

3rd International Conference on Functional Materials Science 2016 (3rd ICFMS 2016)

IOP Conference Series: Materials Science and Engineering
Volume 196

Sanur-Bali, Indonesia
19 - 20 October 2016

Editors:

**Risdiana
A.A. Nugroho
Kuwat Triyana**

ISBN: 978-1-5108-4073-7
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 196

3rd International Conference on Functional Materials Science 2016

19–20 October 2016, Sanur-Bali, Indonesia

Accepted papers received: 27 April 2017

Published online: 20 May 2017

Preface

011001

OPEN ACCESS

[3rd International Conference on Functional Materials Science 2016](#)

011002

OPEN ACCESS

[Peer review statement](#)

Invited lectures

012001

OPEN ACCESS

[Calorimetric and Neutron Scattering Studies on Glass Transitions and Ionic Diffusions in Imidazolium-based Ionic Liquids](#)

O Yamamuro and M Kofu.....1

012002

OPEN ACCESS

[Electronic Properties of Alkali Metals Loaded into Channel-Type Zeolite L](#)

P T Thi, T Nakano, Y Sakamoto and Y Nozue.....5

Oral Presentations

012003

OPEN ACCESS

[The Role of graphene in Fe₃O₄/graphene Composites on the Adsorption of Methylene Blue and Their Kinetic Study](#)

A Taufik and R Saleh.....9

012004

OPEN ACCESS

[Crystal Structure Characterization of Thin Layer Zinc Oxide](#)

Aris Doyan, Susilawati, Siti Azizatul Fitri and Sukainil Ahzan.....14

012005

OPEN ACCESS

[Photoluminescence of Reduced Graphene Oxide Prepared from Old Coconut Shell with Carbonization Process at Varying Temperatures](#)

Dwi Noor Jayanti, Ananda Yogi Nugraheni, Kurniasari, Malik Anjelh Baqiya and Darminto.....20

012006

OPEN ACCESS

[Electron Microscopy of the Tin-oxide Nanolayer Formed on the Surface of Sn-Ag-Cu Alloys](#)

H Sosiati, N Kuwano and S Hata.....24

012007

OPEN ACCESS

[Structural Analysis on Reduced Graphene Oxide Prepared from Old Coconut Shell by Synchrotron X-Ray Scattering](#)

Ananda Yogi Nugraheni, Dwi Noor Jayanti, Kurniasari, Siriwat Soontaranon, Edy Giri Rachman Putra and Darminto.....29

012008

OPEN ACCESS

[Hematite from Natural Iron Stones as Microwave Absorbing Material on X-Band Frequency Ranges](#)

Mochamad Zainuri.....34

012009

OPEN ACCESS

[Synthesis of Zn_{1-x}Cu_xO Nanoparticles by Coprecipitation and Their Structure and Electrical Property](#)

Dyah Ayu Daratika, Malik Anjelh Baqiya and Darminto.....38

012010

OPEN ACCESS

[Electrical Properties of La_{0.67}Sr_{0.33}Mn_{0.8}Ni_{0.2}O₃ Synthesized by Sol Gel Method](#)

B Kurniawan, U Widyaiswari, I Fauziyah and A Imaduddin.....42

012011

OPEN ACCESS

[Protected Vacuum Annealing Effect on Single Crystals of Pr_{1-x}LaCe_xCuO₄ in the Overdoped Regime](#)

M A Baqiya, B Triono, Darminto, T Adachi, A Takahashi, T Konno, M Watanabe, T Prombood and Y Koike.....46

012012

OPEN ACCESS

[Structural and Magnetic Properties of n-type Superconductor Eu_{2-x}Ce_xCuO_{4+α-δ}](#)

Risdiana, M Saputri, M F Sobari, A I Hanifah, W A Somantri and T Saragi.....50

012013

OPEN ACCESS

[Enhancement of Photo- and Sonodegradation of Methylene Blue using Fe₃O₄/ZrO₂ by Adding Two Different Graphene Material](#)

Yogi Kristianto, Ardiansyah Taufik and Rosari Saleh.....54

012014

OPEN ACCESS

[Fabrication of Semi-quasi Solid DSSC using Spiro Material as Hole Transport Material](#)

L Safriani, W P Primawati, C Mulyana, T Susilawati and A Aprilia.....58

012015

OPEN ACCESS

[The Microstructure Analysis of Barium M- Hexaferrite Particles Coated by Pani Conducting Material with In Situ Polymerization Process](#)

M. Zainuri and L Amalia.....63

012016

OPEN ACCESS

[Synthesis and Characterization Materials M-Barium Hexaferrite Doping Ions Co-Mn Nano Particle](#)

