3rd International Conference on Mechanical, Automotive and Aerospace Engineering 2016

IOP Conference Series: Materials Science and Engineering Volume 184

Kuala Lumpur, Malaysia 25 – 27 July 2016

ISBN: 978-1-5108-3897-0

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.

Copyright© (2016) by the Institute of Physics All rights reserved. The material featured in this book is subject to IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2017)

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

Volume 184

3rd International Conference on Mechanical, Automotive and Aerospace Engineering 2016

25-27 July 2016, Kuala Lumpur, Malaysia

Accepted papers received: 28 February 2017

Published online: 3 April 2017

Preface

011001 OPEN ACCESS

International Conference on Mechanical, Automotive and Aerospace Engineering 2016

011002 OPEN ACCESS Peer review statement

Aerospace Engineering

012001 OPEN ACCESS

Slew maneuver control of flexible spacecraft for vibration suppression

H. Okubo.....1

012002 OPEN ACCESS

Experimental Investigation of the Influence of a Reverse Delta Type Add-on Device on the Flap-tip Vortex of a Wing

A Altaf, T B Thong, A A Omar and W Asrar.....11

OPEN ACCESS

Estimation of Stability Derivatives in Pitch for an Oscillating Wedge in Hypersonic Flow

Sher Afghan Khan and Mohammed Asadullah....22

012004

OPEN ACCESS

Numerical simulation of non-isothermal thin liquid film flow on inclined plane using an implicit finite difference scheme

Mohammad Ameer Hamza, Ahmad Tariq Jameel, Waqar Asrar and Asif Hoda.....29

012005

OPEN ACCESS

<u>Investigation of effect of process parameters on suddenly Expanded flows through an axisymmetric nozzle for different Mach Numbers using Design of Experiments</u>

Jaimon D. Quadros, S. A. Khan and A. J. Antony.....42

012006

OPEN ACCESS

Development of Sense and Avoid system based on multi sensor integration for unmanned vehicle system

Ari Legowo, M. Faiz Bin Ramli and Syariful Syafiq Shamsudin.....50

012007

OPEN ACCESS

CFD Studies on Triangular Micro-Vortex Generators in Flow Control

V Yashodhar, G Humrutha, M Kaushik and S A Khan.....56

012008

OPEN ACCESS

Generation of atmospheric boundary layer in the IIUM low speed wind tunnel

Khalid Aldin Bin Za'aba, Waqar Asrar and Mohamad Al Dheeb.....65

OPEN ACCESS

Investigation of Malaysian Low Earth Orbits for Remote Sensing Applications

M Okasha, I Shuib and M Idres.....77

012010

OPEN ACCESS

Aeroelastic passive control optimization of supersonic composite wing with external stores

E Sulaeman, N A Abdullah and S.M. Kashif.....86

012011

OPEN ACCESS

Effect of Temperature and moisture dependent material properties on the Bending behavior of Laminated Cylindrical Shell under Hygrothermal Loads

Saleh Alsubari, J. S. Mohamed Ali, Yulfian Aminanda and M.S.I. Shaik Dawood.....95

012012

OPEN ACCESS

Optimal location of piezoelectric patches for active vibration control

Mohammad F. Labanie, J S Mohamed Ali and M.S.I Shaik Dawood.....101

Automotive Engineering

012013

OPEN ACCESS

Fe-C-Si ternary composite coating on CP-titanium and its tribological properties

M. A. Maleque, W. Saffina, A. S Ahmed and M. Y. Ali....111

012014

OPEN ACCESS

Analysis of the internal temperature of the cells in a battery pack during SOC balancing

R Mizanur, M M Rashid, A Rahman, A H M Zahirul Alam, S Ihsan and M S Mollik.....117

012015 OPEN ACCESS

Numerical Investigation of Aerodynamic Characteristics of High Speed Train

J.S. Mohamed Ali, Ashraf Ali Omar, Muhammad 'Atif B. Ali and Abdul Rahman Bin Mohd Baseair.....127

