Convection in a Channel by Constrained Interpolated Profile Method	
N.A. Che Sidik, A.S. Ahmad Sofianuddin and K.Y. Ahmat Rajab	312
Simulation Film Cooling in the Leading Edge Region of a Turbine Blade (Trench Effect on Film Effectiveness from Cylinder in Crossflow)	
M.R. Bin Pairan, N. Binti Asmuin and H. bin Salleh	317
Experimental Investigation on the Thermal Insulation Properties of Eic-Cellulose	
S. Wuryanti, S. Poertadji, B. Soegijono and N. Henry	322
Evaluation of Paraffinic Mineral Oil as Lubricant in Cold Work Extrusion Process	
S. Syahrullail and M.A. Nurul Aini	327
Phenolic Rich Components Identification of Heavy Oil Fractions of Biomass Pyrolytic Oil for Epoxy Resin Binder	
M.M. Ahmed, N.S. Nasri, R. Mohsin, U.D. Hamza and J. Mohammed	332
Control System of Fish Feeding Devices in Actual Pond	
M.H. Bin Md Jamal and Y.M. Faiz	337

Chapter 3: Applied Mechanics

Finite Element and Experimental Study of Friction and Lubricants in Strip Drawing	
M.B.S. Hafis, M.J.M. Ridzuan, A.R. Mohamed and R.N. Farahana	345
Prototype of Compact Flexural Fatigue Testing Machine	
M.A.H. Mohd Jasri, M. Afendi and A.H.M. Fauzi	350
3D Finite Element Stress Analysis of Butt Adhesively Bonded Dissimilar Joint: Effect of Bond Thickness on Strength	
B. Izzawati, M. Afendi, M. Afif, S. Nurhashima, R. Daud, N.A.M. Amin and M.S.A. Majid	355
Comparison of NARX Neural Network and Classical Modelling Approaches	
M.G. Sani, N. Abdul Wahab, Y.M. Sam, S.I. Samsudin and I.W. Jamaludin	360
Strength of Ductile Adhesive Butt Joint Bonded with Dissimilar Adherents: Effect of Surface Roughness	
N. Atikah, M. Afendi, S. Hirmaliza, M.S. Abdul Majid, N. Amira and M. Mohd Noor	366
Short-Term Test of ± 55 Filament Wound GRE Composite Pipes under Multiaxial Stress Ratios	
K. Pranesh, M.S.A. Majid, M. Afendi, H. Marzuki and M.N.F. Mohd Kazim	371
Multi Objective Optimization of Surface Roughness and Workpiece Surface Temperature in Turning Operation	
A. Nooraziah and V.J. Tiagrajah	376
Pressure Distribution around Mixing Blades in Biodiesel Reactor Using Computational Fluid Dynamics (CFD)	
A. Sadikin, M.I. Md Noor, N.M. Isa, S.M. Basharie and A. Khalid	381
A Study of Software Approach for Predicting Weld Bead Geometry in Shielded Metal Arc Welding (SMAW) Process	
C.W.M. Noor, M. Ferry and W.B.W. Nik	386
The Interlaminar Shear Strength Test of Helical Wound Glass Fibre Reinforced Epoxy Laminates Subjected to Hydrothermal Ageing	
M.S.A. Majid, M. Afendi, R. Daud, N.A.M. Amin, A. Mohamad and M. Hekman	391
Friction and Wear Performance of Double Fraction Palm Olein Lubricant Using Pin-on-Disk Tribometer	
S. Syahrullail and N. Nuraliza	396
Wear Characterization of Aluminum Lubricated with Palm Olein at Different Normal Load	
S. Syahrullail, A.M. Azmi, N. Sapawe and A. Khalid	401

