

2nd International Conference on Advanced Materials Research and Manufacturing Technologies (AMRMT 2017)

IOP Conference Series: Materials Science and Engineering
Volume 229

Phuket, Thailand
2 – 5 August 2017

ISBN: 978-1-5108-4868-9
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© (2017) 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 229

2017 2nd International Conference on Advanced Materials Research and Manufacturing Technologies (AMRMT 2017)

2–5 August 2017, Phuket, Thailand

Accepted papers received: 5 September 2017

Published online: 22 September 2017

Preface

011001

OPEN ACCESS

[2017 2nd International Conference on Advanced Materials Research and Manufacturing Technologies \(AMRMT 2017\)](#)

011002

OPEN ACCESS

[Committees](#)

011003

OPEN ACCESS

[Peer review statement](#)

Metals and processing Technology

012001

OPEN ACCESS

[Study on the Property Change of Rhizoma Coptidis and Its Ginger Juice Processed Products Based on 5-Ht Level and Brain Tissues Morphology of Rats](#)

Lingyun Zhong, Hengli Tong, Mu Lv and Yufen Deng.....1

012002

OPEN ACCESS

[Rate Controlling Step in the Reduction of Iron Oxides; Kinetics and Mechanism of Wüstite-Iron Step in H₂, CO and H₂/CO Gas Mixtures](#)

Abdel-Hady A. El-Geassy.....8

012003

OPEN ACCESS

[Experimental Investigations on the effect of Additive on the Tensile Properties of Fiber Glass Fabric Lamina](#)

A Nava Sai Divya, Dr B Raghu Kumar and Dr G Lakshmi Narayana.....18

012004

OPEN ACCESS

[Fundamental Characteristics of Grooving Aiming at Reduction of Kerf Loss Using an Ultrafine Wire Tool](#)

Satoshi Sakamoto, Keitoku Hayashi, Masaya Gemma, Yasuo Kondo, Kenji Yamaguchi, Takao Yakou and Susumu Arakawa.....23

012005

OPEN ACCESS

[Browsing Through Closed Books: Evaluation of Preprocessing Methods for Page Extraction of a 3-D CT Book Volume](#)

D Stromer, V Christlein, T Schön, W Holub and A Maier.....29

012006

OPEN ACCESS

[Hydrogen Susceptibility of Pre-strained Type 316L Austenitic Stainless Steels in Aqueous Solutions](#)

D Mati, A Takasaki and S Uematsu.....36

012007

OPEN ACCESS

[Environmental Strategies for Sustainable Manufacturing Process of Composites](#)

Maxim Kireitseu.....42

012008

OPEN ACCESS

[Influence of Ga/Hg Ratio on Phase Constituents and Electrochemical Performance of Mg-Hg-Ga Anode Materials](#)

Libo Wang, Peijie Li and Liangju He.....48

012009

OPEN ACCESS

[The Partial Density of States of CO₂ Molecules Adsorption on the Fe \(111\) Surface](#)

Junfang Wu.....53

012010

OPEN ACCESS

[Study on Silver-plated Molybdenum Interconnected Materials for LEO Solar Cell Array](#)

Jia-jun Zhu, Yu-hao Hu, Meng Xu, Wu-lin Yang, Li-cai Fu, De-yi Li and Ling-ping Zhou.....59

012011

OPEN ACCESS

[Micromilling of Ti-6Al-4V Titanium Alloy Using Ball-end Tool](#)

T Pratap and K Patra.....66

012012

OPEN ACCESS

[Experimental and Numerical Investigations of Applying Tip-bottomed Tool for Bending Advanced Ultra-high Strength Steel Sheet](#)

Pusit Mitsomwang, Rattana Borrisutthekul, Ken Klaiw-awoot and Aran Pattalung.....72

012013

OPEN ACCESS

[Research on Morphology and Growth Mechanism of Xonotlite Crystal](#)

F Liu, S Chen, Q Lin, X D Wang and J X Cao.....84

012014

OPEN ACCESS

[Effects of Cryogenic Treatment on the Strength Properties of Heat Resistant Stainless Steel \(07X16H6\)](#)

D S Nadig, M R Bhat, V K Pavan and Chandan Mahishi.....89

012015

OPEN ACCESS

[Effect of Crystallizable Solvent on Phase Separation and Charge Transport in Polymer-fullerene Films](#)

A Kaewprajak, K Lohawet, T Wutikhun, B Meemuk, P Kumnorkaew and T Sagawa.....94

012016

OPEN ACCESS

[Castor Oil Based Polyurethanes: Synthesis and Characterization](#)

AD Macalino, VA Salen and LQ Reyes.....100

012017

OPEN ACCESS

[Effect of DT4 Interlayer on Properties of Hot-roll Bonding TA2/Q235B Plate](#)

Chao Yu, Hong Xiao, Na Li, Zichen Qi and Zhongkai Ren.....106

012018

OPEN ACCESS

[Interfacial and Electrical Properties of Ge MOS Capacitor by ZrLaON Passivation Layer and Fluorine Incorporation](#)

Yong Huang, Jing-Ping Xu, Lu Liu, Zhi-Xiang Cheng, Pui-To Lai and Wing-Man Tang.....112

