# International Conference on Green and Renewable Energy Resources (ICGRER 2016)

IOP Conference Series: Earth and Environmental Science Volume 75

Solo, Indonesia 14 – 15 November 2016

ISBN: 978-1-5108-4715-6

ISSN: 1755-1307

#### 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 75

**International Conference on Green and Renewable Energy Resources (ICGRER 2016)** 

14-15 November 2016, Solo, Indonesia

Accepted papers received: 5 July 2017

Published online: 9 August 2017

#### **Preface**

011001

**OPEN ACCESS** 

International Conference on Green and Renewable Energy Resources (ICGRER 2016)

011002

**OPEN ACCESS** 

Peer review statement

## Solar Energy/Solar Cell

012001

**OPEN ACCESS** 

Study of Performance of Coaxial Vacuum Tube Solar Collector on Ethanol Distillation Process

Sutomo, A H Ramelan, Mustafa and T Tristono.....1

012002

**OPEN ACCESS** 

<u>A Study on Structure/Phase Transformation of TiO<sub>2</sub> nanorods at Various Annealing Temperatures</u>

S Wahyuningsih, A H Ramelan and L N M Z Saputri.....7

012003

**OPEN ACCESS** 

Band-engineering of TiO<sub>2</sub> as a wide-band gap semiconductor using organic chromophore dyes

S Wahyuningsih, I Kartini, A H Ramelan, L N M Z Saputri and H Munawaroh.....13

012004

**OPEN ACCESS** 

Calculation of DSSC parameters based on ZnO nanorod/TiO<sub>2</sub> mesoporous photoanode

L Safriani, A Nurrida, C Mulyana, T Susilawati, A Bahtiar and A Aprilia.....22

012005

**OPEN ACCESS** 

Enhanced Photovoltaic Performance by Surface Modification of TiO<sub>2</sub> Nanorods with Aminopropyltrimethoxysilane (APTMS)

G Fadillah, S Wahyuningsih and A H Ramelan....29

012006

**OPEN ACCESS** 

Synthesis of TiO<sub>2</sub> NRs - ZnO Composite for Dye Sensitized Solar Cell Photoanodes

S Wahyuningsih, A H Ramelan, R Hidayat, G Fadillah, H Munawaroh and L N M Z Saputri.....35

## Biomass & Bioenergy/Ocean and Tidal Energy

012007

OPEN ACCESS

Design of Hybrid Solar and Wind Energy Harvester for Fishing Boat

D A Banjarnahor, M Hanifan and E M Budi.....41

012008

**OPEN ACCESS** 

Study of Vertical Axis Wind Turbine for Energy Harvester in A Fishing Boat

E M Budi, D A Banjarnahor and M Hanifan....48

012009

**OPEN ACCESS** 

<u>Preparation of Activated Carbon from Palm Shells Using KOH and ZnCl<sub>2</sub> as the Activating Agent</u>

Yuliusman, Nasruddin, M K Afdhol, R A Amiliana and A Hanafi.....56

012010

**OPEN ACCESS** 

Removal of Mercury in Liquid Hydrocarbons using Zeolites Modified with Chitosan and Magnetic Iron Oxide Nanoparticles

E Kusrini, B H Susanto, D A Nasution, R Jonathan and W M Khairul.....62

012011

**OPEN ACCESS** 

Seepage Zone Identification at Sutami Dam by Means of Geoelectrical Resistivity Data

Sunaryo and A. Susilo.....68

012012

**OPEN ACCESS** 

Effect of Light Intensity for Optimum Biomass and Lipid Production from Scenedesmus dimorphus (Turpin) Kützing

F N Kurniawati, E Mahajoeno, Sunarto and S L A Sari.....74

012013

OPEN ACCESS

Optimization Production of Biosurfactant by *Pseudomonas putida* Using Crude Palm Oil (CPO) as Substrate

V Suryanti, D S Handayani, A Masykur and Lindasari.....79

012014

**OPEN ACCESS** 

Bioethanol Production By Utilizing Cassava Peels Waste Through Enzymatic And Microbiological Hydrolysis

R G Witantri, T Purwoko, Sunarto and E Mahajoeno.....84

#### **Miscellaneous Product**

012015 OPEN ACCESS

Synthetic of Allophane-Like and Adsorption for Lead (Pb) Heavy Metals

Pranoto, C Purnawan and A D Widyasari.....90

012016

**OPEN ACCESS** 

<u>Design and Properties of Thin Surfacing Hot Mix Asphalt Containing Crumb Rubber as</u> Partial Aggregate Replacement

Ary Setyawan, Nugroho Febrianto and Djoko Sarwono....96

012017

**OPEN ACCESS** 

The Solid Phase Curing Time Effect of Asbuton with Texapon Emulsifier at the Optimum Bitumen Content

D Sarwono, R Surya D, A Setyawan and Djumari.....102

012018

**OPEN ACCESS** 

Improved of Natural Gas Storage with Adsorbed Natural Gas (ANG) Technology Using Activated Carbon from Plastic Waste Polyethylene Terepthalate

Yuliusman, Nasruddin, A Sanal, A Bernama, F Haris and M Hardhi.....108

012019

**OPEN ACCESS** 

Selecting the Best Materials Compositions of Resin Based Bioasphalt

Ary Setyawan, Budi Widiharjo and Djumari.....114

012020

**OPEN ACCESS** 

Environmental Management Model for Road Maintenance Operation Involving Community Participation

A R H Triyono, A Setyawan, Sobriyah and P Setiono.....119

$\Lambda$ 1	ി	<b>いつ 1</b>
01	120	21

**OPEN ACCESS** 

Microscopy of Alloy Formation on Arc Plasma Sintered Oxide Dispersion Strengthen (ODS) Steel

B Bandriyana, A Sujatno, R Salam, A Dimyati and P Untoro.....125

012022

**OPEN ACCESS** 

Flat Plate Solar Collector Characteristic with Shutter Glass Distance Variation and Collector Inclination Angle

A H Ramelan, A Burhanuddin, M I A Fuady, S Wahyuningsih and H Munawaroh.....130

012023

**OPEN ACCESS** 

Improvement of Thermo-Mechanical Properties of Short Natural Fiber Reinforced Recycled Polypropylene Composites through Double Step Grafting Process

O A Saputra, K S Rini, T D Susanti, R E Mustofa, M D Prameswari and E Pramono.....141

012024

**OPEN ACCESS** 

<u>Surface Properties and Permeability of Poly(Vinylidene Fluoride)-Clays (PVDF/Clays)</u> <u>Composite Membranes</u>

E Pramono, M Ahdiat, A Simamora, W Pratiwi, C L Radiman and D Wahyuningrum....147

012025

**OPEN ACCESS** 

<u>Diaquachloro-tris(ethyl-p-Aminobenzoate)copper(II) Chloride: Synthesis, Characterization and In Vitro Investigation of Antibacterial Activity</u>

S B Rahardjo, W W Lestari and H Syaima.....155

012026

**OPEN ACCESS** 

<u>Smart Natural Fiber Reinforced Plastic (NFRP) Composites Based On Recycled Polypropylene in The Presence Kaolin</u>

N S Suharty, H Ismail, K Diharjo, D S Handayani and W A Lestari.....162

### 012027 OPEN ACCESS

Effects of PVDF concentration on the properties of PVDF membranes

E Pramono, A L Simamora, C L Radiman and D Wahyuningrum.....168

012028
OPEN ACCESS
State Equation Determination of Cow Dung Biogas

A Marzuki and L B Wicaksono....174