

Table of Contents

Preface, Organizing Committee, Sponsors and Participants of the Conference

Chapter 1: Advanced Ceramics

The Effect of CuO on NiO Electroceramics T.G. Kui, M.F. Ab Rahman, Z.A. Ahmad and J.J. Mohamed	3
Characteristics of Porous Sb-Doped Barium Titanate Ceramics Fabricated by Adding Graphite N. Ayub, R. Omar, M. Deraman, I. Abutalib, Z. Zainuddin and A. Abdul Aziz	9
Complex Impedance Spectroscopy Studies of BaTiO₃ Ceramic with 10% BaFe₁₂O₁₉ Substitution Z. Zalita, S.N. Anuar, R. Shamsudin and M.N. Idris	14
Effect of Co₃O₄ Doping on Nonlinear Coefficient in Zn-Bi-Ti-O Varistor Ceramics M.S.M. Ghazali, A. Zakaria, W.R.W. Abdullah, M.Z.M. Hafiz and K. Amin Matori	20
Influence of Grain Size on the Thermal Diffusivity of Pt-SnO₂ Ceramic M.M. Aiza, A.W. Zaidan, M.Y. Wan Mahmood and A.M. Khamirul	27
Influence of NiO Nanoparticles on Physical Properties of TiO₂ Doped Magnesium Ultra-Phosphate Glass-Ceramics S.F. Abd Rahman, M.R. Sahar and S.K. Ghoshal	32
Solid State Sintering and Microstructural Evolution on Wide Frequency Range Dielectric Responses of Mechanically Activated CaTiO₃ Ceramics W. Yick Jeng, J. Hassan and M. Hashim	38
Temperature Dependence on Dielectric Response of La_{0.7}Ba_{0.3}Mn_{0.4}Ti_{0.6}O₃ Ceramic A.E. Sinin, W.C. Primus, A.H. Shaari, Z.A. Talib and S. Hamdan	45
Structural and Luminescence Properties of Eu³⁺ and Dy³⁺ Doped Magnesium Tellurite Borophosphate Ceramic S.M. Aziz, R. Hussin and N.M. Yusoff	53
Impedance Spectroscopy in Ni_{0.3}Zn_{0.7}Fe₂O₄ M.N. Mat, M.K. Halimah, W.M. Daud, H. Mansor and Y. Zainuddin	59

Chapter 2: Catalytic Materials

Catalytic CO₂/H₂ Methanation Reaction over Alumina Supported Manganese/Cerium Oxide Based Catalysts S.J. Mat Rosid, W.A. Wan Abu Bakar and R. Ali	67
Effect of Calcination Temperature on Metal Oxides and their Photocatalytic Activity R. Nadarajan, W.A. Wan Abu Bakar and R. Ali	73
Effect of Cu Addition onto CaO/Al₂O₃ Catalyst for Naphthenic Acid Removal from Crude Oil N.A. Mohd Shohaimi, J. Jaafar and W.A. Wan Abu Bakar	79
Green Technology Purification of Nature Gas via CO₂/H₂ Methanation by Using Trimetallic Ru/Mn/Fe-Al₂O₃ Oxide Catalyst A.Z. Ab Halim, R. Ali and W.A. Wan Abu Bakar	85
ESR Study of K-Mo₂C for Increased Catalytic Properties A.R. Yacob, M.K.A. Amat Mustajab and N.H. Suhaime	91
Comparative Study Based on Activation Procedure Using Air and Nitrogen Gas to Synthesis Nanoparticles Cu/Al₂O₃ Catalyst A. Abie Jamil, I. Rubia, J.A. Asik, B.B. Bernard, B. Gindana and F. Tan	96

Chapter 3: Composites and Polymers

A Study of N-Isopropyl Acrylamide (NIPAM)-Based Polymer Gel Dosimeter by Using Raman Spectroscopy	
M.Z. Adenan, M. Ahmad, N. Mohd Noor and E. Saion	103
Characterizations and Morphology of MWCNTs-SiC Nanoparticles Reinforced PLA/NR/LENR Composites	
M.A. Tarawneh, S.H. Ahmad, I.N. Hassan, R.S. Chen and O. Al-Banawi	108
Effect of Vulcanization Additive on Cure Characteristics and Physical Properties of Silica Filled Epoxidised Natural Rubber Truck Tyre Tread Compound	
A.K. Che Aziz, T.Z. Zaeimoedin and M. Mustafa Kamal	113
Tensile and Dielectric Properties of Calcium Copper Titanate Filler in Epoxy Composites	
D.S. Saidina, M. Mariatti and J. Juliewatty	119
Tensile Properties and Melt Flow Index of Polypropylene/Ethylene Propylene Diene Monomer Nanocomposites	
M.S. Hamzah, M. Mariatti and M. Kamarol	125
The Effects of Halogen-Free Flame Retardant Additives in Epoxidized Natural Rubber (ENR)	
A.I.H.D. Habibah and A.R. Ruhida	131
Preparation of Lignopolyols by Chemical Modification of Kraft Lignin from Oil Palm Lignocellulosic Waste	
A.H. Faris, A. Abdul Rahim and M.N. Mohamad Ibrahim	137

