

International Conference of Solid State Science and Technology (ICSSST 2017) and Workshop on Advanced Materials Technology: Growth and Characterization

Enhancing Dimensional Network of Science and Technology

Journal of Physics: Conference Series
Volume 1083

Bayan Lepas, Malaysia
13 - 16 November 2017

Editors:

**Mohd. Zubir Mat Jafri
Shahrom Mahmud**

**Ahmad Fairuz Omar
Suhana Arshad**

ISBN: 978-1-5108-7090-1
ISSN: 1742-6588

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. (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

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 1083

The International Conference of Solid State Science and Technology (ICSSST 2017)

13–16 November 2017, Olive Tree Hotel, Penang, Malaysia

Accepted papers received: 9 August 2018

Published online: 10 September 2018

Preface

[The International Conference of Solid State Science and Technology \(ICSSST 2017\)](#)

[Peer review statement](#)

Papers

Ceramics and Glasses

[Effect of Heat Treatment on Structural Properties of Silica Borotellurite Glasses Containing MnO](#)

I. Zaitizila, M.K. Halimah, F.D. Muhammad and M.S. Nurisya.....1

[Synthesis and Characterisation of \$\text{AWO}_4\$ \(A = Mg, Zn\) Tungstate Ceramics](#)

Eza Nuraiena Sota, Fadhlina Che Ros and Jumiah Hassan.....7

[Structural and Magnetic Properties of \$\text{Eu}^{3+}\$ Doped Borotellurite Glass Containing Manganese Nanoparticles](#)

Siti Maisarah Aziz, M.R. Sahar and E.S. Sazali.....13

[The Physical and Optical Studies of Erbium Doped Borosilicate Glass](#)

Nur Ain Nabilah Razali, Iskandar Shahrin Mustafa, Nurul Zahirah Noor Azman, Halimah Mohamed Kamari, Amalina Abd Rahman, Khairiah Rosli, Noor Syamimi Taib and Nur Adilah Tajuddin.....18

[Physical and Shielding Protection Parameterization of PbO-ZnO-B₂O₃-SiO₂ Glass Network](#)

Nur Ain Nabilah Razali, Iskandar Shahrim Mustafa, Nurul Zahirah Noor Azman, Halimah Mohamed Kamari, Intan Sofea Mat Hashim, Nurulshuhada Ahmad, Nur Afini Norazam and Che Amira Shahira Che Asudin.....24

[Effects of Oxygen Annealing on Kaolin-Doped Zinc Oxide Discs](#)

F Azhari, S Mahmud, S K Mohd Bakhori, M F Che Pa, N S Mohd Latiff and A F Omar.....30

[Structural Properties of Cullet-Paper Ash-Kaolin Clay Ceramic](#)

K.A. Samah, M.R. Sahar and M. Yusop.....35

[Influence of Microstructural Effect on Microvickers Hardness Properties of SiO₂-Na₂O-CaO \(SNC\) Waste Based Glass-ceramic](#)

Nur Fadilah Baharuddin Pallan, N F Adnin, K A Matori, Mansor Hashim, F M Idris, I R Ibrahim, S N A Rusly, M Z A Khiri, Rodziah Nazlan, N Hapishah Abdullah, M S E Shafie, R S Aziz, Z N Alassan, N Zainuddin, N Faizah Baharuddin Pallan, Noraziah Ahmad and Maria Nuid.....41

[The Effect of Sintering Time on The Microstructural and Nonlinear Electrical Properties of Zn-V-Mn-Nb-Nd-O Low-Voltage Varistor Ceramics](#)

N H Isa*, R S Azis and N K Saat.....47

Devices and Materials for Biology and Medicine

[Acoustical and Physical Characteristic of a New Blood Mimicking Fluid Phantom](#)

Ammar A. Oglat, MZ Matjafri, Nursakinah Suardi, Mostafa A Abdelrahman, Mohammad A. Oqlat, Ahmad A. Oqlat, Raed Abdalrheem and A.M Almutairi.....53

[Ex-situ Generation of the Gold Nanowire Networks Bovine Serum Albumin Bio-Conjugated System Using Pulsed Laser Ablation in a Harsh Environment](#)

S.A. Abdulateef, A.F. Omar, M.Z. Mat Jafri, Naser M. Ahmed, Azman Seeni and E. A. Kabaa.....60

