

# **2nd International Conference on Materials Technology and Energy (ICMTE 2019)**

IOP Conference Series: Materials Science and Engineering  
Volume 943

Miri, Malaysia  
6 – 8 November 2019

## **Editors:**

**Sukanta Roy  
Yam Ke San**

ISBN: 978-1-7138-4777-9  
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 with permission by Curran Associates, Inc. (2022)

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](mailto: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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

Preface	
Committee	
Conference Picture	
Keynote Speakers	
Acknowledgement of Sponsor: ICMTE2019	
Peer review declaration	
Weed Pixel Level Classification Based on Evolving Feature Selection on Local Binary Pattern With Shallow Network Classifier.....	1
<i>Basil Andy Lease, WK Wong, L Gopal, W. R. Chiong</i>	
Influence of Azodicarbonamide on Physical and Mechanical Behaviours of Thermoplastic Blend .....	10
<i>Ruey Shan Chen, Sahrim Ahmad</i>	
Analysis of Wind Energy Possibilities of Different Sites in India. ....	16
<i>P Sarmah, M Z Hussain, S Khan</i>	
CCSDS-MHC on Raspberry Pi for Lossless Hyperspectral Image Compression .....	25
<i>N A A Samah, N R M Noor, E A Bakar, M K M Desa</i>	
A review of chemical stabilisation in road construction.....	35
<i>E H Tan, E M M Zahran, S J Tan</i>	
Synthesis and Size Control of Aluminum Nanoparticles using Solution Plasma Process .....	44
<i>B Y Y Liew, M S Ranjit, M R M Julaihi, P Y N Yek, T Shibayama</i>	
Manipulation of Electrolyte Concentration and Cathode Morphology to Control the size of the Carbon Nanoparticles .....	55
<i>M S Ranjit, B L Y Yang, M R M Julaihi</i>	
Characterization and evaluation of copper-doped akermanite ceramic .....	67
<i>M M Htun, A F M Noor, M Kawashita, Y M B Ismail</i>	
Study on size control of TiO <sub>2</sub> nanoparticles synthesized using solution plasma process .....	73
<i>B W M Yii, P Y N Yek, M S Ranjit, B Y Y Liew, M R M Julaihi</i>	
Application of variable geometry turbine turbochargers to gasoline engines- A review.....	82
<i>S Dasgupta, P Sarmah, P P Borthakur</i>	
Investigation on the effect of ultrasonic-assisted transesterification for green synthesis of glycerol carbonate from crude glycerol.....	97
<i>P K Lo, S Y Leong, C Y Tan</i>	
Direct Fermentation of Oil Palm ( <i>Elaeis guineensis</i> ) Trunk Sap to Bioethanol by <i>Saccharomyces cerevisiae</i> .....	112
<i>A. H. Norhazimah, F.M.N. Siti, M. Aida, A.B. Dilaeleyana, M. A. Nur Shahirah</i>	
Experimental Investigation of the Flexural Behavior of Steel Fiber Reinforced Concrete .....	118
<i>A S Karzad, Z Al-Sadoon, M Leblouba, M Maalej</i>	

