

Joint Conference on Green Engineering Technology and Applied Computing 2019

IOP Conference Series: Materials Science and Engineering
Volume 551

Bangkok, Thailand
4 - 5 February 2019

Editors:

**Shayfull Zamree Abd Rahim
Mohd Mustafa Al-Bakri Abdullah
Mohd Nasir Mat Saad**

**Muhamad Farizuan Rosli
Azlan Mohd Zain
Mohamad Shukor Talib**

ISBN: 978-1-5108-9385-6
ISSN: 1757-8981

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence. Licence details:
<http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed by Curran Associates, Inc. (2019)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481

Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

EPOXIDATION REACTION PARAMETER OF PALM OLEIN FOR SYNTHESIS OF DIHYDROSTEARIC ACID (DHSA) VIA HYDROLYSIS REACTION	1
<i>Mohd Jumain Jalil, Noor Hidayu Abdul Rani, Aliff Farhan Mohd Yamin, Nur Radzi Adhary Anuar, Intan Suhada Azmi, Abdul Hadi</i>	
ADIPIC ACID CROSSLINKED NANOCRYSTALLINE CELLULOSE/CHITOSAN COMPOSITE: TENSILE PROPERTIES AND CRYSTALLINITY	10
<i>P.G. Gan, S.T. Sam, M.F. Abullah, C.C. Chow</i>	
A REVIEW ON PROCESS PARAMETERS AND THEIR EFFECTS ON DISSIMILAR FRICTION STIR WELDING OF ALUMINIUM AND STEEL ALLOYS	15
<i>Veerendra Chitturi, Srinivasa Rao Pedapati, Mokhtar Awang</i>	
A COMPARISON STUDY OF CARBONIZED KAPOK FIBRES TREATED BY SODIUM HYDROXIDE SOLUTION AND HYDROCHLORIC ACID SOLUTION AS AN ABSORBENT IN REMOVING OIL WASTE	21
<i>Nik Ahmad Faisal Nik Mohd Azlin Shah, Mohammad Abdullah, Muhamad Azrul Aizad Mohamed Saadun, Siti Nurul 'Ain Zaiton, Hairul Amiza Azman, Diana Che Lat, Ahmad Khudzairi Khalid, Nurhaslina Hambari</i>	
BIOLOGICAL PERFORMANCE OF INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS) PROCESS	28
<i>N. M. Zahari, P. N. Khairuddin, H. A. Mohiyaden, L. M. Sidek, D. Mohamad</i>	
PREDICTION OF FUTURE OZONE CONCENTRATION FOR NEXT THREE DAYS USING LINEAR REGRESSION AND NONLINEAR REGRESSION MODELS	34
<i>Nazirul Mubin Zahari, Raja Ezzah Shanimi, Mohd Hafiz Zawawi, Ahmad Zia Ul-Saufie, Daud Mohamad</i>	
MICROSTRUCTURE AND MECHANICAL PROPERTIES OF COLD ROLLED AISI 1018 LOW CARBON STEEL	40
<i>Khansaa D. Salman</i>	
INVESTIGATING THE EFFECTIVENESS OF WATER HYACINTH FIBER MAT FOR SOIL EROSION CONTROL	45
<i>M.F. Chow, H. Hashrim, S.T. Chong, Y.J. Ng</i>	
NUMERICAL SIMULATION ON THE FLAME PROPAGATION IN DUCT-VENTED GAS EXPLOSION: THE EFFECT OF DUCT LENGTH ON THE SECONDARY EXPLOSION	50
<i>Siti Zubaidah Sulaiman, Nurul Syazwana Noor Azmi, Azizan Ramli, Rafiziana Md Kasmani, Siti Kholijah Abdul Mudalip, Rohaida Che Man, Shalyda Md Shaarani, Zatul Iffah Mohd Arshad</i>	
STUDY OF EFFECTIVE LAYING PATTERN OF PERMEABLE INTERLOCKING CONCRETE PAVER FOR STORM-WATER MANAGEMENT	54
<i>M.F. Chow, J.W. Ng, S.T. Chong</i>	
EVALUATION OF PARTICLE REMOVAL EFFICIENCY IN SEDIMENTATION TANK INCORPORATING BOTTOM GRID STRUCTURE	59
<i>M.F. Chow, A. S. Ruzaiman, F. A. Rashid, S.T. Chong</i>	
INVESTIGATION OF TRIBOLOGICAL PROPERTIES OF LITHIUM GREASE WITH SIO₂ NANOPARTICLES	63
<i>Adam Rylski, Krzysztof Siczek</i>	
EFFECT OF MIXING PARAMETER ON EPOXY-ORGANO MONTMORILLONITE COMPOSITES: FLEXURAL AND MICROSCOPY ANALYSIS	68
<i>Yusrina Mat Daud, Azlin Fazlina Osman, Farah Farhana Zainal, Mohammad Firdaus Abu Hashim, Hasri M. Si, Hartati S. Si, Ng Soo Li, Sinar Arzuria Adnan</i>	
THE TRANSPLANTER TOOLS FOR SMALL PADDY FIELDS: SYSTEM OF RICE INTENSIFICATION (SRI) COMPLIANCE	72
<i>M.S. Imran, M.S. Abdul Manan, A.N.M. Khalil, S. Hamat, R.N. Ahmad, M.K. MdNaim</i>	
EVALUATION OF KERF AS A CRACK ARRESTOR IN A PLATE UNDER TENSION LOADING USING FEA	79
<i>M. Firdaus, M.S. Abdul Manan, A.F. Annuar, M.T. Mustafa, M.E. Azamudin</i>	
INVESTIGATION ON ANTIOXIDANTS COMPOUNDS COMPOSITION CONTAINS IN LEUCAENA LEUCOCEPHALA (PETAI BELALANG)	86
<i>Z Zarina, C M Ruzaidi, S T Sam, A M Mustafa Al Bakri</i>	
A REVIEW OF HYBRIDIZATION OF CARBON NANOTUBE INTO GRAPHENE FOR GAS SENSOR APPLICATION	92
<i>Nur Hanim Khairul Azman, Muhammad Mahyiddin Ramli, Siti Salwa Mat Isa</i>	