Strength of Three-Point-Bending Ductile Adhesive Joint with Dissimilar Adherents S. Nurhashima, M. Afendi, B. Izzawati, N.A.M. Amin, M.S.A. Majid and M. Taufik	406
Individual Stiffness of 3D Space Frame Thin Walled Structural Joint Considering Local Buckling Effect M.S. Yob, S. Mansor and R. Sulaiman	411
The Correlation between Applied Load and Sliding Speed on Wear Behaviour of Tamarind Wood under Dry Sliding Tests B.Y. Zamri and Y. Azmi	416
Shear Resistance of Trapezoidal Corrugated Web in Local Buckling F. Usman	421
Stress and Thermal Analysis of CubeSat Structure N. Athirah, M. Afendi, K. Hafizan, N.A.M. Amin and M.S.A. Majid	426
Predicting Surface Roughness in Turning Operation Using Extreme Learning Machine A. Nooraziah and V.J. Tiagrajah	431

Chapter 4: Mechanical Engineering

Estimation of Threshold Fluence, Absorption Coefficient and Thermal Loading of Car Coated Substrate in Laser Paint Removal M.K.A. Abdul Razab, M.S. Jaafar, A.A. Rahman and S.A. Saidi	439
Performance Analysis of Hydrocarbon Mixture to Replace R134a in an Automotive Air Conditioning System I. Wellid, K. Sumeru, A.A. Azhar, N. Henry and A.M. Abioye	444
The Effects of Alkaline Catalysts in Used Frying Oil Biodiesel on the Diesel Engine Performances M. Zamberi, F.N. Ani and S.G. Herawan	449
Application of ANN to Predict S.I. Engine Performance and Emission Characteristics Fuelled Bioethanol S.K. Thangavelu, A. Saleh Ahmed and F.N. Ani	454
Optimization of Heavy Duty Truck Chassis Design by Considering Torsional Stiffness and Mass of the Structure O. Kurdi, R.A. Rahman and P.M. Samin	459
Performance Study of Electric Compressor in Non-Electric Vehicle A.D. Afiq, A. Haziqah Zulkifli, N. Henry, A.A. Azhar, M.R.M. Perang and H. Mohd Jamil	464
Energy Analysis and Compressor Performance of Refrigerator System Using Programmable Logic Control (PLC) N. Henry, W.G. Munan, A.A. Azhar, K. Sumeru and A.L. Zulkarnain	469
Optimizing the Ignition Timing of a Converted CNG Mono-Gas Engine M. Fawzi, M.N. Hashim, F.H. Zulkifli and S.H. Amirnordin	474
Effect of Air Movement to Spray Development of Rapeseed Oil in Diesel Engine A. Sapit, M. Azahari, M. Fawzi, A. Khalid and B. Manshoor	479
Design and Development of Light Weight Engine Mounting for UTeM Formula Varsity Race Car M.S. Rahmat, A. Fauzi, M.R. Mansor, A.K.M. Yamin and N. Tamaldin	484
Modeling and Validation of Quarter Vehicle Traction Model A. Fauzi, S.A. Mazlan and H. Zamzuri	489
Effects of Storage Duration on Biodiesel Properties Derived from Waste Cooking Oil A. Khalid, N. Azman, H. Zakaria, B. Manshoor, I.B. Zaman, A. Sapit and A.M. Leman	494
Heterogeneous Microwave Irradiation Biodiesel Processing of Jatropha Oil F.N. Ani and A. Bakheit Elhameed	500
Performance Comparison between Diesel Fuel and Biodiesel Using a Low Cost Single Cylinder Diesel Engine Dynamometer M.Z. Jamaludin, S.G. Herawan, M.A. Yusmady and A. Fauzi	505
Screening Efficiency and Entrepreneurship Potential in Automotive Suppliers Using DEA A.H. Moradi Deluyi, S. Sofian, A.B. Abdul Hamid and M. Kazemi	510
Modelling and Validation of Vehicle Ride Comfort Model S.A. Abu Bakar, P.M. Samin and A.A. Azhar	515