Photo-voltaic Powered Electric Vehicle Fast Charger .....	124
<i>C P Y Lai, K H Law, K H Lim</i>	
A laboratory investigation of the compaction properties of road sub-base stabilised with cement and latex copolymer. ....	138
<i>E H Tan, E M M Zahran</i>	
Surface Engineering of Titanium Using Anodization and Plasma Treatment.....	150
<i>Manjaiah Mallaiah, Ravi Kumar Gupta</i>	
Temperature on the Mechanical, Thermal and Barrier Property of Polyurethane .....	158
<i>P I Yeap, N Y Yuhana, S Fariz, M Z Otoh</i>	
The Mechanical and Thermal Properties of Polyurethanes/Precipitated Calcium Carbonate Composites .....	168
<i>Q Y Lai, N Y Yuhana, S Fariz, M Z Otoh</i>	
Finite Element analysis: Predicting cutting force in turning of Inconel 625 using ceramic tools .....	179
<i>M M Reddy, L C S William</i>	
Telerobot: Failure Detection Using Imaging Technique for Piping Internal Surfaces .....	187
<i>H.M.A. Hussein, Aya A. A. Ramadan, Ravi Kumar Gupta</i>	
Extraction of reinforced epoxy nanocomposite using agricultural waste biomass .....	194
<i>Manpreet Kaur, N. M. Mubarak, Bridgid Lai Fui Chin, Mohammad Khalid, Rama Rao Karri, Rashmi Walvekar, E.C. Abdullah, Faisal Amri Tanjung</i>	
A study on the challenges of implementing green building concept in Sarawak, Malaysia.....	209
<i>Yee Yong Lee, Muhd Syaznie Ikqmal Azmi, Yeong Huei Lee</i>	
Monolayer grafting of APTES modified graphene oxide on silica coated magnetite: Synthesis, characterization and application in heavy oil removal .....	216
<i>Chung Ye Wong, Inn Shi Tan, Henry Chee Yew Foo, Daniel Kuok Ho Tang, Yie Hua Tan, Yin Fong Yeong, Man Kee Lam</i>	
Influence of flow limiter and grain shape factor of sand particles on erosion activity in pipeline .....	236
<i>Genevieve A T K Tang, Henry C Y Foo, I S Tan, Y F Yeong, M K Lam</i>	
Comparison of Soil Erosion Control by Mulch and Cultivated Grass.....	257
<i>A.C. Tay, P. Ratnam</i>	
A Review on Biodiesel Synthesis using Iron Doped Catalyst.....	266
<i>Yu Herng Foo, Yie Hua Tan, Nabisab Mujawar Mubarak, Jibrail Kansedo, Inn Shi Tan, Henry Chee Yew Foo, Mohd Lokman Ibrahim</i>	
Performance evaluation of horizontal flow constructed wetlands as primary and secondary treatment for university campus wastewater .....	282
<i>Yee Yong Tan, Fu Ee Tang, Carrie Lee Ing Ho, Madeline Shu Zhen Wong</i>	
External time-influencing risk factors in infrastructure soft soils projects .....	296
<i>W W Low, K S Wong, J L Lee</i>	
Dynamic Simulation of Hydrogen Iodide Decomposition in Catalytic Multi-Tubular Reactor.....	300
<i>Jobrun Nandong, Akmal Sirajul, Noraini Mohd</i>	
Biogenic synthesis of magnesium oxide nanoparticles using Aloe barbadensis leaf latex extract.....	310
<i>Jaison Jeevanandam, Yen San Chan, Yee Jing Wong, Yiik Siang Hii</i>	

The effect of the spacing and angle arrangement of the droplet on the spreading area in simultaneous multiple droplets deposition .....	324
<i>K Y Pau, A N Sung</i>	
The Effect of Fertilizer on Epipremnum Aureum in Phytoremediating Soil Contaminated with Crude Oil .....	337
<i>K H D Tang, H T J Chai</i>	
A Review on One-Way Concrete Wall Under Axial Loading .....	346
<i>T Z H Ting, M E Rahman, H H Lau</i>	
Performance analysis of a modified Savonius hydrokinetic turbine blade for rural application .....	351
<i>Armand Z. Anthony, Sukanta Roy</i>	
Numerical Analysis of Exhaust Air Energy Extractor for Cooling Tower Applications.....	361
<i>Enderaaj Singh, Sukanta Roy, Yam Ke San</i>	
Aerodynamic Analysis of Active Trailing-Edge Flaps and Passive Surface Roughness on NACA 4412 Airfoil .....	372
<i>Thanesh A/L Manickam, Sukanta Roy</i>	
Numerical analysis of erosion pattern on pipe elbow bend with swirling flows .....	382
<i>K S Yam, S Roy, V C C Lee, M C Law</i>	
Recent Developments in City Logistics Research: A Literature Review .....	389
<i>S Istiqomah, Yuniaristanto, W Sutopo</i>	
Multi-Compartment Vehicle Routing Problem to Find the Alternative Distribution Route of Petroleum Product Delivery .....	400
<i>I F Febriandini, Yuniaristanto, W Sutopo</i>	
Determination of Routes for Daily Newspaper Product Distribution with Saving Matrix Methods .....	408
<i>N A F P Adam, I P Sari, A Tasya, W Sutopo, Yuniaristanto</i>	
Supply Chain Performance Analysis With Data Envelopment Analysis in TBBM PT. Pertamina Boyolali .....	420
<i>Z Hanif, P Kristy, M W D Utami, Yuniaristanto, W Sutopo</i>	
Redesign Production Layout Using Dedicated Storage Method: Case Study of PT.Solo Grafika Utama .....	429
<i>C Dianto, F Widiandoko, D Rahmanasari, Yuniaristanto, W Sutopo</i>	
Six Sigma Application to Minimize Castor 5 Inch Scrap Material in EOP Warehouse: A Case Study.....	440
<i>A Fajrianto, M H I N Asnan, N A Khofiyah, W Sutopo, Yuniaristanto</i>	
Redesign Determination of Plat Raw Material Supplier with Analytic Hierarchy Process (AHP) Approach: A Case Study .....	448
<i>K A Hidayati, A A Rosanti, N A Khofiyah, W Sutopo</i>	
Aggregate Planning Method as Production Quantity Planning and Control to Minimizing Cost .....	457
<i>I Nugraha, M Hisjam, W Sutopo</i>	
The Dynamic Simulation Model of Local Soybean Competitiveness Policy to Support the Soybean Price Stabilization.....	468
<i>I Nugraha, W Sutopo, M Hisjam, N Oktyajati</i>	

