

3rd International Conference on Science and Engineering in Mathematics, Chemistry and Physics 2015

(ScieTech 2015)

Journal of Physics: Conference Series Volume 622

**Bali, Indonesia
31 January – 1 February 2015**

Editor:

Ford Lumban Gaol

**ISBN: 978-1-5108-0802-7
ISSN: 1742-6588**

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© (2015) 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. (2015)

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: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Table of contents

Volume 622

3rd International Conference on Science & Engineering in Mathematics, Chemistry and Physics 2015 (ScieTech 2015)
31 January to 1 February 2015, Bali, Indonesia

Accepted papers received: 15 May 2015
Published online: 22 June 2015

Preface

011001

[3rd International Conference on Science & Engineering in Mathematics, Chemistry and Physics 2015 \(ScieTech 2015\)](#) F L Gaol

011002

[Photographs from ScieTech2015](#)

011003

[Invited Plenary Speakers](#)

011004

[Peer review statement](#)

Papers

012001

[Comparison of solar panel cooling system by using dc brushless fan and dc water](#) Y M Irwan, W Z Leow, M Irwanto, Fareq M, S I S Hassan, I Safwati and A R Amelia **1**

012002

[An optimization model to agroindustrial sector in antioquia \(Colombia, South America\)](#) S J Fernandez **11**

012003

[Comparison of conformal Toda model quantisation approaches](#) Alexander Zuevsky **20**

012004

[Transport phenomena in chitosan synthetic membranes with emphasis on the effect of variations in the ratio of matrix/solvent](#) N Nyoman Rupiasih, Yayuk Eka Puspita and Made Sumadiyasa **27**

012005

[On the Diophantine Equation \$Ax^2 - KXY + Y^2 + Lx = 0\$](#) J D Urrutia, J M E Arañas, J A C L Lara and D L P Maceda **34**

012006

[Study of The Vector Product using Three Dimensions Vector Card of Engineering in Pathumwan Institute of Technology](#) Wannapa Mueanploy **44**

012007

[Radiation from Secondary Planar Surfaces Sources in Quantum Field Theory](#) A Maksudwan and P Viriyasrisuwattana **52**

012008

[Projectile motion in real-life situation: Kinematics of basketball shooting](#) A Changjan and W Mueanploy **59**

012009

[Molecular dynamics simulation of corrosion mitigation of iron in lead-bismuth eutectic using nitrogen as corrosion inhibitor](#) Artoto Arkundato, Zaki Su'ud, Sudarko, Mohammad Hasan and Massimo Celino **64**

012010

[Critical Temperature Differences of a Standing Wave Thermoacoustic Prime Mover with Various Helium-Based Binary Mixture Working Gases](#) Ikhsan Setiawan, Makoto Nohtomi and Masafumi Katsuta **71**

012011

[Multi-loop Control System Design for Biodiesel Process using Waste Cooking Oil](#) Dipesh S Patle, Ahmad Z and G P Rangaiah **81**

012012

[Modeling Of The Pores Form Influence On The Hydraulic Resistance Of Membranes And Their Permeability](#) Zhanat Umarova, Saule Botayeva, Zlikha Makhanova and Anar Makhatova **88**

012013

[Automatic Structures — Recent Results and Open Questions](#) Frank Stephan **93**

012014

[Survival Analysis of Patients with End Stage Renal Disease](#) J D Urrutia, W S Gayo, L A Bautista and E B Baccay **103**

012015

[Monitoring the Water Quality in the Recycling Process](#) A Antonyová, P Antony and B Soewito **113**

012016

[Improving The Performance of Customer Loyalty of Online Ticketing in Indonesia's Showbiz Industry](#) M Dachyar and E S Athory **123**

012017

[Analysis of Urban Comprehensive Carrying Capacity of the prefecture-level city in Gansu province](#) Jing Li, M A Ling, Ma Shaohu and Chen Xingpeng **131**

012018

[Statistical analysis of the strength and lifetime under tension of crystalline polymeric solids](#) C Y Li and K H Nitta **140**

012019

[New Attacks on RSA with Modulus \$N = p^2q\$ Using Continued Fractions](#) M A Asbullah and M R K Ariffin **150**

012020

[Monitoring Actuarial Present Values of Term Life Insurance By a Statistical Process Control Chart](#) M Hafidz Omar **159**

012021

[Production of cellulose phosphate from oil palm empty fruit bunch: Effect of chemical ratio](#) R Rohaizu and W D Wanrosli **166**

012022

[Modeling Philippine Stock Exchange Composite Index Using Time Series Analysis](#) W S Gayo, J D Urrutia, J M F Temple, J R D Sandoval and J E A Sanglay **173**

012023

[Topological tangle modeling of difference topology experiments: tangle analysis of DNA-protein complexes](#) Soojeong Kim **183**

012024

[A GIS-based Computational Tool for Multidimensional Flow Velocity by Acoustic Doppler Current Profilers](#) D Kim, M Winkler and M Muste **189**

012025

[Thermal Stability of Oil Palm Empty Fruit Bunch \(OPEFB\) Nanocrystalline Cellulose: Effects of post-treatment of oven drying and solvent exchange techniques](#) E Indarti, Marwan and W D Wanrosli **196**

012026

[Carboxymethyl Cellulose \(CMC\) from Oil Palm Empty Fruit Bunch \(OPEFB\) in the new solvent Dimethyl Sulfoxide \(DMSO\)/Tetrabutylammonium Fluoride \(TBAF\)](#) M Y Eliza, M Shahrudin, J Noormaziah and W D Wan Rosli **204**