Nanomaterials

012019

OPEN ACCESS

[Efficiency of Nb-Doped ZnO Nanoparticles Electrode for Dye-Sensitized Solar Cells Application](#)

Jirapat Anuntahirunrat, Youl-Moon Sung and Pattarapon Pooyodying.....119

012020

OPEN ACCESS

[Synthesis of TiO₂ Nanotubes Electrode for Photo Electrochemical cells Application](#)

Pattarapon Pooyodying, Youl-Moon Sung and Jirapat Anuntahirunrat.....124

012021

OPEN ACCESS

[A Review on Functionally Gradient Materials \(FGMs\) and Their Applications](#)

Valmik Bhavar, Prakash Kattire, Sandeep Thakare, Sachin patil and Dr. RKP Singh.....130

012022

OPEN ACCESS

[Ion Implantation of Silver Nanoparticles on Electrodeposited Polycarbazole Via Plasma Sputter Type Negative Ion Sources](#)

M C Marquez, V Mascarinas and H Ramos.....139

012023

OPEN ACCESS

[Isocyanate-modified Nano-SiO₂ and Corresponding Process Optimization](#)

X F Ye, X Y Huang, G Yu, J N Wang, D C Chen, H W Hu and M L Chang.....144

Advanced Manufacturing

012024

OPEN ACCESS

[Fabrication and Characterization of Carbonized Rice Husk/Barium Titanate Nanocomposites](#)

G J H Melvin, Z Wang, Q-Q Ni, N J Siambun and M M Rahman.....152

012025

OPEN ACCESS

[The Prediction Model of Dam Uplift Pressure Based on Random Forest](#)

Xing Li, Huaizhi Su and Jiang Hu.....157

012026

OPEN ACCESS

[A Simulation Modeling Approach Method Focused on the Refrigerated Warehouses Using Design of Experiment](#)

G S Cho.....167

012027

OPEN ACCESS

[Manufacturing a Porous Structure According to the Process Parameters of Functional 3D Porous Polymer Printing Technology Based on a Chemical Blowing Agent](#)

C J Yoo, B S Shin, B S Kang, D H Yun, D B You and S M Hong.....173

012028

OPEN ACCESS

[Experimental Characterization of Electron Beam Welded SAE 5137H Thick Steel Plate](#)

Prakash Kattire, Valmik Bhawar, Sandeep Thakare, Sachin Patil, Santosh Mane and Dr. Rajkumar Singh.....180

012029

OPEN ACCESS

[Copolymerization of Glycolide and E-Caprolactone Using 12-Aminolauric Acid Modified Montmorillonite](#)

HAV Gallos and LQ Reyes.....186

012030

OPEN ACCESS

[Polyaniline – Carrageenan - Polyvinyl Alcohol Composite Material Synthesized Via Interfacial Polymerization, its Morphological Characteristics and Enhanced Solubility in Water](#)

R C K Montalbo and M C Marquez.....193

Mechanical Properties, Wearing and Tribology

012031

OPEN ACCESS

[Influence of the brittle behavior of work materials on polishing characteristics](#)

Satoshi Sakamoto, Masaya Gemma, Keitoku Hayashi, Yasuo Kondo, Kenji Yamaguchi, Takao Yakou and Susumu Arakawa.....199

012032

OPEN ACCESS

[Feature Extraction from Sensor Data Streams for Optimizing Grinding Condition](#)

Y Kondo, Y Higashimoto, S Sakamoto, T Fujita and K Yamaguchi.....205

012033

OPEN ACCESS

[Experimental Study of Tool Wear and Grinding Forces During BK-7 Glass Micro-grinding with Modified PCD Tool](#)

A Pratap, P Sahoo, K Patra and A A Dyakonov.....211

012034

OPEN ACCESS

[Mechanical, Thermal and Acoustic Properties of Open-pore Phenolic Multi-structured Cryogel](#)

Rui Yao, Zhengjun Yao, Jintang Zhou, Peijiang Liu and Yiming Lei.....217

012035

OPEN ACCESS

[Fracture Behavior of Dielectric Elastomer under Pure Shear Loading](#)

D Ahmad and K Patra.....224

012036

OPEN ACCESS

[Thermal Processes of the Isolating Materials in Problems of Nondestructive Diagnostics of the Main and Distributive Power Stations](#)

M N Dubyago and N K Poluyanovich.....231

012037

OPEN ACCESS

[Mechanical Properties and Interfacial Structure of Ti/Al Clad Plates Generated by Differential Temperature Rolling](#)

Zichen Qi, Hong Xiao, Na Li, Chao Yu and Zhongkai Ren.....237

012038

OPEN ACCESS

[Mechanical Properties of the 2D Re-entrant Honeycomb Made via Direct Metal Printing](#)

Amer Alomarah, Jianjun Zhang, Dong Ruan, Syed Masood and Guoxing Lu.....243

012039

OPEN ACCESS

[Study on Inverse Method of Soil Elastic Modulus Based on Multi-material ALE Fluid-structure Interaction](#)

Wang Yang, Xinkai Dang, Jian Yang and Jianlin Mo.....248