COMPARATIVE STUDIES OF RIB WAVEGUIDE MATERIAL FOR QUANTUM COMMUNICATION APPLICATION	100
<i>Roshidah Yusof, Norshamsuri Ali, Piotr Kolenderski, Karolina Slowik, N. A. M. Ahmad Hambali</i>	
ELECTRIC FIELD AND VOLTAGE DISTRIBUTION (EFVD) ANALYSIS FOR 132KV BUSHING TRANSFORMER USING FINITE ELEMENT ANALYSIS	105
<i>N. Abd. Rahman, M. Isa, MNKH Rohani, HA Hamid, MMAB Abdullah</i>	
GRAPHENE MULTI-LAYER ON PLASTIC SUBSTRATE	110
<i>Muhammad M. Ramli, Siti S. Mat Isa, Simon S. Henley</i>	
DEVELOPMENT AND EVALUATION OF IMMERSIVE CARD GAMES AS BOOSTER MEMORY IN ENGINEERING SCIENCE	114
<i>Nur Ismalina Haris, Amarul Talip, Mohd Zulfabli Hasan</i>	
HANDOVER DELAY ANALYSIS ON CELLULAR COMMUNICATION FOR CONNECTED CAR APPLICATION IN URBAN AREA	119
<i>Azarul Fahmin Ab Hamid, Md Tasyrif Abdul Rahman, Anas Rahman, Zairul Ameer Tan</i>	
PATH LOSS ANALYSIS CONSIDERING DOPPLER SHIFT EFFECT ON CELLULAR COMMUNICATION FOR CONNECTED CAR APPLICATION AT RURAL AREA	123
<i>Azarul Fahmin Ab Hamid, Md Tasyrif Abdul Rahman, Anas Rahman, Zairul Ameer Tan</i>	
WARPAGE OPTIMISATION USING VIRGIN AND RECYCLED POLYCARBONATES: A CASE STUDY OF FRONT PANEL HOUSING	128
<i>Nur Aisyah Miza Ahmad Tamizi, Shayfull Zamree Abd Rahim, Nurul Hidayah Mohamad Huzaim, Norshahira Roslan</i>	
WARPAGE OPTIMISATION ON THE FRONT PANEL HOUSING MOULDED BY ACRYLONITRILE BUTADIENE STYRENE (ABS) (VIRGIN AND RECYCLE) MATERIAL: A REVIEW	135
<i>Nurul Hidayah Mohamad Huzaim, Shayfull Zamree Abd Rahim, Norshahira Roslan, Nur Aisyah Miza Ahmad Tamizi</i>	
OPTIMIZATION OF SHRINKAGE AND STRENGTH OF THE MOLDED PART PRODUCED USING LDPE (VIRGIN AND RECYCLED) MATERIAL: A REVIEW	145
<i>Norshahira Roslan, Shayfull Zamree Abd Rahim, Nurul Hidayah Mohamad, Huzaim, Nur Aisyah Miza Ahmad Tamizi</i>	
OPTIMIZATION PARAMETERS TO REDUCE THE WARPAGE DEFECT OF PLASTIC INJECTION MOLDING PROCESS FOR A THIN-SHELL PART USING DESIGN OF EXPERIMENT	154
<i>H Radhwan, S M Nasir, M M Rashidi, K Kamarudin, Abdellah el-hadj Abdellah</i>	
DESIGN AND ANALYSIS OF JIGS AND FIXTURES FOR MANUFACTURING PROCESS	160
<i>H Radhwan, M S M Effendi, Muhamad Farizuan Rosli, Z Shayfull, K. N. Nadia</i>	
A MODIFIED ARTIFICIAL BEE COLONY ALGORITHM FOR FUNCTION OPTIMIZATION STRATEGY	169
<i>Chang-feng Chen, Nasarudin bin Daud, Kai-qing Zhou, Tadiwa Elisha Nyamasvisva</i>	
A REVIEW ON APPLIED STATISTICAL AND ARTIFICIAL INTELLIGENCE TECHNIQUES IN CRIME FORECASTING	174
<i>Alif Ridzuan Khairuddin, Razana Alwee, Habibollah Haron</i>	
MULTI-PERSPECTIVE AND LOW-COST COVERAGE NETWORK DESIGN FOR IMPLEMENTING IN CAMPUS NETWORK : A CASE STUDY	179
<i>A. Tongkaw</i>	
RAD DESIGN AND DATA MANAGEMENT SYSTEMS OF NATURAL RESOURCES AND LOCAL WISDOM	185
<i>S. Tongkaw, W. Inkaew, A. Tongkaw</i>	
E-LEARNING PROSPECT ON IMPROVING ACADEMIC PERFORMANCE IN OMANI UNIVERSITIES	190
<i>Ragad M. Tawafak, Awanis Romli, Ruzaini Abdullah Arshah</i>	
ENVIRONMENTAL RISKS IN SUPPLY CHAIN: RECOMMENDATIONS AND DIRECTIONS FOR FUTURE RESEARCH	195
<i>Arwa Mukhtar, Awanis Romli, Mansoor Abdullateef, Hael Al-bashiri</i>	
A BRIEF CONCEPTUAL VIEW ON CLASSIFICATION USING SUPPORT VECTOR MACHINE	200
<i>Nur Fatin Liyana Mohd Rosely, Azlan Mohd Zain, Yusliza Yusoff, NorFadzlan Yusup</i>	
TEACHING ICT SKILLS TO CHILDREN AND THE EMPOWERMENT OF FEMALE COLLEGE STUDENTS IN STEM IN JAPAN	205
<i>Kaori Tsukazaki, Takeshi Shintoku, Takaaki Fukuzoe</i>	
A REVIEW ON SIMULATION AND MODELLING FOR PATIENT FLOW IN EMERGENCY DEPARTMENT	209
<i>Nidal Hamza, Mazlina Abdul Majid, Khalid Adam, Noor Akma Abu Bakar</i>	

