

International Conference on Advanced Materials for Better Future 2016

IOP Conference Series: Materials Science and Engineering
Volume 176

Surakarta, Indonesia
3 – 4 October 2016

ISBN: 978-1-5108-3744-7
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 176

International Conference on Advanced Materials for Better Future 2016

3–4 October 2016, Surakarta, Indonesia

**Accepted papers received: 3 February 2017
Published online: 8 March 2017**

Preface

011001

OPEN ACCESS

[International Conference on Advanced Materials for Better Future 2016](#)

011002

OPEN ACCESS

[Peer review statement](#)

Drug and Biomaterial Technology (DB)

012001

OPEN ACCESS

[Preparation and Mechanical Properties of Chitosan-graft Maleic Anhydride Reinforced with Montmorillonite](#)

A Fajrin, L A Sari, N Rahmawati, O A Saputra and V Suryanti.....1

012002

OPEN ACCESS

[Polyketide Derivatives from *Annona muricata* Linn Leaves as Potencial Anticancer Material by Combination Treatment With Doxorubicin on Hela Cell Line](#)

A N Artanti, O P Astirin, A Prayito, R F Widiyaningsih and F Prihapsara.....7

012003

OPEN ACCESS

[Physicochemical Properties of Biosurfactant Produced by *Pseudomonas fluorescens* Grown on Whey Tofu](#)

V Suryanti, D S Handayani, S D Marliyana and S Suratmi.....13

012004

OPEN ACCESS

[Antidiabetic Activity of Self Nanoemulsifying Drug Delivery System from Bay Leaves \(*Eugenia polyantha* Wight\) Ethyl Acetate Fraction](#)

F Prihapsara, M Harini, T Widiyani, A N Artanti and I L Ani.....19

012005

OPEN ACCESS

[Fabrication and Characterization of Immobilized Biosurfactant Produced by *Pseudomonas aeruginosa* Grown on Cassava Industrial Wastewater into Activated Allophane as an Adsorbent](#)

V Suryanti, D M Widjonarko, Windrawati and V Widyaningsih.....25

012006

OPEN ACCESS

[The interaction of a binary/ternary interactive mixture of hydrophobic-hydrophilic materials on the drug distribution and drug release performance in the tablet formulation](#)

A Ainurofiq and S Choiri.....31

012007

OPEN ACCESS

[Antibacterial Activity of the Isolation Ethyl Acetate-Soluble Extract Noni Fruit \(*Morinda citrifolia* L.\) against Meat Bacterial Decay](#)

E R Nugraheni, M B E Nurrahman, H Munawaroh and L Saputri.....37

Electronic Materials Sensing (EM)

012008

OPEN ACCESS

[ZnO wide bandgap semiconductors preparation for optoelectronic devices](#)

A H Ramelan, S Wahyuningsih, H Munawaroh and R Narayan.....44

012009

OPEN ACCESS

[Influences of mass Chlorophyll-a blends using P3HT:PCBM for efficiency of organic solar cells](#)

E Lestari, A Supriyanto, Y Iriani, A H Ramelan and F Nurosyid.....51

012010

OPEN ACCESS

[Development and Testing of a Plastic Optical Fiber Grating Biosensor for Detection of Glucose in the Blood](#)

M Yuniyanto, D Eka, A N Permata, D Ariningrum, S Wahyuningsih and A Marzuki.....55

012011

OPEN ACCESS

[Characterization of Micro Structure, Morphology and Electrical Properties Barium Titanate \(BT\) Doping Sr by Chemical Solution Deposition \(CSD\)](#)

H D Mahmudah, Y Iriani and A H Ramelan.....61

012012

OPEN ACCESS

[Efficiency enhancement of dye-sensitized solar cells \(DSSC\) by addition of synthetic dye into natural dye \(anthocyanin\)](#)

D D Pratiwi, F Nurosyid, A Supriyanto and R Suryana.....67

012013

OPEN ACCESS

[TiO₂ Nanostructure Synthesized by Sol-Gel for Dye Sensitized Solar Cells as Renewable Energy Source](#)

A H Ramelan, S Wahyuningsih, S Saputro, E Supriyanto and Q A Hanif.....73

012014

OPEN ACCESS

[Design of a Fiber Optic Biosensor for Cholesterol Detection in Human Blood](#)

M Yuniyanto, A N Permata, D Eka, D Ariningrum, S Wahyuningsih and A Marzuki.....79

012015

OPEN ACCESS

[Study of Evanesence Wave Absorption in Lindane](#)

A Marzuki, E Prasetyo, M P Gitrin and V Suryanti.....84

Fuctional Materials (FM)

012016

OPEN ACCESS

[Utilization Chitosan-*p-t*-Butylcalix\[4\]Arene for Red MX 8B Adsorbent](#)

D S Handayani, T Kusumaningsih and L A Hak.....88

012017

OPEN ACCESS

[Comparison of shrinkage related properties of various patch repair materials](#)