[Ultraviolet Protection Properties of Commercial Sunscreens and Sunscreens Containing ZnO Nanorods](#)

Nur Athirah Ahmad Zaki, Shahrom Mahmud and Ahmad Fairuz Omar.....66

[Optimisation of DECT Spectral Separation for Quantitative Evaluation of Clinical Contrast Agent](#)

Mohammed Y.M Abujazar, Rafidah Binti Zainon, M.B Kurama and Elaine Salmi.....73

[Diode Dosimetric Characteristics Assessment for In-Vivo Dosimetry in Radiotherapy Treatment](#)

R Marzuki, A A Rahman, I S Mustafa and A N Shabandi.....79

[Chlorophyll *a* Concentration of Fresh Water Phytoplankton Analysed by Algorithmic based Spectroscopy](#)

Fairooz Binti Johan, Mohd Zubir Bin Mat Jafri, Lim Hwee San, Wan Maznah Wan Omar and Tan Chun Ho.....85

[A Computerized Time Domain and Spectral Analysis System for Acoustic Characterization of Tissue Mimicking Materials](#)

Anis Nazihah Mat Daud, Md Supar Rohani and Rosly Jaafar.....94

[T2* Relaxation of Agar Gel With and Without The Presence of Tumor-Like Structure as Obtained from Resting State Fmri Sequence Protocol](#)

A N Yusoff, N S Abdul Rashid and S Usman Ali.....102

[The Effect of Chenodeoxycholic Acid \(CDCA\) in Mangosteen \(*Garcinia mangostana*\) Pericarps Sensitizer for Dye-Sensitized Solar Cell \(DSSC\)](#)

Mashasriyah Ismail, Norasikin Ahmad Ludin, Norul Hisham Hamid, Mohd Adib Ibrahim and Kamaruzzaman Sopian.....108

[The Gafchromic EBT3® film as alpha detector](#)

A S Mustaqim, S Kandaiya, N N A Razak and N Z Yahaya.....115

[Microwave Dielectric Properties for Detection of 'Harumanis' Mangoes Ripeness](#)

N Z Yahaya, N S Ayob, R M Ramli, N A N A Razak, N Z N Azman and H A Rahim.....122

Electrochemical and Photonic Devices

[Effect of Annealing Temperature on Growth Particles of YAG: Ce⁺³ Phosphor and White Light Chromaticity Values](#)

H. R. Abd, Z. Hassan, N. M Ahmed, A. F. Omar and F. H. Alsultany.....127

[Determination of Selectivity Coefficients of Sodium and Potassium Ion-Selective Electrode Using Porous Silicon N-Type \(100\) Based Extended Gate Field Effect Transistor](#)

E. A. Kabaa, Naser M. Ahmed, S. A. Abdulateef and Hasma A. Wahab.....135

[Spectroscopic Colour Evaluation under Different White Light Emitting Diode Illumination Angle](#)

Wan Long Chiong, Ahmad Fairuz Omar, Mohd Zubir Mat Jafri and Chun Ho Tan.....140

[Effect of Annealing Temperature in ZnO For Photonic Applications](#)

Nur 'Izazi Maad Tazri and Wan Maryam Wan Ahmad Kamil.....147

[Optical Properties and UV Sensing Response of Nitrogen-doped TiO₂ Thin Film by CVD](#)

Siowwoon Ng, Sau Siong Tneh, Fong Kwong Yam and Zainuriah Hassan.....153

[Impedance Study on NiO-BaCe_{0.54}Zr_{0.36}Y_{0.1}O_{2.95} Composite Anode for Proton-Conducting Fuel Cell](#)

S M Senari, N Osman and A M M Jani.....159

[Electrical Conductivity of \$Y^{3+}\$ -doped \$Ba\(Ce,Zr\)O_3\$ in Wet Nitrogen Atmosphere](#)

N S M Affandi, N Osman and O H Hassan.....165

[Effect of Calcium Concentration on the Microstructure and Electrical Properties of Ca-Doped PLSZT \(Pb-La-Sr-Zr-Ti\) System](#)

F Yan Chin, T A B Tuan Nur Izzah and M Hasmaliza.....170

[The Effect of Sr-substitution on the Electrical and Structural Properties in Colossal Magnetoresistive \$La_{1-x}Sr_xMnO_3\$ with \$x = 0.05, 0.12, 0.18, 0.30\$ and \$0.40\$](#)