Effects of Biodiesel Derived by Waste Cooking Oil on Fuel Consumption and Performance of Diesel Engine	
A. Khalid, A. Mudin, M. Jaat, N. Mustaffa, B. Manshoor, M. Fawzi, M.A. Razali and M.Z. Ngali	520
Optimal Composite Nonlinear Feedback Controller for an Active Front Steering System	
L. Ramli, Y.M. Sam, Z. Mohamed, M.K. Aripin and M.F. Ismail	526
Arm Effect on Performance of Vertical Axis Current Turbine Using RANS Simulation	
F. Behrouzi, A.M.A. Malik, M. Nakisa and Y.M. Ahmed	531
Modeling and Numerical Simulation for the Newly Designed Four Cavity Blades Vertical Axis Wind Turbine	
K. Hussein Suffer, R. Usubamatov, G.A. Quadir and K.A. Ismail	536
Development of Computer-Aided EDM for Machining Micropits on Spherical Surface of Hip Implant	
N. Kartiko, A. Yahya, S.H. Nor Liyana, S. Syahrullail and M.D. Razak	541
Hybrid Model for Evaluation of Manufacturing Sustainability Using Axiomatic Design Principles: A Case of Machining Processes	
L.G. Beng and B. Omar	546
Implementation of Wheelchair Motion Control Based on Electrooculography Using Simulation and Experimental Performance Testing	
N.M. Mohd Noor, S. Ahmad and S.N. Sidek	551
How Hotelling's T^2 Control Chart Performed with the Autocorrelation Imposed when Controlled Correlation is Used	
A. Umar Farouk, I. Mohamad and H. Idi	556
Implementation of Wireless Thermal Camera Remote Control System	
C.L. Wooi, Z. Abdul-Malek and S.V. Mashak	561
Propeller Effect on 3D Flow at the Stern Hull of a LNG Carrier Using Finite Volume Method	
M. Nakisa, A.M.A. Malik, Y.M. Ahmed, S. Steen, F. Behrouzi, R. Hassanzadeh and A. F. Sabki	566

Chapter 5: Electrical Research

Effect of Ambient Temperature Zinc Oxide Surge Arrester Condition Monitoring	
Z. Abdul-Maleka, A.H. Khavari, N.A. Hadi and S. Vahabi-Mashak	573
Partial Discharge Detection and Localization in Power Transformer Windings	
Z. Abdul-Malek, M.A.A. Aziz and A.S. Aziz	578
Observation of Isolated Breakdown Lightning Flashes in a Tropical Region	
K. Mehrazamir, Z. Abdul-Malek, B. Salimi and N.A. Ahmad	583
Chemical Analysis on the Effect of Pulsed Electric Fields in Pineapple Juices Preservation	
A.M. Dastgheib, Z. Buntat and M.A.B. Sidik	588
The Effect of Magnitude and Shape of Applied Voltage on the Partial Discharge Behavior in Cylindrical Cavity within a Dielectric Material	
N.A. Hadi, N. Hadi, Z. Abdul-Malek, S. Vahabi-Mashak and A.H. Khavari	593
Correlation between Third Harmonic Leakage Current and Thermography Image of Zinc Oxide Surge Arrester for Fault Monitoring Using Artificial Neural Network	
Y. Novizon, A.M. Zulkurnain and A.M. Zulkurnain	598
The Impacts of Hybrid Connection Pumped Storage Hydropower and Wind Power in Iranian Grid	
F. Mohammad and A.M. Zulkurnain	603
Surge Arrester Leakage Current Analysis by Using Particle Swarm Optimization Technique	
V.M. Saeed, Z. Abdul-Malek, N.A. Hadi, C.L. Wooi and A.H. Khavari	608
Model of Pulse Power Generator in Electrical Discharge Machining (EDM) System	
M.A. Erawan, A. Yahya, K. Nor Hisham, A.S. Samosir, M.A.A. Rahim, A. Trias and J.P.N. Kartiko	613
Return Strokes Measurements of Electric Field Produced by Lightning Discharges in Malaysia	
K. Mehrazamir, Z. Abdul-Malek, B. Salimi and N.A. Ahmad	618
Study on the Vertical Component of Lightning Electric Field during Monsoon Period in Malaysia	
B. Salimi, Z. Abdul-Malek, K. Mehrazamir and N.A. Ahmad	623