The Selection of Lithium Battery raw Materials by Environmental, Economic, and Social Sustainable.....	477
<i>AI Sholichah, M Hisjam, W Sutopo</i>	
A Literature Review: Commercialization Study of Electric Motorcycle Conversion in Indonesia.....	482
<i>A Habibie, W Sutopo</i>	
Performance Measurement in Supply Chain Using SCOR Model in The Lithium Battery Factory .....	496
<i>Yuniaristanto, N Ikasari, W Sutopo, R Zakaria</i>	
Supply Chain Performance Analysis Using Hybrid Overall Equipment Effectiveness and Discrete Event Simulation (Case Study: Futura Energy Nusantara).....	502
<i>Z A Fadhlurrahman, Yuniaristanto, M Hisjam, R Zakaria</i>	
Strategy Business of Battery Swap for Electric Vehicle Using Business Model Canvas.....	510
<i>AI Sholichah, W Sutopo</i>	
Framework to assess technology readiness of lithium-ion battery to fulfill the safety standard: IEC 62660-3:2016 (case study: smart lithium battery of UNS product).....	516
<i>K Fachriansyah, F Fakhma, E Pujiyanto</i>	
Sound Energy Approach in The Use of LRAD as A Bird Deterrent Device in Sam Ratulangi Manado International Airport, North Sulawesi, Indonesia.....	523
<i>B Basuki, M R Palupi</i>	
A Closed-loop Supply Chain Inventory Model Considering Limited Number of Remanufacturing Generation and Environmental Investigation .....	530
<i>W A Jauhari, R D Septian, P W Laksono, A R Dwicahyani</i>	
Lot-Sizing Decisions in Manufacturer-Retailer Inventory System under Carbon Emissions Reduction .....	538
<i>W A Jauhari</i>	
A review on sustainable metrics for Sustainability Measurement in Supply Chain .....	547
<i>V H Lsaputri, M Hisjam, W Sutopo</i>	
Review of BIM literature and government initiatives to promote BIM in Malaysia .....	556
<i>S S Sinoh, Z Ibrahim, F Othman, N L N Muhammad</i>	
Evaluation of practicality of virtual design and construction (VDC) with 5D building information modelling (BIM) through a case study .....	568
<i>M L Lee, W T Cheah, S H Lau, X S Lee, A M Abdullahi, S Y Wong</i>	
A BIM-Based Automated Assessment Tool for Green Building Index .....	575
<i>G Khoshdelnezamiha, S C Liew, V N S Bong, D E L Ong</i>	
A review of the green building rating systems .....	581
<i>K H D Tang, C Y H Foo, I S Tan</i>	
Adoption of Building Information Modelling in Malaysia Road Construction.....	591
<i>A T B Yung, E Aminudin, C N S Liat, M Neardey, R Zakaria, A R A Hamid, F Ahmad, L Y Yong</i>	
Simulation on Lighting Energy Consumption based on Building Information Modelling for Energy Efficiency at Highway Rest and Service Areas Malaysia .....	601
<i>M Neardey, E Aminudin, L P Chung, R M Zin, R Zakaria, C M F H Che Wahid, A R A Hamid, Z Z N Noor</i>	

Transformation from 2D structural drawing to building information model: Perspectives from a small-scaled company .....	611
<i>Y H Lee, L S Thien, Y Y Lee, S Y Wong, C S Tan, C S Chai</i>	
Barriers of implementing sustainable housing in Malaysian residential property sector .....	620
<i>S Y Wong, J H Loh, Y H Lee</i>	
Is risk assessment matter in infrastructure projects on soft soils? .....	627
<i>W W Low, K S Wong, J W Lim</i>	
Estimation of Individual Leaf Area by Leaf Dimension using a Linear Regression for Various Tropical Plant Species .....	631
<i>A C Tay, J Z L Ling</i>	

**Author Index**