012016

OPEN ACCESS

<u>Implementing Lean Manufacturing in Malaysian Small and Medium Startup</u>
Pharmaceutical Company

Wan Mohd Khairi bin Wan Ibrahim, Mohamed Abdul Rahman and Mohd Rushdi bin Abu Bakar.....132

012017

OPEN ACCESS

Finite element analysis of a composite crash box subjected to low velocity impact

M S I Shaik Dawood, A L Ahmad Ghazilan and Q H Shah.....139

012018

OPEN ACCESS

Abrasive wear response of TIG-melted TiC composite coating: Taguchi approach

M A Maleque, K A Bello, A A Adebisi and A Dube.....145

012019

OPEN ACCESS

Investigation of Parametric Influence on the Properties of Al6061-SiC_p Composite

A A Adebisi, M A Maleque and K A Bello....151

012020

OPEN ACCESS

<u>Investigation on the Maximum Power Point in Solar Panel Characteristics Due to</u> <u>Irradiance Changes</u>

M. A. Abdullah, Siti Fauziah Toha and Salmiah Ahmad.....159

012021	
OPEN	ACCESS

Battery Cell Balancing Optimisation for Battery Management System

M.S. Yusof, S.F. Toha, N.A Kamisan, N.N.W.N. Hashim and M. A. Abdullah....166

012022

OPEN ACCESS

Throughput Enhancement of Car Exhaust Fabrication Line by Applying MOST

E. A. H. Hanash, A. N. M. Karim, Saravanan Tanjong Tuan and A. K. M. Mohiuddin.....173

012023

OPEN ACCESS

Modelling of an advanced charging system for electric vehicles

Abdul Hassan Jaafar, Ataur Rahman, A K M Mohiuddin and Mahbubur Rashid.....186

012024

OPEN ACCESS

Design Optimization of a Hybrid Electric Vehicle Powertrain

Firdause Mangun, Moumen Idres and Kassim Abdullah.....203

012025

OPEN ACCESS

A Novel Electro Conductive Graphene/Silicon-Dioxide Thermo-Electric Generator

Ataur Rahman and Yusuf Abdi.....210

012026

OPEN ACCESS

Hybrid Engine Powered City Car: Fuzzy Controlled Approach

Ataur Rahman, AKM Mohiuddin, MNA Hawlader and Sany Ihsan....222

012027

OPEN ACCESS

An investigation into NVC characteristics of vehicle behaviour using modal analysis

Zahir Hanouf, Waleed F. Faris and Kartini Ahmad.....234

Mechanical Engineering

012028

OPEN ACCESS

Effect of Stacking Layup on Spring-back Deformation of Symmetrical Flat Laminate Composites Manufactured through Autoclave Processing

M N M Nasir, M A Seman, L Mezeix, Y Aminanda, A Rivai and K M Ali....247

012029

OPEN ACCESS

A study on the parameters affecting the properties of coated paper honeycomb

Nurdina Abd Kadir, Yulfian Aminanda, Mohd. Sultan Ibrahim Shaik Dawood and Hanan Mohktar.....255

012030

OPEN ACCESS

Hardfacing of duplex stainless steel using melting and diffusion processes

H Lailatul and M A Maleque.....263

012031

OPEN ACCESS

Analysis of Fracture Mechanism for Al-Mg/SiC_p Composite Materials

M A Maleque, A A Adebisi and N Izzati.....270

012032

OPEN ACCESS

<u>Micro Wire Electro Discharge Grinding: Optimization of Material Removal Rate and Surface Roughness</u>

Mohammad Yeakub Ali, Mohamed Abd Rahman and Rosmarina Nordin....278

012033 OPEN ACCESS

Investigation of Kerf in Micro Wire Electro Discharge Machining

Mohammad Yeakub Ali, Siti Nur Zalikha Khamarruzaman and Asfana Banu....285

012034

OPEN ACCESS

Dimensional Accuracy of Micro-Electro Discharge Milling

Mohammad Yeakub Ali, Mohamed Abd Rahman, Siti Nur Zuhaida Zunairi and Asfana Banu....291