SIMULATION AND MODELLING THE HUMAN CROWD EVACUATION	213
<i>Noor Akma Abu Bakar, Mazlina Abdul Majid, Khalid Adam</i>	
DEEP LEARNING LAYER CONVOLUTIONAL NEURAL NETWORK (CNN) SCHEME FOR CANCER IMAGE	217
<i>Z Zainudin, S M Shamsuddin, S Hasan</i>	
THE PERFORMANCE REVIEW OF MRMR FOR GENE SELECTION AND CLASSIFICATION OF DNA MICROARRAYS	222
<i>Norfadzlan Yusup, Azlan Mohd Zain</i>	
AI FOR HEART RATE MEASUREMENTS FOR SPORT PERFORMANCE: A REVIEW	226
<i>Sharifah Zarith Rahmah Syed Ahmad, Yusliza Yusoff, Azlan Mohd Zain, Ruhaidah Samsudin, Nurzal Effiyana Ghazali</i>	
THE COMPARISON OF SEMANTIC SUFFIX TREE CLUSTERING AND SUFFIX TREE CLUSTERING ALGORITHM INFLUENCE ON THE ACCURACY RATE OF AN INDONESIAN QUESTION ANSWERING SYSTEM	231
<i>Dininta Isnurthina, Muhammad Ihsan Jambak, Novi Yusliani</i>	
CONCEPTUAL DESIGN OF A GENERIC NODAL ABSTRACTION (GNA) FOR A HUMAN-AGENT COLLABORATION SYSTEMS	236
<i>Khudhair Abbas Mohammed, Mazlina Abdul Majid, Mohd Sharifuddin Ahmad</i>	
WEATHER DATA ANALYSIS USING HADOOP: APPLICATIONS AND CHALLENGES	240
<i>Mohammed Adam Ibrahim Fakhredin, Khalid Adam, Noor Akma Abu Bakar, Mazlina Abdul Majid</i>	
CONSIDERATION OF CANNY EDGE DETECTION FOR EYE REDNESS IMAGE PROCESSING: A REVIEW	245
<i>M. R. H. Mohd Adnan, Azlan Mohd Zain, Habibollah Haron, Mohd Zulfaezal Che Azemin, Mahadi Bahari</i>	
COMPARISON OF DIMENSIONAL REDUCTION USING THE SINGULAR VALUE DECOMPOSITION ALGORITHM AND THE SELF ORGANIZING MAP ALGORITHM IN CLUSTERING RESULT OF TEXT DOCUMENTS	250
<i>Muhammad Ihsan Jambak, Ahmad Ikrom Izzuddin Jambak</i>	
INDOOR AIR QUALITY (IAQ) SENSING DEVICE PROTOTYPE: SOFTWARE-HARDWARE ARCHITECTURE AND PERFORMANCE	256
<i>A Nor Azhar, M Rahmah, AH Roslina, Z Fauziah</i>	
INFLUENCE OF NETWORK SPEED ON STRUCTURED QUERY LANGUAGE (SQL) DATABASE DATA TRANSMISSION PERFORMANCE IN AN INTERNET OF THINGS (IOT) SENSING DEVICE ON SINGLE BOARD COMPUTERS (SBC)	261
<i>A Nor Azhar, S Nur Ayuni Hasna, AH Roslina, Z Fauziah, M Rahmah</i>	
A REVIEW ON MULTIMODAL INTERACTION IN MIXED REALITY ENVIRONMENT	266
<i>Aladin Mohamad Yahya Fekri, Ismail Ajune Wanis</i>	
A REVIEW ON COLLABORATIVE LEARNING ENVIRONMENT ACROSS VIRTUAL AND AUGMENTED REALITY TECHNOLOGY	270
<i>Nor'a Muhammad Nur Affendy, Ismail Ajune Wanis</i>	
APPLICATION OF HYBRID PREDICTIVE TOOLS FOR PREDICTION AND SIMULATION IN SUPERCRITICAL FLUID EXTRACTION – AN OVERVIEW	274
<i>Sitinoor Adeib Idris, Masturah Markom</i>	
A CONCISE REVIEW OF NAMED ENTITY RECOGNITION SYSTEM: METHODS AND FEATURES	279
<i>M. Ikhwan Syafiq, M. Shukor Talib, Naomie Salim, Habibollah Haron, Razana Alwee</i>	
UFA-FASTSLAM: THE NEW HYBRID OF FIREFLY ALGORITHM AND FASTSLAM ALGORITHM	285
<i>R J Musridho, H Hasan, H Haron</i>	
AN OVERVIEW OF SURFACE RECONSTRUCTION USING PARTIAL DIFFERENTIAL EQUATION (PDE)	290
<i>M N M Othman, Y Yusoff, H Haron, L You</i>	
EMPIRICAL PERFORMANCE EVALUATION OF IMPUTATION TECHNIQUES USING MEDICAL DATASET	295
<i>O A Alade, R. Sallehuddin, A. Selamat</i>	
A COMPARATIVE STUDY ON HOPING MECHANISM OF LEACH PROTOCOL IN WIRELESS SENSOR NETWORKS: A SURVEY	300
<i>M. Mahmuddin, W. A. Alabadleh, L. M. Kamarudin</i>	
WM-LEACH - AN IMPROVED NETWORK LIFETIME LEACH PROTOCOL FOR WIRELESS SENSOR NETWORKS	305
<i>M. Mahmuddin, W. A. Alabadleh, L. M. Kamarudin</i>	

