

# **4th International Conference on Environment and Renewable Energy (ICERE 2018)**

IOP Conference Series: Earth and Environmental Science  
Volume 159

Da Nang, Vietnam  
25 - 27 February 2018

**Editor:**

**Vu Dinh Tuan**

ISBN: 978-1-5108-6477-1  
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© (2018) 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. (2018)

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](mailto: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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Table of contents

## Volume 159

**2018 4th International Conference on Environment and Renewable Energy (ICERE 2018)**

**25–27 February 2018, Da Nang, Vietnam**

**Accepted papers received: 23 May 2018**

**Published online: 14 June 2018**

### **Preface**

[2018 4th International Conference on Environment and Renewable Energy \(ICERE 2018\)](#)

[Organizing Committee](#)

[Peer review statement](#)

### **Papers**

#### **Energy and Chemical Engineering**

[Hydrochar Generation from Hydrothermal Carbonization of Organic Wastes](#)

P Kantakanit, N Tippayawong, S Koonaphapdeelert and A Pattiya.....1

[Experimental Investigation of hot Water Generation from Small CaO/Ca\(OH\)<sub>2</sub> Thermochemical Energy Storage System](#)

N Takham and N Tippayawong.....7

[Decomposition of Methane Hydrate in the Presence of Sodium Dodecyl Sulfate](#)

A O Dudoladov, M S Vlaskin and M V Gaykovich....13

[Chemical Composition of Bio-oil Produced by Hydrothermal Liquefaction of Microalgae with Different Lipid Content](#)

M S Vlaskin, Y I Kostyukevich, G N Vladimirov, M V Gaykovich, A O Dudoladov, N I Chernova, S V Kiseleva, A Z Zhuk, O S Popel and E N Nikolaev.....19

[Effects of Lithium Salt on Electrochemical Reactions at a SiC Electrode in Propylene Carbonate-based Solutions](#)

S Jeong.....25

[Research on Downhole Risk Assessment Method for Production Wells](#)

N T Si, Q W Chen, J Q Long and Y H Gao.....31

[A Novel Hybrid Ensemble Classification Approach to Candidate Well Selection for CBM Well Fracturing](#)

Lei Xu and Fang Liu.....37

[Using Ion-Exchange to Recovery of Germanium from Waste Optical Fibers by Adding Citric Acid](#)

Wei-Sheng Chen, Bi-Cheng Chang and Yen-Jung Chen.....45

[Mechanical Extraction of Protein Solution from Microalgae by Ultrasonication](#)

A Kuhavichanan, P Kusolkumbot, S Sirisattha and C Areeprasert.....51

[The Promotion by Steam on CaO Adsorbing SeO<sub>2</sub> at Medium Temperature](#)

Yu Lou, Yaming Fan, Chengkai Pang and Yuqun Zhuo.....59

## **Resources and Environmental Engineering**

### [Mapping Groundwater Vulnerability Zones in Eogenetic Karst Catchment Using Particle-tracking Method](#)

D K S Y Klaas, M A Imteaz, A Arulrajah, I Sudiayem, E M E Klaas and E C M Klaas.....71

### [Land Unit Mapping and Evaluation of Land Suitability for Agro – forestry in Thua Thien Hue province – VietNam as an Example](#)

Nguyen Ngoc Dan, Lei Guo Ping and Le Phuc Chi Lang.....76

### [Preliminary Study on the Application of Temperature Swing Adsorption in Aqueous Phase for Pesticide Removal](#)

B Aumeier, H Q A Dang and M Wessling.....86

### [Pollutants Emission Characteristics of an Ultra-low Coal-fired Power Unit](#)

Li Bing, Song Yongqiang, Zhang Qilong, Zhou Can and Duan Haoran.....91

### [Pretreated Fruit Peels as Adsorbents for Removal of Dyes from Water](#)

Nguyen Thi Hong Nhung, Bui Thi Phuong Quynh, Pham Thi Thu Thao, Hoang Ngoc Bich and Bach Long Giang.....97

### [Synergistic Studies on the Removal of Dyes by Waste \(\*Metroxylon sagu\*\) Based Activated Carbon: an Optimization Study](#)

JO Amode, Md Z Alam, AH Mirza, CC Mei and JH Santos.....105

### [The Recycling of Spent Power Battery: Economic Benefits and Policy Suggestions](#)

Xiaoming Ma, Yuan Ma, Jiping Zhou and Siqin Xiong.....114

[Information Organization of 3-D Landslides Board Game for Ecological Educations](#)

F L Chao, S L Shih, Y C Chien and W H Kao.....120

[Manual and Automatic Volume Measuring Methods for Industrial Timber](#)

Z Pásztor, B Heinzmann and M-C Barbu.....127

**Power System and Automation**

[Substation Reliability Evaluation Considering the Failure Events](#)

Sung Hun Kim and Dong Ju Lee.....136

[Study of the PWM Control Strategies for Three Switches Isolated Boost DC-DC Converter](#)

Truong-Duy Duong, Minh-Khai Nguyen, Young-Cheol Lim and Joon-Ho Choi.....144

[Power Quality Feature Modelling of Waveform Disturbances for Distribution System Diagnosis](#)