012035

OPEN ACCESS

Optimization of tribological performance of SiC embedded composite coating via Taguchi analysis approach

M A Maleque, K A Bello, A A Adebisi and N Akma.....297

012036

OPEN ACCESS

<u>Process Capability of High Speed Micro End-Milling of Inconel 718 with Minimum</u> Ouantity Lubrication

Mohamed Abd Rahman, Mohammad Yeakub Ali, Abdul Rahman Shah Rosli and Asfana Banu....305

012037

OPEN ACCESS

Effects on Vibration and Surface Roughness in High Speed Micro End-Milling of Inconel 718 with Minimum Quantity Lubrication

Mohamed Abd Rahman, Mohammad Yeakub Ali and Amir Saddam Khairuddin.....311

012038

OPEN ACCESS

<u>Hexagonal Hollow Tube Based Energy Absorbing Crash Buffers for Roadside Fixed</u>
Objects

M. S. Uddin, Nurul Amirah Shafie and Grad Zivkovic.....318

OPEN ACCESS

Improvement of surface quality using silicon carbide powder added dielectric fluid during EDM

Ahsan Ali Khan, Nurul Nasuha Binti Mohamad Royani, Muataz Hazza Faizi Al-Hazza, Mohd Radzi Haji Che Daud and AKM Mohiuddin.....327

012040

OPEN ACCESS

Improving machining performance using alumina powder-added dielectric during electrical discharge machining (EDM)

Ahsan Ali Khan, Marina Binti Abu Bakar, Muataz Hazza Faizi Al-Hazza, Mohd Radzi Haji Che Daud and AKM Mohiuddin.....333

012041

OPEN ACCESS

Mechanical Impedance Modeling of Human Arm: A survey

A Ahmad Puzi, S N Sidek and F Sado.....339

012042

OPEN ACCESS

<u>Human Location Detection System Using Micro-Electromechanical Sensor for Intelligent Fan</u>

S. Parnin and M. M. Rahman....348

012043

OPEN ACCESS

Design and development of hybrid energy generator (photovoltaics) with solar tracker

A K M Mohiuddin, Mohamad Syabil Bin Sabarudin, Ahsan Ali Khan and Sany Izan Ihsan.....356

012044

OPEN ACCESS

Improvement Design of Parabolic Trough

S. I. Ihsan, M. A. I. M. Safian, M. A. M. Taufek and A.K.M. Mohiuddin.....364

OPEN ACCESS

The Investigation of a Ride Quality of Nonlinear Half-Car Model

Fadly J. Darsivan....370

012046

OPEN ACCESS

<u>Tensile Mechanical Property of Oil Palm Empty Fruit Bunch Fiber Reinforced Epoxy</u> Composites

A L Ahmad Ghazilan, H Mokhtar, M S I Shaik Dawood, Y Aminanda and J S Mohamed Ali....379

012047

OPEN ACCESS

<u>Surface Roughness Optimization Using Taguchi Method of High Speed End Milling For Hardened Steel D2</u>

Muataz Hazza Faizi Al-Hazza, Nur Asmawiyah bt Ibrahim, Erry T. Y. Adesta, Ahsan Ali Khan and Atiah Bt. Abdullah Sidek.....384

012048

OPEN ACCESS

Flank wear analysing of high speed end milling for hardened steel D2 using Taguchi Method

Muataz Hazza Faizi Al-Hazza, Nur Asmawiyah bt Ibrahim, Erry T. Y. Adesta, Ahsan Ali Khan and Atiah Bt. Abdullah Sidek.....389

012049

OPEN ACCESS

Modelling and control of Base Plate Loading subsystem for The Motorized Adjustable Vertical Platform

N M H Norsahperi, S Ahmad, A F M Fuad, I A Mahmood, S F Toha, R Akmeliawati and F J Darsivan.....394

OPEN ACCESS

Modeling and simulation for heavy-duty mecanum wheel platform using model predictive control