Susilawati, A Doyan and Sahlam.....68

012017

OPEN ACCESS

[Effect of Cerium Doped on the Poly\(3-\(Trimethoxysilyl\)propyl methacrylate\) Characteristic as Corrosion Protection Material of Carbon Steel](#)

D N Rochmah, N Syakir, T Susilawati, S Suryaningsih and Fitrilawati.....73

012018

OPEN ACCESS

[Structural and Magnetic Characterization of Mn and Fe-doped ZnO Nanopowders](#)

Putra Dewangga Candra Seta, Pelangi Eka Yunita, Malik Anjelh Baqiya and Darminto.....77

012019

OPEN ACCESS

[Microstructure and Magnetic Properties of Optimally Annealed Ni₄₃Mn₄₁Co₅Sn₁₁Heusler Alloy](#)

Nastiti Elwindari, Budhy Kurniawan, Candra Kurniawan and Azwar Manaf.....81

012020

OPEN ACCESS

[Characterization of Precipitated CaCO₃ Synthesized from Dolomite](#)

Zaenal Arifin, Nurul Fitria Apriliani, Mochamad Zainuri and dan Darminto.....86

012021

OPEN ACCESS

[Defect and Magnetic Properties of Reduced Graphene Oxide Prepared from Old Coconut Shell](#)

Kurniasari, A Maulana, A Y Nugraheni, D N Jayanti, S Mustofa, M A Baqiya and Darminto.....90

012022

OPEN ACCESS

[Effect of Activators on Strength of Hybrid Alkaline Cement](#)

Wiwik Dwi Pratiwi, Hamzah Fansuri, Januarti Jaya Ekaputri and Triwulan.....94

012023

OPEN ACCESS

[Tensile Properties and Deflection Temperature of Polypropylene/Sumberejo Kenaf Fiber Composites with Fiber Content Variation](#)

S.L. Ollivia, A.L. Juwono and Seto Roseno.....99

012024

OPEN ACCESS

[The Use of Mushroom Growing Media Waste for Making Composite Particle Board](#)

P H Tjahjanti, Sutarman, E Widodo and A T Kusuma.....104

012025

OPEN ACCESS

[Synthesis and Properties of Iron Oxide Particles Prepared by Hydrothermal Method](#)

T Saragi, A S Santika, B Permana, N Syakir, M Kartawidjaja and Risdiana.....108

012026

OPEN ACCESS

[Improving Photocatalytic Performance in Degradation of Methylene Blue using Magnetite Fe-doped ZnO/Montmorillonite Nanocomposite](#)

M I Pratiwi, N Afifah and R Saleh.....112

012027

OPEN ACCESS

[Thermal Reduction Study of Graphene Oxide Paper](#)

Fitrilawati, M B Perkasa, N Syakir, A Aprilia, L Safriani, T Saragi, Risdiana, S Hidayat, A Bahtiar, R Siregar, R R Sihombing and A Nugroho.....117

012028

OPEN ACCESS

[Effect of Spreading Time on Contact Angle of Nanofluid on the Surface of Stainless Steel AISI 316 and Zircalloy 4](#)

D H Prajitno, V Trisnawan and D G Syarif.....121

012029

OPEN ACCESS

[Effect of Weight Fractions of Jute Fiber on Tensile Strength and Deflection Temperature of Jute Fiber/Polypropylene Composites](#)

S Nabila, A L Juwono and S Roseno.....126

012030

OPEN ACCESS

[Cross-Sectional Investigations of Oxide Scale Nanocrystalline FeCr Alloys after High-Temperature Oxidation Test at 900°C](#)

H Saryanto, D Sebayang and P Untoro.....130

012031

OPEN ACCESS

[Study of Tensile Properties and Deflection Temperature of Polypropylene/Subang Pineapple Leaf Fiber Composites](#)

R Hafizhah, A L Juwono and S Roseno.....136

012032

OPEN ACCESS

[The Role of Annealing Temperature in Photocatalytic Performance of Fe₃O₄/SnO₂ nanocomposites](#)

Valentinus Paramarta, Ardiansyah Taufik and Rosari Saleh.....140

012033

OPEN ACCESS

[Synthesis and Characterization of Composite UPR/Fe₃O₄ for Its Use as Electromagnetic Wave Absorber](#)

Yusmaniar, W A Adi, Y Taryana and R Muzaki.....145

012034

OPEN ACCESS

[Characteristic of Thermally Reduced Graphene Oxide as Supercapacitors Electrode Materials](#)