THROUGHPUT ANALYSIS OF WM-LEACH, LEACH, MH- LEACH AND V-LEACH PROTOCOL: A SIMULATION BASED APPROACH.....	310
<i>M. Mahmuddin, W. A. Alabadleh, L. M. Kamarudin</i>	
AN ENHANCED ENERGY EFFICIENT HYBRID ASYNCHRONOUS DUTY CYCLE MAC IN WIRELESS SENSOR	315
<i>Maulidin, M. Mahmuddin</i>	
EVALUATION PERFORMANCE OF HYBRID MAC PROTOCOL IN WIRELESS SENSOR NETWORK.....	320
<i>Maulidin, M. Mahmuddin</i>	
EDUCATIONAL DATA MINING: ENHANCEMENT OF STUDENT PERFORMANCE MODEL USING ENSEMBLE METHODS	325
<i>Samuel-Soma M Ajibade, Nor Bahiah Binti Ahmad, Siti Mariyam Shamsuddin</i>	
UTILIZATION OF FILTER FEATURE SELECTION WITH SUPPORT VECTOR MACHINE FOR TUMOURS CLASSIFICATION	330
<i>T A H Tengku Mazlin, R Sallehuddin, M Y Zuriahati</i>	
A REVIEW OF COMMON FEATURES IN COMPUTATIONAL THINKING FRAMEWORKS IN K-12 EDUCATION	335
<i>Filzah Zahilah Mohamed Zaki, Su Luan Wong, Mohd Ridzwan Yaakub</i>	
INTEGRATION OF STATISTICAL METHOD AND ZERNIKE MOMENT AS FEATURE EXTRACTION IN LIVENESS DETECTION.....	340
<i>A S Ahmad, R Hassan, Z Zakaria, R Ramlan</i>	
IMPROVED METAHEURISTIC ALGORITHMS FOR METABOLIC NETWORK OPTIMIZATION	345
<i>K Mohd Daud, Z Zakaria, R Hassan, M S Mohamad, Z Ali Shah</i>	
AUDIO DEFORMATION BASED DATA AUGMENTATION FOR CONVOLUTION NEURAL NETWORK IN VIBRATION ANALYSIS.....	350
<i>M F M Esa, N H Mustafa, N H M Radzi, R Sallehuddin</i>	
ELECTROMAGNETIC CONTROL OF FLUID WITH MAGNETIC PARTICLES IN THE STENOSED REGION.....	355
<i>Salah Uddin, Mahathir Mohamad, Mghazali Kamardan, Mahmud Abd Hakim Mohamad, Suliadi Sufahani, Roslan Rozaini</i>	
SUPPORT VECTOR MACHINE WITH PRINCIPLE COMPONENT ANALYSIS FOR ROAD TRAFFIC CRASH SEVERITY CLASSIFICATION	360
<i>N.H.M. Radzi, I.S.B. Gwari, N.H. Mustafa, R. Sallehuddin</i>	
EXCLUSION RADIUS PARTICLE SWARM OPTIMIZER	365
<i>Alvin Soo Chun Kit, Haza Nuzly Abdull Hamed, Mohd Adham Isa</i>	
A REVIEW ON SENTIMENT ANALYSIS TECHNIQUES AND APPLICATIONS	370
<i>Mohd Ridzwan Yaakub, Muhammad Iqbal Abu Latiffi, Liyana Safra Zaabar</i>	
A REVIEW ON TYPE OF ATTACKS ON FINGERPRINT IMAGE AND WATERMARKING TECHNIQUES.....	374
<i>Mohamed Lebcir, Suryanti Awang</i>	
FLOWER POLLINATION NEURAL NETWORK FOR HEART DISEASE CLASSIFICATION	379
<i>Mohamad Haider Bin Abu Yazid, Mohamad Shukor Talib, Muhammad Haikal Satria</i>	
AN ENHANCED LATENT SEMANTIC INDEXING WITH TERM FREQUENCY-INVERSE DOCUMENT FREQUENCY VARIANT FOR SOFTWARE TRACEABILITY.....	384
<i>R Tumeng, D N A Jawawi, M A Isa</i>	
ADOPTION OF MACHINE LEARNING TECHNIQUES IN SOFTWARE EFFORT ESTIMATION: AN OVERVIEW	389
<i>Siti Hajar Arbain, Nor Azizah Ali, Noorfa Haszlinna Mustafa</i>	
HYBRID PREDICTIVE MODELLING FOR MOTOR INSURANCE CLAIM.....	394
<i>Zuriahati Mohd Yunos, Siti Mariyam Shamsuddin, Roselina Sallehuddin, Razana Alvee</i>	
OVERVIEW OF MACHINE VISION ON DIGITAL IMAGING APPROACH FOR AUTOMATIC TUNA LENGTH MEASUREMENT	399
<i>Adam Ridhwan Sukiman, Haswadi Hassan, Azlan Mohd Zain, Alif Mukhtar, Kamarul Zaman Panatik</i>	
OPTIMUM PLACEMENT OF PIEZO-POLYMER POWER HARVESTER FOR EPICARDIAL PACEMAKER	404
<i>Mohd. Hafizulhadi Bin Mohd. Asri, Muhammad Haikal Satria, Shukor Talib, Hasri Samion</i>	
TAGUCHI METHOD USED IN OPTIMIZATION OF PLASTIC INJECTION MOLDING	409
<i>Nur Fatimah Kamarudin, Suhaila Mohamad Yusuf, Azlan Mohd Zain</i>	

