2nd International Conference on Smart Materials Applications (ICSMA 2019)

IOP Conference Series: Materials Science and Engineering Volume 559

Tokyo, Japan 19 – 22 January 2019

ISBN: 978-1-5108-9093-0

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.

This work is licensed under a Creative Commons Attribution 3.0 International Licence. Licence details: http://creativecommons.org/licenses/by/3.0/.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed by Curran Associates, Inc. (2019)

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 559

2019 International Conference on Smart Materials Applications

19-22 January 2019, Tokyo, Japan

Accepted papers received: 21 May 2019

Preface

2019 International Conference on Smart Materials Applications

Conference Committees

Peer Review Statement

Papers

Material Science and Engineering

<u>Dynamic Mechanical Properties of Magnetorheological Elastomers: Experiment and Modelling</u>

G H Zhu, Z G Li, Y P Xiong, L Xiao and M Li....1

Development of High Performance Grouting Method for PSC Strands

In-Seok Yoon, Joo-Hwan Kim, Min-Jin Jeon and Seoung-Hwan Jang.....6

<u>Functionalized Carbon-based Quantum Dots: Optical Characterization and Potential</u>
Application as Bio-fluorophore

R A T Cruz, A N Soriano, P A N de Yro, G M O Quiachon, C S Emolaga, M L M Ysulat, U G Bigol and B A Basilia.....11

Supakit Amornthitipong, Thitiwat Sriprasart and Anak Khantachawana.....17

Bagasse Sheets Reinforced with Nanofibrillated Celluloses

S Klayya, P Rattanawongkun, N Kunfong, N Yodsuwan, N Tawichai, U Intatha and N Soykeabkaew.....22

Nanofibrillated Cellulose from Banana Pseudostem Reinforced Bagasse Paper Sheets

N Soykeabkaew, P Rattanawongkun, N Kunfong, N Tawichai and U Intatha....27

Micro/Nano Papers from Bagasse Pulp Reinforced by Bacterial Cellulose Nanofibers

P Rattanawongkun, N Kunfong, N Tawichai, U Intatha, N Yodsuwan and N Soykeabkaew....32

Effect of Pineapple Leaf Nanofibers on Physical and Mechanical Properties of Bagasse Sheets

N Kunfong, P Rattanawongkun, N Tawichai, S Duangphet, U Intatha and N Soykeabkaew.....37

Communication Technology and Electrical Engineering

Electronically Adjustable Voltage-mode First-order Allpass Filter Using Single Commercially Available IC

Amornchai Chaichana, Surapong Siripongdee and Winai Jaikla.....42

Realization of Voltage-mode Multifunction Biaquadratic Filter Using Minimum Number of Active Element

Winai Jaikla, Surapong Siripongdee and Peerawut Suwanjan.....48

Voltage Supply Assessment Using Process Capability Concepts: A Case Study

A H Vizuete, G J Barbosa, E M Lema, M S Albán, R S Vargas and L C Ruiz.....54

Energy and Catalytic Chemistry

Effect of Calcination Temperature and Support Type of Pt/WO_x/boehmite Catalyst on 1,3-propanediol Production from Hydrogenolysis of Glycerol

P Uttraporn and P Praserthdam.....61

<u>Hydrogen Production via Chemical Looping Steam Reforming of Ethanol: Effect of Ce</u> and La on Ni-based Oxygen Carrier Performance

S Isarapakdeetham, P Kim-Lohsoontorn, S Wongsakulphasatch, W Kiatkittipong and S Assabumrungrat.....70

Effect of Water Content in Waste Cooking Oil on Biodiesel Production via Estertransesterification in a Single Reactive Distillation

Ajala Anantapinitwatna, Kanokwan Ngaosuwan, Worapon Kiatkittipong, Doonyapong Wongsawaeng and Suttichai Assabumrungrat.....81

Impact of Oxygen Vacancy on the Photocatalytic Selective Hydrogenation of 3-Nitrostyrene via Calcination of TiO₂

Saknarin Chaitaworn, Okorn Mekasuwandumrong and Piyasan Praserthdam.....91

A Comparative Study of the Divalent Transition Metal Oxide Supported on Magnesium Oxide Catalyst for Lactic Acid Production from Glucose

T Udomcharoensab and P Praserthdam.....99

Reactive Magnetron Sputter Deposition of Copper on TiO₂ Support for Photoreduction of CO₂ to CH₄

Nantiya Jantarasorn, Okorn Mekasuwandumrong, Peter Kelly and Piyasan Praserthdam.....109

Industry and Chemical Technology

The Recovery Process of Used Hydrocarbon Solvent by Vacuum Distillation

Apiched Savasdipol, Nophawan Paradee and Sumonman Niamlang.....115

Numerical Modeling of Industrial-Scale Pulsed Bed Adsorber for Colorant Removal in Sugar Refining

Terasut Sookkumnerd.....121