The Effect of Grounding Electrode Parameters on Soil Ionization and Transient Grounding Resistance Using Electromagnetic Field Approach M. Mokhatri and Z. Abdul-Malek	628
Supply Chain Performance in Electronics Manufacturing Industry H. Balfaqih and B. Yunus	633
Power Generator of Electrical Discharge Machining (EDM) System M.A. Erawan, A. Yahya, K. Nor Hisham, S. Syahrullail, A.B. Zurkarmawan and A. Trias	638
Control Strategy for Electrical Discharge Machining (EDM) Pulse Power Generator M.A. Erawan, K. Nor Hisham, A. Yahya, A. Trias, J.P.N. Kartiko, S.H. Nor Liyana, M. Nazriah and M.D. Razak	643
Gap Response of Linear and Non-Linear Discharge Model in Electrical Discharge Machining System A. Trias, A. Yahya and K. Nor Hisham	648

Chapter 6: Air Engineering

Numerical Simulation of Wind Flow Structures and Pollutant Dispersion within Street Canyon under Thermally Unstable Atmospheric Conditions A.M.Y. Witri, N.A. Che Sidik and S. Mohamed Salim	655
Position Tracking Controllers for Two Wheeled Inverted Pendulum Robot A.A. Bature, S. Buyamin, M.N. Ahmad and M. Muhammad	660
Numerical Simulation of High Reynolds Number Flow Structure in a Lid-Driven Cavity Using MRT-LES L. Jahanshaloo and N.A. Che Sidik	665
Validate of Local Exhaust Ventilation (LEV) Performance through Analytical, Experimental and Computational Fluid Dynamic (CFD): A Case Study Model N.H. Hasan, M.R. bin Said, A.M. Leman and N. Binti Asmuin	670
Two-Sided Lid-Driven Cavity Flow at Different Speed Ratio by Lattice Boltzmann Method N.A. Che Sidik and S.A. Razali	675
Numerical Prediction of Thermal Effect on Flow Field around a High-Rise Building Model F. Behrouzi, A.M.A. Malik, N.A. Che Sidik, M. Nakisa and A.M.Y. Witri	680
Measurement of Thermophoretic Velocity in Surrounding Gas of Nitrogen or Carbon Dioxide M. Azahari, A. Sapit, M. Fawzi, A. Khalid and A. Mohammed	686
Simulation of the Airflow Characteristics inside Hard Disk Drive W.C. Tan, T.W. Lee and E.A. Lim	691
A Verification and Validation Study of CFD Simulation of Wind-Induced Ventilation on Building with Single-Sided Opening N.F.M. Kasim, S.A. Zaki, M.S. Mat Ali, A.F. Mohammad and A. Abd Razak	696
Derivation of Effective Ratio of Acoustic Impedance for Impacting Viscoelastic Slug (Standard Linear Solid Model) and Elastic Rod A.B. Musa	701
Acoustic Energy Harvesting Using Flexible Panel and PVDF Films: A Preliminary Study S. Sidik, A. Putra, S.L. Kok, M.Z. Nuawi and A.A.J. Nawal	712
Survey on the Indirect Methods of Potential Flow Used for the Optimization of Airships Profile R.A. Hassanzadeh, S. Shariatmadari, A. Chegeni, S.A. Ghazanfari and M. Nakisa	717
Prediction of Wind Flow around High-Rise Buildings Using RANS Models F. Behrouzi, N.A.C. Sidik, A.M.A. Malik and M. Nakisa	724