THE EFFECT OF DIFFERENT CRUMB RUBBER LOADING ON THE PROPERTIES OF FLY ASH-BASED GEOPOLYMER CONCRETE	413
<i>Ahmad Azrem Azmi, Mohd Mustafa Al Bakri Abdullah, Che Mohd Ruzaidi Ghazali, Romisuhani Ahmad, Luqman Musa, Low Sheau Rou</i>	
PULL-OUT STRENGTH OF HOOKED STEEL FIBER REINFORCED GEOPOLYMER CONCRETE	422
<i>Meor Ahmad Faris, Mohd Mustafa Al Bakri Abdullah, Khairul Nizar Ismail, Nurul Aida Mohd Mortar, Mohammad Firdaus Abu Hashim, Abdul Hadi</i>	
THE EFFECT OF GEOPOLYMER CERAMIC ADDITIONS TO THE WETTABILITY AND SHEAR STRENGTH OF SN-AG-CU (SAC) SOLDER: A PRELIMINARY STUDY	428
<i>Nur Syahirah Mohamad Zaimi, Mohd Arif Anuar Mohd Salleh, Mohd Mustafa Al Bakri Abdullah, Marliza Mostapha, Romisuhani Ahmad</i>	
EFFECTS OF THERMAL RESISTANCE TO FLY ASH-BASED LIGHTWEIGHT GEOPOLYMER	434
<i>Wan Mastura Wan Ibrahim, Mohd Mustafa Al Bakri Abdullah, Romisuhani Ahmad, Amir Naveed, Che Mohd Ruzaidi Ghazali, Masdiyana Ibrahim</i>	
INFLUENCE OF SOLID-TO-LIQUID RATIO ON PROPERTIES OF FLY ASH GEOPOLYMER CERAMICS	442
<i>Romisuhani Ahmad, Mohd Mustafa Al Bakri Abdullah, Wan Mastura Wan Ibrahim, Andrei Victor Sandu, Warid Wazien Ahmad Zailani, Sharun Nizam Shahrin Nahar</i>	
A REVIEW OF CARBONATE MINERALS AS AN ADDITIVE TO GEOPOLYMER MATERIALS	449
<i>Ahmad Syauqi Sauffi, Wan Mastura Wan Ibrahim, Mohd Mustafa Al Bakri Abdulla, Romisuhani Ahmad, Fakhryna Ahmad Zaidi, Andrei Victor Sandu, Subaer</i>	
TENSILE TOUGHNESS IMPROVEMENT OF POLY(ETHYLENECO-VINYL ACETATE)(PEVA) BY INCORPORATION OF HYBRID PRE-DISPERSED O-MMT AND DESTABILIZED BENTONITE	454
<i>Tuty Farehyynn Mohammed Fitri, Azlin Fazlina Osman, Rahimah Othman, Khairul Anwar Abdul Halim</i>	
CHARACTERIZATION OF FLY ASH AND METAKAOLIN BLEND GEOPOLYMERS UNDER AMBIENT TEMPERATURE CONDITION	460
<i>Khairunnisa Zulkifly, Heah Cheng Yong, Mohd Mustafa Al Bakri Abdullah, Liew Yun Ming, Andrei Victor Sandu, Siti Fatimah Azzahran Abdullah</i>	
CORRELATION OF MICROSTRUCTURE AND FLEXURAL STRENGTH OF FLY ASH GEOPOLYMER OF VARYING MOLARITIES	465
<i>Ng Yong-Sing, Liew Yun-Ming, Heah Cheng-Yong, Mohd Mustafa Al Bakri Abdullah, Ng Hui-Teng, Amir Naveed</i>	
POROUS METAKAOLIN GEOPOLYMERS WITH TAILORED THERMAL CONDUCTIVITY	470
<i>Nur Ain Jaya, Liew Yun-Ming, Mohd Mustafa Al Bakri Abdullah, Heah Cheng-Yong</i>	
MECHANICAL PROPERTIES AND THERMAL CONDUCTIVITY OF LIGHTWEIGHT FOAMED GEOPOLYMER CONCRETES	475
<i>Siti Fatimah Azzahran Abdullah', Liew Yun-Ming, Mohd Mustafa Al Bakri Abdullah, Heah Cheng-Yong, Khairunnisa Zulkifly</i>	
MICROSTRUCTURAL ANALYSIS OF FLY ASH-BASED GEOPOLYMERS WITH VARIOUS ALKALI CONCENTRATION	481
<i>Ng Hui-Teng, Heah Cheng-Yong, Liew Yun-Ming, Mohd Mustafa Al Bakri Abdullah, Ng Yong-Sing</i>	
FABRICATION OF NOVEL GEOPOLYMER REINFORCED TIN COPPER SOLDER IN SUPPRESSING INTERMETALLIC LAYER GROWTH	486
<i>Nur Nadiah 'Izzati Binti Zulkifli, Mohd Mustafa Al Bakri Abdullah, Mohd Arif Anuar Mohd Salleh</i>	
PERFORMANCE OF GEOPOLYMER CONCRETE WHEN EXPOSED TO MARINE ENVIRONMENT	497
<i>Fakhryna Hamanee Ahmad Zaidi, Romisuhani Ahmad, Mohd Mustafa Al Bakri Abdullah, Muhammad Faheem Mohd Tahir, Zarina Yahya, Wan Mastura Wan Ibrahim, Ahmad Syauqi Sauffi</i>	
INVESTIGATION OF HEAT RELEASED DURING GEOPOLYMERIZATION WITH FLY ASH BASED GEOPOLYMER	502
<i>Rosnita Mohamed, Rafiza Abd Razak, Mohd Mustafa Al Bakri Abdullah, Raa Khimi Shuib, Nurul Aida Mohd Mortar, Warid Wazien Ahmad Zailani</i>	
SOLDERABILITY OF SN-0.7CU-0.05NI-XZN SOLDER BALL ON SN-0.7CU AND SN-0.7CU-0.05NI SOLDER COATING	509
<i>M. I. I. Ramli, M. A. A. Mohd Salleh</i>	
MORPHOLOGY ANALYSIS OF SPONTANEOUS TIN (SN) WHISKER GROWTH ON LEAD-FREE SOLDER	516
<i>Aimi Noorliyana Hashim, Mohd Arif Anuar Mohd Salleh, Noor Zaimah Mohd Mokhtar</i>	
PRELIMINARY STUDY OF ELECTRICAL CURRENT STRESSING ON TIN WHISKER FORMATION	522
<i>Noor Zaimah Mohd Mokhtar, Mohd Arif Anuar Mohd Salleh, Aimi Noorliyana Hashim</i>	

