1st International Conference on New Material and Chemical Industry (NMCI2016)

IOP Conference Series: Materials Science and Engineering Volume 167

Sanya, China 19 – 21 November 2016

Editor:

Min Li

ISBN: 978-1-5108-3671-6

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 167

1st International Conference on New Material and Chemical Industry (NMCI2016) 19–21 November 2016, Sanya, China

Accepted papers received: 16 January 2017

Published online: 13 February 2017

Preface

011001 OPEN ACCESS

1st International Conference on New Material and Chemical Industry (NMCI2016)

Min Li

011002 OPEN ACCESS Peer review statement

Biological Materials and Ecological Materials

012001 OPEN ACCESS

Pluronic F127/chitosan blend microspheres for mucoadhesive drug delivery

W Z Gu and X F Hu00008

012002 OPEN ACCESS

The research of far infrared flame retardant polyester staple fiber

Qingshan Li, Kaijun Zhang, Jinqong Luo, Ji'an Li, Jian Jiang, Qianqian Liang, Yongxia Jin and Bing Liu

Effects of magnesium potassium phosphate cements mixed with silica fume on the solidification and reduction of municipal sludge

Yanchang Chen, Lixin Wang, Peng Song and Qi Wang

012004

OPEN ACCESS

Preparation of the sludge activated carbon with domestic sludge mixed agricultural straw

Laifu Wang, Yan Wang and Jingyan Lian 20043

012005

OPEN ACCESS

Separation and recovery of heavy metals from waste water using synergistic solvent extraction

Yan Li, Limei Yang, Zheng Xu and Qi Sun (1994):

012006

OPEN ACCESS

Preparation and characterization of bio-composite PEEK/nHA

Y S Jin, C C Bian, Z Q Zhang, Y Zhao and L Yang

Energy Materials

012007

OPEN ACCESS

<u>Preparation and characterization of composite material Na₂SO₄ 10H₂O - KAl(SO₄)₂ 12H₂O for thermal storage</u>

M Zheng, J W Luo, Y H Zhang and P Chen (1995);

Fabrication of micro-nano composite textured surface for slurry sawn mc-Si wafers cell

Y C Niu, Z liu, X K Ren, X J Liu, H T Liu and Y S Jiang

012009

OPEN ACCESS

Experimental study on heat transfer performance of aluminium foam parallel-flow condenser in air conditioner

X Zhang, Z M Wan, H W Chang and Y D Wang

012010

OPEN ACCESS

Understanding electronic and optical properties of strontium titanate at both PBE and HSE06 levels

Jianhui Yang and Qiang Fan 79

012011

OPEN ACCESS

<u>Investigation of the abnormal Zn diffusion phenomenon in III-V compound</u> <u>semiconductors induced by the surface self-diffusion of matrix atoms</u>

Liangliang Tang, Chang Xu and Zhuming Liu000085

012012

OPEN ACCESS

<u>Dual phase Li₄Ti₅O₁₂-TiO₂ hierarchical hollow microspheres as anode materials for high</u> rate lithium-ion batteries

Kunxu Zhu and Guoxin Hu000092

012013

OPEN ACCESS

Quantum chemical calculations of anion complex $[B_{12}H_x(NF_2)_{12-x}]^{2-}$, x = 9 - 12

E A Koblova, V I Saldin and A Yu Ustinov (1999)

Preparation and characterization of Ni-doped carbon aerogel for supercapacitor

Shasha Wang, Meifang Yan, Haihua Liu, Yuelong Xu, Lihui Zhang and Zhenfa Liu 6

012015

OPEN ACCESS

The wettability between etching solutions and the surface of multicrystalline silicon wafer during metal-assisted chemical etching process

Y C Niu, Z Liu, X J Liu, Y Gao, W L Lin, H T Liu, Y S Jiang and X K Ren00000:

012016

OPEN ACCESS

Preparation techniques of the submicron lithium titanate materials by electro-spinning

Yudong Wang, Kai Yang, Fei Gao, Hao Liu and Mingjie Zhang() 9

012017

OPEN ACCESS

XPS and NMR analysis on 12CaO•7Al₂O₃

R K Pan, S Feng and H Z Tao

012018

OPEN ACCESS

Effects of hot-rolling reduction on microstructure, texture and magnetic properties of high silicon steel produced by strip casting