012027

[Follicle Detection on the USG Images to Support Determination of Polycystic Ovary Syndrome](#) Adiwijaya, B Purnama, A Hasyim, M D Septiani, U N Wisesty and W Astuti **214**

012028

[Data Hiding Scheme on Medical Image using Graph Coloring](#) Widi Astuti, Adiwijaya and Untari Novia Wisety **222**

012029

[Development of Ozone Technology Rice Storage Systems \(OTRISS\) for Quality Improvement of Rice Production](#) M Nur, E Kusdiyantini, W Wuryanti, T A Winarni, S A Widyanto and H Muharam **228**

012030

[Soil Identification using Field Electrical Resistivity Method](#) Z A M Hazreek, S Rosli, W D Chitral, A Fauziah, A T S Azhar, M Aziman and B Ismail **238**

012031

[Efficient evaluation of the sample variance of an interval-valued dataset](#) Michal Černý **245**

012032

[Mathematical analysis of the computational complexity of integer sub-decomposition algorithm](#) Ruma Kareem K Ajeena and Hailiza Kamarulhaili **251**

012033

[Analysis of selected prioritization methods in the analytic hierarchy process](#) J Jablonsky **262**

012034

[Three types of Marine microalgae and *Nannochloropsis oculata* cultivation for potential source of biomass production](#) Vijendren Krishnan, Yoshimitsu Uemura, Nguyen Tien Thanh, Nadila Abdul Khalid, Noridah Osman and Nurlidia Mansor **269**

012035

[Benzimidazole as corrosion inhibitor for heat treated 6061 Al- SiC_p composite in acetic acid](#) Melby Chacko and Jagannath Nayak **275**

012036

[Ranking Schools' Academic Performance Using a Fuzzy VIKOR](#) Suhaina Musani and Abdul Aziz Jemain **284**

012037

[Linear representation of algebras with non-associative operations which are satisfy in the balanced functional equations](#) Amir Ehsani **294**

012038

[Interval estimates and their precision](#) Luboš Marek and Michal Vrabec **301**

012039

[The Existence and Stability Analysis of the Equilibria in Dengue Disease Infection Model](#) N Anggriani, A K Supriatna and E Soewono **309**

012040

[Preparation of Biodiesel from Microalgae and Palm Oil by Direct Transesterification in a Batch Microwave Reactor](#) Marwan, Suhendrayatna and E Indarti **319**

012041

[An application of input-output analysis in analyzing the impacts of final demands changes on the total outputs of Japanese energy sectors: A further study](#) Ubaidillah Zuhdi **327**

012042

[Wavelet Types Comparison for Extracting Iris Feature Based on Energy Compaction](#) R Rizal Isnanto **336**

012043

[The homotopic mapping solutions for the generalized Schrödinger equation](#) Dianhen Lu, Xinyu Cui and Baojian Hong **345**

012044

[Optimization of reactor network design problem using Jumping Gene Adaptation of Differential Evolution](#) Ashish M Gujarathi, S Purohit and B Srikanth **352**

012045

[Determined position dependent Mass of the Rosen-Morse potential and its Bound state](#) Ali R Amani **360**

012046

[Topological defect solutions for a system of three scalar fields](#) M R Niazian and Ali R Amani **366**

012047

[Production of nanocrystalline cellulose from an empty fruit bunches using sulfuric acid hydrolysis: Effect of reaction time on the molecular characteristics](#) Ahmed A Al-Dulaimi, Rohaizu R and Wanrosli W D **374**

012048

[Analysis and Evaluation of principal climatic factors of NDVI in the Yarlung Zangbo River Basin](#) Zhang weil and Fu Xinfeng **380**

012049

[The Study of Band Structure of Graphite Intercalation Compound Containing Sodium Calculated Using Density Functional Theory](#) Ahmad Nazrul Rosli, Izzati Fatimah Wahab, Noriza Ahmad Zabidi and Hasan Abu Kassim **388**

012050

[RFID - based Staff Control System \(SCS\) in Kazakhstan](#) N Saparkhojayev **396**

012051

[The mode competition in a two-mode semiconductor laser](#) G Baimenshina **402**

012052

[Dependence in Classification of Aluminium Waste](#) Y Resti **407**

012053

[Development of Identification System of cans And Bottle](#) Irsyadi Yani and Ihsan Budiman **413**

012054

[Characterizations of Bio-char from Fast Pyrolysis of Meranti Wood Sawdust](#) M A F Mazlan, Y Uemura, N B Osman and S Yusup **421**

012055

[Broadening of the Spectral Atomic Lines Analysis in High Density Argon Corona Plasma by Using Voigt Profile](#) M Nur, N Bonifaci, A Denat and V M Atrazhev **428**

012056

[Statistical Analysis to Select Evacuation Route](#) Z Musyarof, D Y Sutarto, D R Atika and R B Fajriya Hakim **436**

012057

[Food powder analysis by using transversely excited atmospheric CO₂ laser-induced plasma spectroscopy](#) Ali Khumaeni, Zener Sukra Lie, Wahyu Setiabudi, Koo Hendrik Kurniawan and Kiichiro Kagawa **446**

012058

[Power System Harmonic Elimination to Improve Power Quality](#) K Chandrasekaran and V K Ramachandaramurthy **452**

012059

[Development of Landslide Early Warning System Using Macro-bending Loss Based Optical Fibre Sensor](#) Ahmad Marzuki, Muhammad Heriyanto, Ika Dedy Setiyadi and Sorja Koesuma **462**