Chapter 4: Electrochemical

Anions Effect on the Electrical Properties of PMMA/ENR 50 Blend Electrolytes	
F. Latif, M.Z. Sharil Fadli and M. Aziz	145
Structural, Morphological and Electrical Characteristics of Sol-Gel Prepared Lithium Triflate - Alumina Composite Electrolyte	
N.A. Dzulkurnain and N.S. Mohamed	151
The Effect of LiCF₃SO₃ Complexed MG30-PEMA Blend Solid Polymer Electrolyte	
S.F. Ayub, R. Zakaria, K. Nazir, A.F. Aziz, M.Z.A. Yahya and A.M.M. Ali	158
Characterisations of Palm-Based Polyurethane Solid Polymer Electrolyte	
F.N. Daud, A. Ahmad and K.H. Badri	163
Chemical Interaction, Conductivity and Thermal Properties of Kappa Carrageenan Based Polymer Electrolytes	
N.N. Mobarak, M.A. Ghani, M.P. Abdullah and A. Ahmad	168
Conductivity and Thermal Behaviour of Epoxidized-30% Poly (Methyl Methacrylate)-Grafted Natural Rubber-Lithium Triflate Based Solid Polymer Electrolytes	
K. Nazir, S.F. Ayub, A. Fairouz Aziz, R. Zakaria, M.F. Yahya and A.M.M. Ali	175
Conductivity-Temperature Dependent Studies on MG49 Doped Lithium Triflate Salt	
Z.S. Mahmud, N.H.M. Zaki, R. Zakaria, M.F. Yahya and A.M.M. Ali	181
Effects of Acid Modified SiO₂ on Ionic Conductivity and Blend Properties of LiBF₄ Doped PMMA/ENR 50 Electrolytes	
M.Z. Sharil Fadli and A.L. Famiza	187
Effects of Bu₃MeNTf₂N Ionic Liquid Addition on Conductivity of PVC-NH₄Tf Polymer Electrolytes	
R.H. Yahaya Subhan, S.K. Deraman and N.S. Mohamed	194
The Effect of HCl Concentration on the Ionic Conductivity of Liquid PMMA Oligomer	
N. Kamaluddin, A.L. Famiza and C.C. Han	200
Effects of Different Concentration in (w/v)% of Carboxymethyl Iota-Carrageenan Based Green Polymer Electrolyte	
F.N. Jumaah, A. Ahmad, H. Hanibah, N.N. Mobarak and M.A. Ghani	205
Electrochemical Behavior of Carbon Steel in Acidic Medium Containing Cationic Inhibitor	
M. Nazri Idris, A.R. Daud and N.K. Othman	211
Impedance Behavior of Treated Methyl-Grafted Natural Rubber Polymer Electrolytes	
A. Fairouz Aziz, K. Nazir, S.F. Ayub, R. Zakaria, M.Z.A. Yahya and A.M.M. Ali	217
Interaction between Carboxy Methylcellulose and Salicylic Acid Solid Biopolymer Electrolytes	
M.L.H. Rozali, Z. Ahmad and M.I.N. Isa	223

Ionic Conductivity and Dielectric Properties of CMC Doped NH₄SCN Solid Biopolymer Electrolytes N.A.M. Noor and M.I.N. Isa	230
Ionic Conductivity via Quantum Mechanical Tunneling in NH₄NO₃ Doped Carboxymethyl Cellulose Solid Biopolymer Electrolytes K.H. Kamarudin and M.I.N. Mohamad Isa	236
Structural Study of Plasticized Carboxy Methylcellulose Based Solid Biopolymer Electrolyte M.N. Chai and M.I.N. Isa	242
Structural and Ionic Conductivity Studies of CMC Based Polymerelectrolyte Doped with NH₄Cl N.H. Ahmad and M.I.N. Isa	247

Chapter 5: Manganite and Magnetic Materials

Influence of Grain Formation on Electrical Properties of La_{0.67}Sr_{0.33}MnO₃ H.W. Chin, K.P. Lim, S.A. Halim, S.K. Chen, S.W. Ng, A.H.M. Gan and K.H. Cheong	255
Influence of Molar Ratio of Citric Acid to Metal Ions on Structure, Microstructure and Electrical Transport Properties on Nanosized La_{0.85}Na_{0.15}MnO₃ L.K. Pah, K.H. Cheong, A.H. Shaari, M. Hashim, A.H.M. Gan, H.W. Chin and S.W. Ng	261
Physico-Chemical Properties of Silica Coated Superparamagnetic Magnetite Nanoparticles Synthesized by Non-Seeded Process S.B. Kayode and A.A. Aziz	267
Effect of Sintering on Structural and Transport Properties on Nanosized Pr_{0.85}Na_{0.15}MnO₃ S.W. Ng, L.K. Pah, S.A. Halim, H. Jumiah, A.H.M. Gan, H.W. Chin and K.H. Cheong	272
Fabrication and Electrical Properties of Strontium Doped Lanthanum Manganite Titanite Oxide S.H. Mohd Hanif, W.C. Primus, A.H. Shaari and J. Hassan	278
Effect of Sintering Temperature on Structural, Electrical and Magnetic Properties of La_{0.7}Sr_{0.3}MnO₃ K.Y. Pan, A.H. Shaari, S.K. Chen, L.K. Pah, M. Navasery and M.M.A. Kechik	283