D Y Hou, H J Xu, H T Jiao, C W Zhao, W Xiong, J P Yang, W Z Qiu and Y B Xu000028

012019

OPEN ACCESS

Preparation and characterization of high-quality perovskite CH₃NH₃PbX₃ (I, Br) single crystal

Yangyang Zhou, Chunmei Li, Yu Wang, Xiang Du, Pengyi Liu and Weiguang Xie 34

Nano Materials and Technology

012020

OPEN ACCESS

Synthesis of the few layered two-dimensional molybdenum oxide atomic crystal

Yu Wang, Ruihui He, Mingze Su and Weiguang Xie 3:

012021

OPEN ACCESS

Dependence of seed layer thickness on sensitivity of nano-ZnO cholesterol biosensor

Yang-Ming Lu, Po-Chin Wang, Jian-Fu Tang and Sheng-Yuan Chu

012022

OPEN ACCESS

Bandgap control for the lattice-matched InGaAs/InAlAs/InP single quantum wells

Y Wang, X Z Sheng, Q L Guo and B L Liang 0000 54

012023

OPEN ACCESS

Effects of flexoelectricity and surface elasticity on piezoelectric potential in a bent ZnO nanowire

Shuangzhe Zhang, Haiyan Yao, Wenliang Fan, Yu Hao, Xudong Wu and Dongyuan Hou

012024

OPEN ACCESS

Photonic crystal hydrogel sensor for detection of nerve agent

Jiayu Xu, Chunxiao Yan, Chao Liu, Chaohua Zhou, Xiaochun Hu and Fenglian Qioobb65

012025

OPEN ACCESS

<u>Ferrum nano particles and multiwall carbon nano tubes based electrode as FIA detector</u> for determination of amino acids in hypothalamus microdialysis fluids

L Sun, J Wang, Y T Wang, L Yu, H Peng and J Z Zhu000086:

Synthesis of functionalized CNTs/hyperbranched polyester nanocomposites

Yufeng Pan, Xiaokun Cui and Yue Zhang WWB 78

012027 OPEN ACCESS

Fabrication of Micro/Nano optical Fiber by Electrospinning Direct-writing

Liu Yifang

012028

OPEN ACCESS

Flower-like Rh/Cu superhydrophobic coating via electrodeposition and its self-cleaning property

N Zhao, S X Lu, W G Xu and X L Cheng@ 8:

012029

OPEN ACCESS

An investigation on the fracture of linkage connecting wing flap of aircraft

Yanpeng Feng, Haijun Tang, Chun Wang, Ping Shu, Xiaoming Ma and Chunguang Liows 96

012030

OPEN ACCESS

<u>Preparation and magnetic properties of nickel nanowires by reduction in ethylene glycol</u> medium under the influence of magnetic field

Wanshuo Sun, Junsheng Cheng, Lankai Li, Shunzhong Chen and Kun Chang@ 9;

012031

OPEN ACCESS

Analysis of flow field characteristics in IC equipment chamber based on orthogonal design

W F Liu, Y Y Yang and C N Wang 00003: 7

OPEN ACCESS

Sonochemical fabrication of Ag₂CO₃ nanomaterial and influencing factors on photocatalytic properties

Li Zhou, Liuying Liang, Dilinuer Talifu and Abulikemu Abulizio 4

012033

OPEN ACCESS

Experimental study on extinction performance of carbon nanotubes smoke to infrared radiation

Hongxia Wang, Lianfen Wang, Bin Xu and Haifei Zhu ;;

012034

OPEN ACCESS

Enhanced electrochromic properties of TiO₂ nanoporous film prepared based on an assistance of polyethylene glycol

Shunjian Xu, Xiaorui Luo, Zonghu Xiao, Yongping Luo, Wei Zhong, Hui Ou and Yinshuai Li@##426

012035

OPEN ACCESS

<u>Catalytic oxidation of dye waste water by biomass charcoal loaded multiple rare earth</u> composite material

Suriga and Liping CHEN000042;

012036

OPEN ACCESS

Synthesis and characterization of structural and optical properties of single crystalline a-TiO₂ films on MgAl₂O₄(111) substrate