INFLUENCE OF EXPANDABLE GRAPHITE AND ALUMINIUM HYDROXIDE ON MECHANICAL PROPERTIES OF POLYURETHANE FOAM	527
<i>A.R. Rozyanty, D.M.S. Mofeed, Z Firuz, M.H.M. Amini</i>	
MESOPOROUS STRUCTURE OF DOPED AND UNDOPED PEG ON AG/TIO₂ THIN FILM	534
<i>Kamrosni Abdul Razak, Dewi Suriyani Che Halin, Azliza Azani, Mohd Mustafa Al Bakri Abdullah, Mohd Arif Anuar Mohd Salleh, Norsuria Mahmed, Muhammad Mahyiddin Ramli, Suhaila Sepeai</i>	
MICROSTRUCTURE AND WETTABILITY OF GRAPHENE OXIDE/TIO₂ THIN FILM PREPARED VIA SOL-GEL METHOD	539
<i>Azliza Azani, Dewi Suriyani Che Halin, Kamrosni Abdul Razak, Mohd Mustafa Al Bakri Abdullah, Mohd Arif Anuar Mohd Salleh, Norsuria Mahmed, Muhammad Mahyiddin Ramli, Suhaila Sepeai</i>	
ASSESSMENT OF SURFACE OZONE CONCENTRATION IN NORTHERN PENINSULAR MALAYSIA	544
<i>Nur Izzah Mohd Hashim, Nur Alia Izzati Mohd Yusoff, Norazian Mohamed Noor, Ahmad Zia Ul-Saufie</i>	
UTILIZATION OF RICE STRAW ASH DURING COMPOSTING OF FOOD WASTE AT DIFFERENT INITIAL C/N RATIOS FOR COMPOST QUALITY	555
<i>Siti Noor Baya Binti Khalib, Irmis Azura Binti Zakarya, Tengku Nuraiti Binti Tengku Izhar</i>	
DESIGN AND DEVELOPMENT OF TAPE APPLICATOR FOR MANAGING WIRE PURPOSES	562
<i>A.K Mohamad Syafiq, H Nur Amirah Adila, Muhammad Ikman Ishak, C.Y. Khor, M.U. Rosli, Mohd Riduan Jamalludin, M.A.M. Nawli</i>	
AN EXPERIMENTAL INVESTIGATION OF HUMIDITY EFFECT ON FABRICATION OF GREEN CERAMIC MEMBRANE PREPARED VIA DRY PHASE INVERSION	567
<i>Mohd Riduan Jamalludin, Siti Khadijah Hubadillah, Zawati Harun, Mohd Hafiz Dzarfan Othman, Muhammad Ikman Ishak, C.Y. Khor, M.U. Rosli, M.A.M. Nawli, A.K. Mohamad Syafiq, N.M Lailina, Ras izzati Ismail, Lee Yit Leng</i>	
CHARACTERISTICS AND HEATING VALUES OF PELLETS MADE FROM RAW AND CHARRED RICE RESIDUES-RUBBER TREE TWIGS MIXTURE	572
<i>Lee Yit Leng, Osumanu Haruna Ahmed, Samsuri Abdul Wahid, Norawanis Abdul Razak, Nurul Nadzirah Zulkeple, Ras Izzati Ismail, Nurlailina Makhtar</i>	
EFFECT OF SOLDER JOINT WIDTH TO THE MECHANICAL ASPECT IN THERMAL STRESS ANALYSIS	576