Vika Marcelina, Norman Syakir, Santhy Wyantuti, Yeni W Hartati, Rahmat Hidayat and Fitrilawati.....149

012035

OPEN ACCESS

[The optimization of CMC concentration as graphite binder on the anode of LiFePO₄ battery](#)

S Hidayat, T Cahyono, J Y Mindara, N Riveli, W Alamsyah and I Rahayu.....153

012036

OPEN ACCESS

[Synthesis and Photoluminescence Study of Reduced Graphene Oxide \(rGO\)/ZnO for Solar Energy Absorbing Materials](#)

Christina Martha, Malik Anjelh Baqiya, Yoyok Cahyono and Darminto.....157

012037

OPEN ACCESS

[Pin-Hole Free Perovskite Film for Solar Cells Application Prepared by Controlled Two-Step Spin-Coating Method](#)

A Bahtiar, S Rahmanita and Y D Inayatie.....161

012038

OPEN ACCESS

[Annealing treatment of a-Si:H films deposited by PECVD and their properties](#)

Yoyok Cahyono, Fuad Darul Muttaqin, Umi Maslakah and Darminto.....168

012039

OPEN ACCESS

[The Effect of Variations in the Ratio of Matrix/Solvent on the Physical and Mechanical Properties of Chitosan Biopolymer Membranes](#)

N N Rupiasih, M Sumadiyasa and I K Putra.....172

012040

OPEN ACCESS

[The Effect of Pressure and Temperature on Separation of Free Gadolinium\(III\) From Gd-DTPA Complex by Nanofiltration-Complexation Method](#)

Iman Rahayu, Anni Anggraeni, MSS Ukun and Husein H Bahti.....180

012041

OPEN ACCESS

[Raman scattering study of the effect of A- and B-site substitution on the room-temperature structure of \$ABi_4Ti_4O_{15}\$](#)

A Prasetyo, B Mihailova, V Suendo, A A Nugroho, Zulhadjri and Ismunandar.....185

012042

OPEN ACCESS

[Mechanical and molecular studies of biocomposites filled with oil palm empty fruit bunches microfibrers](#)

S Nikmatin, D R Saepulloh, Irmansyah and A Syafiuddin.....189

012043

OPEN ACCESS

[Photonic jet \$\mu\$ -etching: from static to dynamic process](#)

A Abdurrochman, S Lecler, J Zelgowski, F Mermet, J Fontaine and B Y Tumbelaka.....196

012044

OPEN ACCESS

[Synthesis of Mesoporous CaCO₃ Powder using Natural Limestone as Ca Ion Source with Solution Mixing Method](#)

Zaenal Arifin, Qudsiyyatul Lailiyah, Mochamad Zainuri and Darminto.....200

012045

OPEN ACCESS

[Effect of Mould Coating on Skin Formation and Nodule Characteristics of Thin Wall Ductile Iron Casting](#)

D Dhaneswara, B. Suharno, A Aprilio, R D S Ariobimo and N Sofyan.....204

012046

OPEN ACCESS

[Time of Growth Dependent of ZnO-Nanorods by Self-Assembly Methods and its Structural Properties](#)

A Aprilia, A Bahtiar, L Safriani, C C Ayunita, N Afifah, N Syakir, Risdiana, T Saragi, S Hidayat, Fitrilawati and R E Siregar.....210

012047

OPEN ACCESS

[\$\mu\$ SR Study of Organic Superconductor \$\lambda\$ -\(BETS\)₂GaCl₄](#)

D P Sari, R Asih, S S Mohm-Tajudin, N Adam, K Hiraki, Y Ishii, T Takahashi, T Nakano, Y Nozue, S Sulaiman, M I Mohamed-Ibrahim and I Watanabe.....216

012048

OPEN ACCESS

[Improvement of Catalytic Performance over LaMnO₃/Nanographene Platelets Composites](#)

Nur Afifah and Rosari Saleh.....221

012049

OPEN ACCESS

[Characteristics of Thermally Reduced Graphene Oxide Thin Film as DSSC Counter Electrode](#)

F Yuliasari, A Aprilia, N Syakir, L Safriani, T Saragi, Risdiana, S Hidayat, A Bahtiar, R Siregar and Fitrilawati.....226

012050

OPEN ACCESS

[Enhancement of Sonocatalytic Activity and Stability of Magnetic LaFeO₃/Fe₃O₄ Nanocomposites](#)

Nur Afifah and Rosari Saleh.....230

012051

OPEN ACCESS

[Temperature Dependent Raman Studies of Pr₂Zr₂O₇ Single Crystal](#)

K D Jatmoko, A Prasetyo, V Suendo, S Nakatsuji and A A Nugroho.....235