Haisheng Xu, Xianjin Feng, Caina Luan and Jin Ma0000437

012037

OPEN ACCESS

Fe₂O₃/TiO₂ nanocomposite photocatalyst prepared by supercritical fluid combination technique and its application in degradation of acrylic acid

J Wei and J C Zhang 0000443

OPEN ACCESS

Preparation, characterization and photocatalytic activities of TiO₂-SrTiO₃ composites

Yan Wang, Lianjie Zhu, Fubo Gao and Hanjie Xie (1994);

012039

OPEN ACCESS

<u>Ce-doped titania nanoparticles: The effects of doped amount and calcination temperature</u> on photocatalytic activity

Jianwen Shi, Yajun Zou and Dandan Ma0000457

012040

OPEN ACCESS

Spin electronic manipulation based on zigzag-edgegraphene nanojunction with a line defect

Haidong Li, Lili Zheng and Ruixue Li

012041

OPEN ACCESS

A novel composite hydrogen sensor based on Pd nanoclusters/TiO₂ nanotube arrays

X B Wei, X H Yang, T Wu, H Y Pang, G D Lv, S H Wu, S B Li and Z Chen@d468

Non-Ferrous Alloys, Metals and Rare Element

012042

OPEN ACCESS

Liquid phase synthesis: preparation of co microspheres by hydrazine reducing method

Y Deng, Z Q Lu, F Xie, H Liang, Y J Wang and X H Du0000474

012043

OPEN ACCESS

Study on the compounds of Mg₁₂La and (Mg,Zn)_{11.5}La

M L Huang, Z Y Si and H X Li0000478

OPEN ACCESS

Negative temperature dependence of recrystallized grain size: analytical formulation and experimental confirmation

M Elmasry, F Liu, Y Jiang, Z N Mao, Y Liu and J T Wang 0000483

012045

OPEN ACCESS

Porosity evolution in additively manufactured aluminium alloy during high temperature exposure

J Bai, H L Ding, J L Gu, X S Wang and H Qiu 3 (2004)

012046

OPEN ACCESS

Effect of QPQ nitriding time on microstructure and wear resistance of SAF2906 duplex stainless steel

D Liu, G X Wu and L X Shen 0000495

012047

OPEN ACCESS

Crystalline electric field schemes of Ce₂NiGe₆ and Ce₂NiGe₃

Yushan Li and Hongyan Liu 3

012048

OPEN ACCESS

Particles control in selective laser melting in-situ oxide dispersion strengthened method

Xin Zhou, Zhibin An, Zhijian Shen, Wei Liu and Chenguang Yao (1994: 8

012049

OPEN ACCESS

First-principles studies of the influences mechanism of Y, Hf elements on the high temperature oxidation of γ -TiAl alloys

G Y Zhang, C M Liu and G L Fangooo4; 4

OPEN ACCESS

A facile and effective strategy to synthesize orthorhombic Sr₂Al₆O₁₁:Eu²⁺,Dy³⁺ with bluegreen persistent luminescence

Juan Han, Ziqiu Jiang, Wenyan Zhang, Lingyun Hao, Yaru Ni, Chunhua Lu and Zhongzi Xu00004;

012051

OPEN ACCESS

Accelerated lifetime test of vibration isolator made of Metal Rubber material

Hongrui Ao, Yong Ma, Xianbiao Wang, Jianye Chen and Hongyuan Jiang 27

012052

OPEN ACCESS

Microstructure and mechanical properties of zirconium doped NiAl/Cr(Mo) hypoeutectic alloy prepared by injection casting

L Y Sheng, B N Du and J T Guo@ 32

Materials and Chemical Industry

012053

OPEN ACCESS

Propane dehydrogenation over PtSnMg/Cr₂O₃•Al₂O₃ catalysts: effect of the amount of Mg loading

Peng Zhao, Yunfei Guan, Yanmei Wang, Xianzhi Guo, Jingya Zhang, Zongjie Du, Shoumin Zhang, Qinxing Xie and Shihua Wu

012054

OPEN ACCESS

Aging life evaluation of a new carbon fiber composite core wire

Jiangming Cao, Zhihua Wang, Yongbo Zhang and Huimin Fu@ 43

Research on compressive strength of recycled cement mortar after high temperature

Xianggang Zhang, Jianhui Yang and Dapeng Deng 52

012056

OPEN ACCESS

Research on Waste FRP Fiber Reinforced Adhesive Mortar

Y C Feng and F Q Zhao 25:

012057

OPEN ACCESS

Mixing temperature design and properties evaluation for SMA-13 mixture

X Y Huang and B Y Li000565

012058

OPEN ACCESS

An efficient synthesis of 3,4-Dihydrofuro [3,4-B] [1,4] dioxepine-6,8-dicarboxylic Acid

D D DENG, L P WANG, H W YAN, X X SUN and Z WANGOOD 6:

012059

OPEN ACCESS

The colour and micro-structure change of the aged madder- dyed silk fabric adding with consolidation material of EGDE/Ala

012060

OPEN ACCESS

High-Performance transparent Meta-surface for C-/X-Band Lens Antenna Application

Tong Cai and Guangming Wang@ 79

012061

OPEN ACCESS

Steer and split electro-magnetic waves by employing ultra- thin anisotropic meta-material

Wenlong Guo, Tangjing Li, Haipeng Li and Haisheng Hou 686

OPEN ACCESS

Fabrication and characterization of non-volatile transistor memory based on polypeptide as gate dielectric

Lijuan Liang, LianFang Li, Xianfu Wei, Beiging Huang and Yen Wei

012063

OPEN ACCESS

Anti-corrosion and wear properties of plasma electrolytic oxidation coating formed on high Si content Al alloy by sectionalized oxidation mode

Libin Dai, Wenfang Li, Guoge Zhang, Nianqing Fu and Qi Duan (1999)

012064

OPEN ACCESS

<u>Investigation on the formation of projections and cracks in anodic oxidation of reaction-sintered silicon carbide</u>

Kang Peng, Xinmin Shen, Kazuya Yamamura, Xiaonan Zhang and Dong Wang 3:7

012065

OPEN ACCESS

<u>Preparation and catalytic application of Ag/polydopamine composite on surface of glass substrates</u>

Jianying Yu, Chengyi Sun, Shixiang Lu, Wenguo Xu, Zhehan Liu and Dongsheng Helling; 4

012066

OPEN ACCESS

Synthesis and Characterization of 4-(2-hydroxyphenoxy) phthalic nitrile

Yudong YANG, Zhili LAN, Liping SHENG, Suli XING and Binrui WU00005;;

012067

OPEN ACCESS

Preparation and properties of high storage stability polyester polyol dispersion for twocomponent waterborne polyurethane coating

H Hao, J Q Hu, F Wang and W P Tu0000628

Main challenges in demulsifier research and application

Fusheng Zhang, Guoliang Liu, Junhan Ma, Jian Ouyang, Xiaoling Yi and Huimin Su0000635

012069

OPEN ACCESS

A multi-scale micromechanical investigation on thermal conductivity of cement-based composites

Jiahan Liu, Shilang Xu and Qiang Zeng@ 3;

012070

OPEN ACCESS

Electrochemical hydrogenation of thiophene on SPE electrodes

Haiyan Huang, Penghui Yuan, Ying Yu and Keng H. Chung@ 48

012071

OPEN ACCESS

Preparation of MgB₂ superconducting microbridges by focused ion beam direct milling

Xuena Zhang, Yanli Li, Zhuang Xu, Xiangdong Kong and Li Han 6654

012072

OPEN ACCESS

Study on improvement of durability for reinforced concrete by surface-painting migrating corrosion inhibitor and engineering application

Ning Song, Zixiao WANG, Zhiyong LIU, Jiyuan Zhou and Duo Zheng@65;

012073

OPEN ACCESS

Revealing invisible photonic printing: colorful pattern shown by water

C Chen, Z Q Dong, Y Chen, X B Hu, X R Zhu, Z G Zhu, S H Qian and W H Shih@ 666

<u>Influence of booster size on the total energy of RBUL-1 explosive in underwater explosion</u>

Tongtang Cao, Lin Zhou, Xiangrong Zhang and Jiming Wang@673

012075 OPEN ACCESS

Numerically design the injection process parameters of parts fabricated with ramie fiber reinforced green composites

L P Chen, L P He, D C Chen, G Lu, W J Li and J M Yuan 0000678

012076 OPEN ACCESS

Rapid sintering and microstructure evolution of composite TiC cermet

L Ding, X G Liu, Y L Pan, Y W Wang and D P Xiang 0000685