<i>J. S. Tan, C. Y. Khor, Muhammad Ikman Ishak, M. U. Rosli, Mohd Riduan Jamalludin, M. A. M. Nawli, A.K. Mohamad Syafiq, M.S. Abdul Aziz</i>	
THE INFLUENCE OF SPIRAL BLADE DISTRIBUTOR ON PRESSURE DROP IN A SWIRLING FLUIDIZED BED	581
<i>M. A. M. Nawli, Mohd Razman Amin, M. S. Kasim, R. Izamshah, Muhammad Ikman Ishak, C. Y. Khor, M. U. Rosli, Mohd Riduan Jamalludin, A. K. Mohamad Syafiq</i>	
INVESTIGATION ON THE MECHANICAL PROPERTIES OF BANANA TRUNK FIBRE-REINFORCED POLYMER COMPOSITES FOR FURNITURE MAKING APPLICATION	585
<i>Muhammad Ikman Ishak, C.N. Ismail, C.Y. Khor, M.U. Rosli, Mohd Riduan Jamalludin, M.H.M. Hazwan, M.A.M. Nawli, A.K. Mohamad Syafiq</i>	
SIMULATION-BASED OPTIMIZATION OF PLASTIC INJECTION MOLDING PARAMETER FOR AIRCRAFT PART FABRICATION USING RESPONSE SURFACE METHODOLOGY (RSM)	589
<i>M.U. Rosli, Muhammad Ikman Ishak, Mohd Riduan Jamalludin, C.Y. Khor, M.A.M. Nawli, A.K. Mohamad Syafiq</i>	
THEORETICAL FRAMEWORK OF UNIVERSAL DESIGN PRINCIPLE (UDP) APPROACH CONSIDERING HAPTIC EXPLORATORY PROCEDURE (HEP) OF VISUALLY IMPAIRED PERSON IN USING TRIZ INTEGRATION	593
<i>S. Shahrin, KAAA Rahman, KM Kamarudin, R. Che Me</i>	
OPTIMIZATION OF LAMINATED COMPOSITES CHARACTERISTICS VIA INTEGRATION OF CHAMIS EQUATION, TAGUCHI METHOD AND PRINCIPAL COMPONENT ANALYSIS	598
<i>Syafiq Syarafuddin Salam, Nik Mizamzul Mehat, Shahrul Kamaruddin</i>	
EFFECT OF EXTRACTION AND FRACTIONATION ON ANTIOXIDANT ACTIVITY OF EXTRACT AND FRACTION CRESCENTIA CUJETE L LEAVES	606
<i>Hartati, Abd Muis, Narhaeda, Hasmida Mohd Nasir, Nur Salsabila Md Norodin</i>	
SYNTHESIS OF METASILICATE GEL FROM RICE HUSK AND ITS APPLICATION AS MEDIUM OF GROWTH SINGLE CRYSTAL CALCIUM TARTRATE TETRAHYDRATE (CAC₄H₄O₆.4H₂O)	610
<i>Suriati Eka Putri, Hasri, Sumiati Side, FR Yunanda, Subaer</i>	
FABRICATION OF ZEOLITE-GEOPOLYMER HYBRID BULK MATERIALS BASED ON LATERITE SOILS DEPOSIT GOWA REGENCY, SOUTH SULAWESI, INDONESIA	615
<i>Anita Dewi Permatasari, Nur Akifah, Nur Syamsih Amalia, Muhammad Rizal Fahlepy, Susilo Sudarman Desa, Subaer</i>	