S A Kristiawan and R S Fitrianto.....97

012018

OPEN ACCESS

[Use of macrophyte plants, sand & gravel materials in constructed wetlands for greywater treatment](#)

S Qomariyah, AH Ramelan, Sobriyah and P Setyono.....103

012019

OPEN ACCESS

[The usage of activated carbon from teak sawdust \(*tectona grandis* l.f.\) and zeolite for the adsorption of Cr\(VI\) and its analysis using solid-phase spectrophotometry \(sps\)](#)

S Saputro, M Masykuri, L Mahardiani, B Mulyani, I Qorina, K Yoshimura, K Takehara and S Matsuoka.....109

012020

OPEN ACCESS

[X-ray Diffraction Analysis on Post Treatment of Ca-Mg-Al-Layered Double Hydroxide Slurry](#)

E Heraldy, K D Nugrahaningtyas and Heriyanto.....115

012021

OPEN ACCESS

[Early Detection of Breast Cancer by Using Handycam Camera Manipulation as Thermal Camera Imaging with Images Processing Method](#)

R Riantana, B Arie, M Adam, R Aditya, Nuryani and I Yahya.....121

012022

OPEN ACCESS

[The Characteristic and Activation of Mixed Andisol Soil/Bayat Clays/Rice Husk Ash as Adsorbent of Heavy Metal Chromium \(Cr\)](#)

Pranoto, Sajidan and A Suprpto.....127

012023

OPEN ACCESS

[Relationships Analysis and Public Perception of the Healthy Plastic as One Solution to Healthy Living](#)

Hartatik, R Hartono, A Purnomo, B K Riasti and H Munawaroh.....133

012024

OPEN ACCESS

[Synthesis of the supported catalysts by co-impregnation and sequential impregnation methods](#)

Khoirina Dwi Nugrahaningtyas, Yuniawan Hidayat, Patiha, Nina Prihastuti, Brigitta Yelvi and Riza Umami Nur Kalimah.....138

Mechanical Engineering & Information Technology (ME)

012025

OPEN ACCESS

[Open Graded Asphalt Mixture Design for Environmentally Friendly Road](#)

A Setyawan, Suryoto, A Sumarsono and S Widyastuti.....145

012026

OPEN ACCESS

[Effect of Filler and Heat Treatment on the Physical and Mechanical Properties of the Brazed Joint between Carbide Tip and Steel](#)

Y Winardi, Triyono and A T Wijayanta.....151

012027

OPEN ACCESS

[Design and Characterization of Renewable Bioasphalt Containing Damar Resin, Fly Ash, Wasted Cooking Oil and Latex](#)

A Setyawan, Djumari, S J Legowo, B Widiharjo, A K S Zai, A A W Pradana, I P Rusadi and A Permana.....157

012028

OPEN ACCESS

[Design and Properties of Asphalt Concrete Mixtures Using Renewable Bioasphalt Binder](#)

A Setyawan, Djumari, P A Irfansyah, A M Shidiq, I S Wibisono, M N Fauzy and F N Hadi.....163

012029

OPEN ACCESS

[Prediction of the optimum surface orientation angles to achieve maximum solar radiation using Particle Swarm Optimization in Sabha City Libya](#)

F A Mansour, M Nizam and M Anwar.....169

012030

OPEN ACCESS

[Road Maintenance and Rehabilitation Program Using Functional and Structural Assessment](#)

A I Setianingsih, S Sangaji and A Setyawan.....178

012031

OPEN ACCESS

[The Use of International Roughness Index and Structural Number for Rehabilitation and Maintenance Policy of Local Highway](#)

Hermawan, M Suprpto and A Setyawan.....184

012032

OPEN ACCESS

[Effects of Ceramic Fibre Insulation Thickness on Skin Formation and Nodule Characteristics of Thin Wall Ductile Iron Casting](#)

D Dhaneswara, B. Suharno, N D Nugraha, R D S Ariobimo and N Sofyan.....190

012033

OPEN ACCESS

[The Priority of Road Rehabilitation in Karanganyar Regency Using IRI Estimation from Roadroid](#)

F Achmadi, M Suprpto and A Setyawan.....196

012034

OPEN ACCESS

[Assessing the durability of North Buton Asphalt seal with Polymer Modified and Rejuvenation in warm mixture design](#)

Zalman, B Yulianto and A Setyawan.....202

012035

OPEN ACCESS

[Assessing The Durability of Polymer Modified Asphalt Emulsions Slurry Seal](#)

C Singgih, D Handayani and A Setyawan.....208

012036

OPEN ACCESS

[Evaluation of urban drainage network based geographycal information system \(GIS\) in Sumenep City](#)

F Agrianto, R Hadiani and Y M Purwana.....214

Metallurgy (MT)