Nor Azah Nik-Jaafar and R. Abd-Shukor.....175

[External Quantum Efficiency of Electrochemically Prepared and Annealed Directly Stacked SLG/GZO/ \$Cu_2O\$ /CuO Photoactive Layer](#)

Pei Loon Khoo, Kenta Satou, Kota Nozaki and Masanobu Izaki.....181

[Effect of Different Stoichiometry on the Electrochemical Behaviour of \$LiCo_xNi_{1-x}O_2\$ Cathode Materials](#)

K Elong, N Kamarulzaman and R Rusdi.....188

[Characterization of Electroless Ni-P and Ni-P/ \$Al_2O_3\$ Composite Coating on Al6061 Alloy](#)

C C Chai and A S Anasyida.....193

[Electrical Properties of Li Substituted \$\(Ti_{0.85}Cr_{0.15}\)Sr_{2-x}Li_xCaCu_2O_7\$ Superconductor](#)

J. Nur-Akasyah, K. Muhammad Aizat, Nurul Raihan Mohd Suib and R. Abd-Shukor.....200

[Effect of Different UV Light Intensity on Porous Silicon Fabricated by Using Alternating Current Photo-Assisted Electrochemical Etching \(ACPEC\) Technique](#)

Siti Nurfarhana Sohimee, Zainuriah Hassan, Naser Mahmoud Ahmed, Lim Way Foong and Quah Hock Jin.....206

Nanoscience and Nanotechnology

[Effect of Medium on Interaction Forces between Atomic Force Microscopy \(AFM\) Tip and Gold Nanoparticle](#)

Nurul Sabihah Zakaria and Azlan Abdul Aziz.....213

[Hydrothermal Synthesis and Structural Properties of V₂O₅ Nanoflowers at Low Temperatures](#)

N.M. Abd-Alghafour, Naser. M. Ahmed, Z. Hassan and Munirah Abdullah Almessiere.....219

[Seed/Catalyst-Free Growth of ZnO Nanoleaves on ZnO Seed Layer/Glass by Thermal Evaporation Method](#)

F. H. Alsultany, Z. Hassan, N. M. Ahmed and H. R. Abd.....226

[Comparative Studies on The Transfer of Chemical Vapor Deposition Grown Graphene Using Either Electrochemical Delamination or Chemical Etching Method](#)

Raed Abdalrheem, F.K. Yam, Abdul Razak Ibrahim, K.P. Beh, Y.Z. Ng, F.H.A. Suhaimi, H.S. Lim, M.Z. Mat Jafri and Ammar A. Oglat.....230

[Properties of Zinc Oxide Nanorods as Ethanol Sensor](#)

Haslinda Abdul Hamid, Zainovia Lockman and Khairunisak Abdul Razak.....238

[Nanoparticle Optical Properties: Size Dependence of a Single Gold Spherical Nanoparticle](#)

A.R. Shafiqa, Azlan Abdul Aziz and Baharak Mehrdel.....245

[Simulation of Surface Plasmon Resonance on Different Size of a Single Gold Nanoparticle](#)

Norsyahidah Md Saleh and A. Abdul Aziz.....251

[The Sensitivity of Surface Plasmon Resonance Damping for Colloidal Silver Nanoparticles](#)

B Mehrdel and A Abdul Aziz.....256

[Effect of pH on the Crystal Growth of ZnO Nanomaterials and Their Band gap Energies](#)

M F Kasim, N Kamarulzaman, R Rusdi and A A Rahman.....264

[Development of Gold Nanoparticles Modified Electrodes for the Detection of Heavy Metal Ions](#)

Ilias Ait Tayeb and Khairunisak Abdul Razak.....269

[Electrical Properties of Nano Bi₂O₃ Added \(Bi,Pb\)Sr-Ca-Cu-O Superconductor](#)

Nurul Raihan Mohd Suib, J. Nur-Akasyah, K. Muhammad Aizat and R. Abd-Shukor.....275

Organic Material and Application

[Molecular Structure Investigation On Organic Chalcone Derivative of \(*E*\)-3-\(4-Bromothiophen-2-1-\(3-nitrophenyl\)prop-2-en-1-one: A Combined Experimental and Theoretical Study](#)