A. F. M. Fuad, I. A Mahmood, S. Ahmad, N. M. H. Norsahperi, S. F. Toha, R. Akmeliawati and F. J. Darsivan.....403

012051

OPEN ACCESS

Effect of Stitching on the Tensile Mechanical Property of Empty Fruit Bunch Oil Palm Fiber Reinforced Epoxy Composites

A L Ahmad Ghazilan, H Mokhtar, M S I Shaik Dawood, Y Aminanda and J S Mohamed Ali.....411

012052

OPEN ACCESS

3D Point Smoothening Using Modified Local Regression for Reverse Engineering Process

Nur Ilham Aminullah Abdulqawi and Mohd Salman Abu Mansor.....417

012053

OPEN ACCESS

<u>Influence of Ti addition on fracture behaviour of HSLA steel using TIG melting technique</u>

M. H. A. Musa, M. A. Malegue and M. Y. Ali....427

012054

OPEN ACCESS

Sustainable Manufacturing framework from Islamic Perspective

S Zain, E Y T Adesta, A F Ismail and Z Ahmad.....433

012055

OPEN ACCESS

Hierarchical extreme learning machine based reinforcement learning for goal localization

Nouar AlDahoul, Zaw Zaw Htike and Rini Akmeliawati.....441

OPEN ACCESS

<u>Design</u> and fabrication of a fixed-bed batch type pyrolysis reactor for pilot scale pyrolytic oil production in Bangladesh

Mohammad Abdul Aziz, Rami Ali Al-khulaidi, MM Rashid, M.R Islam and MAN Rashid.....448

012057

OPEN ACCESS

Validation of ESP Oil Wells Measured Parameters Using Simulation Olga Software

T A Ganat, M Hrairi and MNA Hawlader.....460

012058

OPEN ACCESS

Impedance Based Detection of Delamination in Composite Structures

M Djemana and M Hrairi.....468

012059

OPEN ACCESS

Numerical study of heat transfer of embossed plate fined heat sink

Suliman Mohamed Mohamed Ali, Waleed Fekry Faris and Ahmed Faris Ismail.....475

012060

OPEN ACCESS

Comparative Study of R134a and R744 Driven Solar Assisted Heat Pump Systems for Different Applications

Y. Baradey, M.N.A. Hawlader, A.F. Ismail and M. Hrairi.....481

012061

OPEN ACCESS

Numerical Investigation of Magnetic Nanoparticles Trajectories for Magnetic Drug Targeting

Syireen Shazri and Moumen Idres.....489

OPEN ACCESS

Investigation of aluminum heat sink design with thermoelectric generator

A K M Mohiuddin, Muhammad Yazid Ameer, Ataur Rahman and Ahsan Ali Khan.....502

012063

OPEN ACCESS

<u>Intelligent Control Electromagnetic Actuated Continuously Variable Transmission</u> System for Passenger Car

Ataur Rahman, Sazzad Sharif, AKM Mohiuddin, Ahmed Faris Ismail and Sany Ihsan Izan.....514

012064

OPEN ACCESS

Estimation of Stress Concentration Factor of Plate with Hole using Piezoelectric Actuator and Finite Element Method

A Abuzaid, M Hrairi and M.S.I. Shaik Dawood.....533

012065

OPEN ACCESS

Numerical simulation of non-isothermal thin liquid film flow on inclined plane using an implicit finite difference scheme

Mohammad Ameer Hamza, Ahmad Tariq Jameel, Waqar Asrar and Asif Hoda.....540

012066

OPEN ACCESS

<u>Adoption of JMM practices – A key to performance improvement of a local automotive industry</u>

A K M Mohiuddin, A. Jabbar Julia Bt. Haji, Ahsan Ali Khan and A N Mustafizul Karim.....548

012067

OPEN ACCESS

CFD Analysis of a SD 7003 Airfoil with a Local Correlation Based Transition and Turbulence Model

Mazharul Islam, Felix Langfeldt, Jiří Fürst and David H Wood.....560

012068 OPEN ACCESS

Dynamic response for structural health monitoring of the Penang (I) cable-stayed bridge

M I Mohammed, E Sulaeman and F Mustapha.....566