Sang-Keun Moon, Jong-Hyuk Lee, Hong-Rok Lim, Sang-Won Oh, Dae-Won Seo and Jin-O Kim.....152

[A Single Phase Quasi H-Bridge Boost Inverter with Common Ground for Grid connected Applications](#)

TT Tran, MK Nguyen, YC Lim and JH Choi.....159

[A Simulink Model of Photovoltaic Modules under Varying Environmental Conditions](#)

Innocent Nkurikiyimfura, Bonfils Safari and Emmanuel Nshingabigwi.....166

## **Renewable Energy and Building Energy System**

### [Analysis of the Constraints in the Renewable Energy Sector within a Multi-level Energy Transition Perspective \(MLP\): The Case of the Philippines](#)

Phoebe Grace Saculsan.....174

### [Energetical Examination of Pyrolysis Carbon Black and Pine Shavings Blend Pellets](#)

V Papp, D Szalay and V Vágvölgyi.....181

### [Sustainability of Refuse Derived Fuel Potential from Municipal Solid Waste for Cement's Alternative Fuel in Indonesia \(A Case at Jeruklegi Landfill, in Cilacap\)](#)

W Paramita, D M Hartono and T E B Soesilo.....189

### [Analysis of the Base Material Footprint of Conventional and Lignocellulosic Biofuel Production](#)

D Szalay, V Papp and I Czupy.....195

### [Utilization of Fast Growing Plantation Timber as Bioenergy in Hungary](#)

R Németh, S Fehér and Sz Komán.....203

### [Renewable Energy and Smart Hybrid Strategies for High Performance Architecture and Planning in Case of Tehran, Iran](#)

F Heidari, M Mahdavinejad and SH Sotodeh.....208

### [Numerical Analysis on the Structure of Wall Implanted with Heat Pipes](#)

Zhengyu Wang and Xianghui Su.....218

## **Biomass Pyrolysis and Combustion**

### [Oxidative Pyrolysis of Agricultural Residues in Gasification and Carbonization Processes](#)

Xuan-Huynh Pham, Laurent Van De Steene, Bruno Piriou and Sylvain Salvador.....224

### [Rice Husk Gasification: from Industry to Laboratory](#)

Hong Nam Nguyen, Laurent Van De Steene, Thi Thuy Hang Le, Duc Dung Le and Minh Ha-Duong.....232

### [Impact of Co-firing Straw for Power Generation to Air Quality: A Case Study in Two Coal Power Plants in Vietnam](#)

A H Truong and M Ha-Duong.....241

### [Pyrolysis and Char Oxidation of Biomass and Coal Blends: Kinetic Study Using Thermogravimetric Analysis](#)

Hoang Anh Tran, Laurent Van de Steene and Duc Dung Le.....249

### [Pyrolysis of Corn Residues: Kinetic Analysis using Discrete Distributed Activation Energy Model](#)

T Onsree, P Sittisun, R Sasaki and N Tippayawong.....256

### [Bio-oil Production from Ablative Pyrolysis of Corncob Pellets in a Rotating Blade Reactor](#)

N Khuenkaeo and N Tippayawong.....263

### [Technical Problems of Wood Chips Utilization](#)

I Czupy, F Szűcs and A Vágvölgyi.....269



## **Power and Mechanical Engineering**

### [Modelling of Aluminium-fuelled Power Plant with Gas Turbine](#)

M S Vlaskin, M V Gaykovich and A O Dudoladov.....275

### [Techno-economic Assessment of Turbine Inlet Air Cooling for Cogeneration Plant in Malaysia Climate](#)

Saw Chun Lin, Choong Chee Guan, Azmi Naroh, Danny Tam Hong Khai and Mohd Kamarul Yusri Yusof.....283

### [Kinetic of Biogas Production in Co-Digestion of Vegetable Waste, Horse Dung, and Sludge by Batch Reactors](#)

P V Dinh, T Fujiwara, S T Pham Phu and M G Hoang.....290

### [Improved Design of Ultrasonic Cleaning Tank Using Harmonic Response Analysis in ANSYS](#)

W Tangsopa, T Keawklan, K Kesngam, S Ngaochai and J Thongsri.....298

### [The Creation of Modern Electric Vehicles with Additional Source of Energy](#)

K Karpukhin, A Terenchenko and A Kolbasov.....306

## **Urban Engineering and Sustainable Development**

### [The Effect of Urban Development Plans on City's Old Context](#)

S Kalantari and Zh Shan.....311

### [A Review on the Controlling Factors that Affecting the Stormwater Retention Performance of Green Roof](#)

M F Chow, M F Abu Bakar and L M Sidek.....320

[Waste Recycling System for a Tourism City in Vietnam: Situation and Sustainable Strategy Approach – Case Study in Hoi An City, Vietnam](#)

S T Pham Phu, T Fujiwara, P V Dinh and K T Hoa.....326

[Sustainable Design of Curved Wood Rice Barrel with Healthy Considerations](#)

F L Chao, C K Wu and H S Hsieh.....334

[CAE Supported Sustainable Product Development - Case Study of Compact Flow Guiding with Flame Lift Mechanism](#)

W L Chen and F L Chao.....342