Dian Alwani Zainuri, Suhana Arshad, Nuridayanti Che Khalib, Muhamad Fikri Zaini and Ibrahim Abdul Razak.....281

[Structural Properties and Quantum Chemical Analysis on a New Chalcone Derivative of \(*E*\)-3-\(4-bromophenyl\)-1-\(4-fluorophenyl\)prop-2-en-1-one](#)

M F Zaini, S Arshad, A R Ibrahim, N Che Khalib and D A Zainuri.....290

[Hydrogen-bonded Supramolecular Association in Organic Acid-base Pyrimidine Salt and Hirshfeld Surface Analysis](#)

Nuridayanti Che Khalib, Kaliyaperumal Thanigaimani, Suhana Arshad, Dian Alwani Zainuri and Ibrahim Abdul Razak.....300

[Characterization of Acid Treated Activated Carbon From Oil Palm Empty Fruit Bunches \(EFB\)](#)

Nurul Afifah Mahmud, Nafisah Osman and Abdul Mutalib Md Jani.....307

[Mechanical Behaviour of the Polypropylene-Devulcanized Natural Rubber Compound upon Natural Weathering](#)

Kheng-Hooi Loo, Lee Tin Sin, Soo-Tueen Bee, C. T. Ratnam, Tiam-Ting Tee and A. R. Rahmat.....313

[Effects of Grain Sizes on Rice Husk Ash Composite as Microwave Absorber](#)

N. Z. Yahaya, S. R. Salim, I. S. Mustafa, N. N. A. Razak and Liyana Zahid.....321

[Effect of Metal Salts on Ionic Conductivity of Waste Cooking Oil Based Polyurethane Solid Polymer Electrolyte](#)

Marina Abu Husin and Syuhada Mohd Tahir.....328

Other Applied Sciences

[Measuring The Acoustical Properties of Fluids and Solid Materials Via Dealing With A-SCAN \(GAMPT\) Ultrasonic](#)

Ammar A. Oglat, MZ Matjafri, Nursakinah Suardi, Mohammad A. Oqlat, Mostafa A Abdelrahman, Ahmad A. Oqlat and Raed Abdalrheem.....335

[Determination of Source's Location of a Dipole Field using Euler Relation](#)

Nuraddeen Usman, Khiruddin Abdullah and Mohd Nawawi.....341

[pH Sensing Characteristics of CuS/ZnO Thin Film Implemented as EGFET](#)

Fayroz A. Sabah, Naser M. Ahmed and Z. Hassan.....347

[Hierarchical Multiple Linear Regression for Fast Estimation of Subsurface Resistivity from Apparent Resistivity Measurements Based on Dipole-Dipole Array](#)

S B Muhammad and R Saad.....354

[Regional Structural Architecture of Part of Northern Nigeria Basement Complex inferred from Upward Continuation of Magnetic Field Intensity Data](#)

S B Muhammad and R Saad.....359

[Effect of Particle Size on Maximum Energy Product of Wastederived Ferrites](#)

H S Woon, L S Ewe, K P Lim, I Ismail, C Y Tan and Y W Wong.....365

[Grain Size Effect on Electrical and Magnetotransport Properties of \$\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3\$ synthesized via Sol-Gel Method](#)

K. P. Lim, S. A. Halim, S.K. Chen, M. M. Awang Kechik, S. W. Ng and W. N. W. Wan Jusoh.....372

[Influence of Oxalic Acid Concentrations on The Growth of Molybdenum Disulfide via Spin Coating Technique](#)

A L Tan, S S Ng and H Abu Hassan.....380

[Effect of Nitrogen Gas on the Growth of Magnesium Doped Indium Nitride Thin Films via Sol-gel Spin Coating Method](#)

H.S. Lee, S.S. Ng and F.K. Yam.....388

[Fabrication and Characterization of Cu-doped ZnO Films Using RF Reactive Magnetron Sputtering](#)

A. S. Yusof and Z. Hassan.....396

[Gafchromic XRQA-2 film for Strontium-90/Yttrium-90 \(Sr-90/Y-90\) Detection](#)

S Buang, E D Subri, S Kandaiya, N N A N A Razak and N Z Yahaya.....404

Micromechanical Properties of Solder Joint Towards Air Blast Exposure

W.Y.W Yusoff, N.S. Safee, A. Ismail, M.A. Bakar and A. Jalar.....410