012037

OPEN ACCESS

[The Formation of Sodium Stannate from Mineral Cassiterite by the Alkaline Decomposition Process with Sodium Carbonate \(\$\text{Na}_2\text{CO}_3\$ \)](#)

L Andriyah, L H Lalasari and A Manaf.....220

012038

OPEN ACCESS

[Ion-Selective Deposition of Manganese Sulphate Solution from Trenggalek Manganese Ore by Active Carbon and Sodium Hydroxide](#)

L Andriyah and E Sulistiyono.....226

012039

OPEN ACCESS

[Impurities Removal in Seawater to Optimize the Magnesium Extraction](#)

N C Natasha, F Firdiyono and E Sulistiyono.....232

012040

OPEN ACCESS

[The Synthesis of Calcium Salt from Brine Water by Partial Evaporation and Chemical Precipitation](#)

L H Lalasari, M K Widowati, N C Natasha, E Sulistiyono and A B Prasetyo.....238

012041

OPEN ACCESS

[Comparison of Dolomite Crystal Structure, Calcinations Dolomite and Magnesium Hydroxide in Partial Calcinations and Slaking Process](#)

E Sulistiyono, F Firdiyono, NC Natasha and Y Amalia.....247

012042

OPEN ACCESS

[TiO₂ Nanorods Preparation from Titanyl Sulphate Produced by Dissolution of Ilmenite](#)

S Wahyuningsih, L Rinawati, R M I Munifa, A H Ramelan and Eko Sulistyono.....252

Nanotechnology Inorganic Composite (NI)

012043

OPEN ACCESS

[Porosity of Self-Compacting Concrete \(SCC\) incorporating high volume fly ash](#)

S A Kristiawan, Sunarmasto and G Y Murti.....258

012044

OPEN ACCESS

[Variation of Strontium \(Sr\) in the Ferroelectric Material Barium Strontium Titanate \(\$Ba_{1-x}Sr_xTiO_3\$ \) by Co precipitation Method](#)

Y Subarwanti, R D Safitri, A Supriyanto, Y Iriani and A Jamaludin.....264

012045

OPEN ACCESS

[Preparation of Amine-Functionalized \$TiO_2\$ /Carbon Photocatalyst by Arc Discharge in Liquid](#)

Erlina Arikawati, Pranoto and Teguh Endah Saraswati.....270

012046

OPEN ACCESS

[The Modification of Carbon with Iron Oxide Synthesized in Electrolysis Using the Arc Discharge Method](#)

Teguh Endah Saraswati, Oktaviana Dewi Indah Prasiwi, Abu Masykur, Nestri Handayani and Miftahul Anwar.....276

012047

OPEN ACCESS

[High temperature Oxidation of ODS alloy with zirconia dispersions synthesized using Arc Plasma Sintering](#)

Bandriyana, A Sujatno, R Salam, B Sugeng and A Dimiyati.....281

012048

OPEN ACCESS

[Molten Salt Synthesis and Structural Characterization of BaTiO₃ Nanocrystal Ceramics](#)

S Ahda, S Misfadhila, P Parikin and T Y S P Putra.....287

012049

OPEN ACCESS

[Synthesis and Characterization of Al doped ZnO \(AZO\) by Sol-gel Method](#)

H Munawaroh, S Wahyuningsih and A H Ramelan.....293

012050

OPEN ACCESS

[Micromagnetic simulation of vortex-antivortex magnetization in permalloy nano particle](#)

B Purnama, S Muhammadiyah and Suharyana.....299

012051

OPEN ACCESS

[Development of Refined Natural Resin based Cashew Nut Shell Oil Liquid \(CNSL\) for Brake Pads Composite](#)

S Wahyuningsih, A H Ramelan, P Rahmawati, B P N Tamtama, P P Sari, P L Sari, S Ichsan, Y R Kristiawan and F N Aini.....304

Polymer Composite (PC)

012052

OPEN ACCESS

[Preparation and Characterization of Cellulose and Nanocellulose from Agro-industrial Waste - Cassava Peel](#)

S Widiarto, S D Yuwono, A Rochliadi and I M Arcana.....311

012053

OPEN ACCESS

[Preparation of Silanized-Chitosan via Solution-Casting Method: Study on the Mechanical, Water Adsorption and Swelling Area Properties](#)

O A Saputra, W A Lestari, M Nauqinida, W E Prasetyo and D S Handayani.....317

012054

OPEN ACCESS

[Effect of cassava starch-based edible coating incorporated with lemongrass essential oil on the quality of papaya MJ9](#)

D Praseptianga, R Utami, L U Khasanah, I P Evirananda and Kawiji.....323

012055

OPEN ACCESS

[Preparation of activated carbon from waste plastics polyethylene terephthalate as adsorbent in natural gas storage](#)

Yuliusman, Nasruddin, A Sanal, A Bernama, F Haris and I T Ramadhan.....329