INFLUENCE OF MANGANESE SUBSTITUTION ON PHOTOCATALYTIC ACTIVITY OF $Fe_{3-x}Mn_xO_4$ CATALYST BY HETEROGENEOUS PHOTO FENTON-LIKE REACTION	622
<i>Rasyidah Alrozi, Nurul Adzwin Noordin, Elsabba Edwin, Nor Aida Zubir, Norhaslinda Nasuha, Hawaiah Imam Maarof, Mohamad Anuar Kamaruddin</i>	
DEVELOPMENT OF HYDRO-DEBRIS 2D MODEL	628
<i>Puji Harsanto, Jazaul Ikhsan, Nursetiawan, Mohd Remy Rozainy, Khairy Abdul Wahab</i>	
ACOUSTIC DOPPLER CURRENT PROFILER MEASUREMENT OF RIVER DISCHARGE AT SUNGAI PERAK, BOTA KIRI	633
<i>Wan Ruslan Ismail, Muhammad Shazril Idris Ibrahim, Ismail Abustan, Mohd Remy Rozainy, Sumayyah Aimi Mohd Najib, Muhammad Faiz Syazwan</i>	
AN EXPERIENCE OF HYDRAULIC PHYSICAL MODEL STUDY IN MALAYSIA	637
<i>Zainordin Firdaus Zulkefly, Ismail Abustan, Mohd Remy Rozainy, Khairy Abdul Wahab</i>	
SUSTAINABLE EXTRACTION OF MICRONUTRIENT OF FOOD WASTE BY THERMAL TREATMENT UNDER ELEVATING TEMPERATURE	643
<i>M.A. Kamaruddin, Z.N. Azman, N.F. Ahmad, M.H. Hanif</i>	
RECOVERY OF IRON FROM ELECTRIC ARC FURNACE SLAG: EFFECT OF HEATING TEMPERATURE AND TIME	649
<i>Norhaslinda Nasuha, Nor Shaziela Nobri@Mohd Shukri, Nurizani Edora Rohizat, Rasyidah Alrozi, Nor Aida Zubir, Hawaiah Imam Maarof</i>	
SYNTHESIS OF EPOXIDIZED OLEIC ACID- BASED PALM OIL BY PERACID MECHANISM	654
<i>Mohd Jumain Jalil, Aliff Farhan Mohd Yamin, Mohd Saufi Md Zaini, Mohd Azahar Mohd Ariff, Siu Hua Chang, Norhashimah Morad, Abdul Hadi</i>	
A PRELIMINARY STUDY OF THERMAL COMFORT AND LIGHTING IN IHL LIBRARY BUILDING	659
<i>Norasikin Hussin, Azli Abd Razak, Faizal Baharum, Y. Yaakob</i>	
REMOVAL OF NICKEL, ZINC AND COPPER FROM PLATING PROCESS INDUSTRIAL RAW EFFLUENT VIA HYDROXIDE PRECIPITATION VERSUS SULPHIDE PRECIPITATION	664
<i>Nur Ain Zainuddin, Tengku Azwan Raja Mamat, Hawaiah Imam Maarof, Siti Wahidah Puasa, Siti Rohana Mohd Yatim</i>	
ASSESSMENT OF AMBIENT AIR POLLUTION IN LANGKAWI ISLAND, MALAYSIA	670
<i>Nur Elis Sharmila Zulazmi, Ahmad Zia Ul-Saufie, Wan Nur Shaziayani Wan Mohd Rosly, Norazian Mohamed Noor, Nor Aida Zubir</i>	
BIOYNTHESESIS OF SILVER NANOPARTICLES USING GRAPTOPHYLLUM PICTUM LEAVES EXTRACTS	676
<i>Mohamed Syazwan Osman, Muhammad Ismail, Khairunnisa Khairuddin, Najwa Azis, Nur Syifa Salim, Nur Aqilah Zaini, Norfezah Md Noor</i>	
SYNTHESIS OF DIMERCAPTOSUCCINIC ACID (DMSA) COATED MAGNETIC NANOPARTICLES: FEASIBILITY ON DYE DECOLORIZATION AND HEAVY METAL ADSORPTION	681
<i>Mohamed Syazwan Osman, Noorfarah Asyiqin Noorossaidy, Najwa Azis, Nur Syifa Salim, Nur Aqilah Zaini, Nur Alwani Ali Bashah</i>	
OPTIMIZATION OF ACID ORANGE II DEGRADATION USING $Fe_{3-x}Mn_xO_4$ CATALYST IN UV ASSISTED FENTON-LIKE REACTION	686
<i>Elsabba Edwin, Nor Aida Zubir, Mohamad Khairul Azam Selamat, Rasyidah Alrozi, Norhaslinda Nasuha, Hawaiah Imam Maarof</i>	
SCREENING OF FACTORS INFLUENCING PECTIN EXTRACTION OF POMELO PEELS USING 2-LEVEL FACTORIAL DESIGN	693
<i>Halifah Pagarra, Roshanida A. Rahman, Abd. Muis, dan Arifah Novia Arifin</i>	
THE EFFECT OF N-HEXANE EXTRACT OF SAMBILOTO LEAVES (ANDROGRAPHIS PANICULATA) ON SPERMATOOZA QUALITY OF MALE ICR MICE (MUS MUSCULUS)	700
<i>Andi Asmawati Azis, Adnan, Sitti Nurmaidah, Andi Citra Pratiwi</i>	
STUDY PHOTODEGRADATION OF ACID ORANGE 7 USING ZNO WASTE BATTERIES	709
<i>Hasri, Sugiarti, Sadriadi</i>	
RESEARCH DESIGN AND IDENTIFICATION OF THE PROJECT METHODOLOGY SOLUTIONS USING THE FINITE ELEMENT METHOD	714
<i>Alina Bianca Pop, Aurel Mihail Titu, Gheorghe Ioan Pop, Costel Ceocea, Stefan Titu</i>	
REDUCTION OF PM10 EMISSION FROM A RETROFITTED MULTICYCLONE	720
<i>M. Dewika, M. Rashid, M.P. Khairuminisa, J. Ruwaida, Y.Y. Sara</i>	
CHARACTERISTICS OF WILD ORCHIDS IN MALLAWA RESORT AT BANTIMURUNG BULUSARAUNG NATIONAL PARK, SOUTH SULAWESI, INDONESIA	727
<i>Siti Fatmah Hiola, Gufnan Darma Dirawan, Muhammad Wiharto, Syamsiah</i>	
Author Index	