Chapter 6: Nanomaterials and Nanotechnology

Synthesis, Structural and Morphological Properties of Cadmium Oxide Nanoparticles Prepared by Thermal Treatment Method N.M. Al-Hada, E.B. Saion, A.H. Shaari, M.A. Kamarudeen, M.H. Flaifel and S.A. Gene	291
Comparative Study of the Electrospun PAN Nanofiber Reinforced with CNT and CNF: Effect on Morphology, Thermal Stability and Electro-Conductivity Properties I. Rubia, K. Puvaneswaren, S.E. Arshad, P.Y. Moh, A. Noraini, M.K. Shaheen and A.A. Jahimin	295
RETRACTED: Fabrication and Characterization of Nanospinel ZnCr₂O₄ Using Thermal Treatement Method S.A. Gene, E.B. Saion, A.H. Shaari, M.A. Kamarudeen and N.M. Al-Hada	301
Surface States and Band Gap Correlation in Silicon Nanoclusters S.K. Ghoshal, M.R. Sahar, R. Arifin, M.S. Rohani and K. Hamzah	308
The Effect of Ni Catalyst on the Growth of Multi-Walled Carbon Nanotubes by PECVD Method M.W. Lee, M.A.S. Mohammad Haniff, A.S. Teh, D.C.S. Bien, S.K. Chen, Z.A. Talib and A.H. Shaari	314
Chemical Surface Modification of CNTs via Three Oxidative Acid Treatments B. Gindana, A.A. Jamil, B.B. Bernard, F. Tan, M.A.S. Aishah, J.A. Asik and R. Idris	320
Effect of Calcination on the Basic Strength of Surface Modified Nano-Zinc Oxide Characterised by FTIR and Back Titration Methods A.R. Yacob and K.S. Kabo	326

Chapter 7: Materials and Technologies in Waste Utilization and Environmental Engineering

Deacidification of Acidic Petroleum Crude Oil Utilizing a Formulated Basic Chemical N. Mohd Shukri, J. Jaafar, W.A. Wan Abu Bakar and Z. Abdul Majid	335
Efficient Oxidative Desulfurization (ODS) of Commercial Diesel with TBHP under Mild Conditions Catalyzed by Polymolybdates Supported on Al_2O_3 W.N. Wan Abdullah, R. Ali and W.A. Wan Abu Bakar	341
Preparation and Characterization of Activated Carbon from Waste Rubber Tires: A Comparison between Physical and Chemical Activation C.G. Joseph, D. Krishniah, Y.H. Taufiq-Yap, M. Massuanna and J. William	347
Effect of Mixed-Phase TiO_2/PVA Nanofibers on the Degradation on Methyl Orange N. Mohammed Lot, S.N.M. Rashid, U.S. Jais and M.K. Abd Rahman	353
Screening of Factors Affecting Pre-Treatment by Ammonia-N Removal from Poultry Manure Wastewater by Using Soil Water to Improve Biogas Production N.F. Mohd Jamaludin and N. Zainol	359
Surface Modification of Graphitic Mesoporous Carbon Adsorbent by Chemical Oxidation for Removal of Basic Dye from Aqueous Solution S. Endud and N.I.H. Razman	365
Effect of Strontium on the Catalytic Activity and Physicochemical Properties of Ru/Mn Catalysts for CO_2 Methanation Reaction S. Toemen, R. Ali and W.A. Wan Abu Bakar	371
Influence of Zirconium Doped Titanium Oxide towards Photocatalytic Activity of Paraquat N.A. Badli, R. Ali and L. Yuliaty	377
New Polyester Nanofiltration (NF) Membrane for Humic Acid Removal N.A. Jalanni, M.N.A. Seman and C.K.M. Faizal	383

Chapter 8: Technology of Glass

FTIR and UV-Vis-NIR Spectral Studies of Borotellurite Glass A. Noranizah, K. Azman, H. Azhan, E.S. Nurbaisyatul and M. Abdullah	391
Growth of Hydroxyapatite on Strontium Oxide Modified Bioactive Glass H.J.M. Ridzwan, N.H. Jamil, S.A. Syamsyir and W.A.W. Razali	397
Influence of Samarium on the Optical Response of Zinc Phosphate Glass S.A. Mohamad Azmi, M.R. Sahar, R. Arifin and S.K. Ghoshal	403
Optical Absorption in Erbium Doped Phosphate Glass Embedded with Cobalt Nanoparticles N.A.M. Adnan, M.R. Sahar and M.S. Rohani	409
Optical Absorption of $\text{Er}^{3+}/\text{Nd}^{3+}$ Codoped Lithium Niobate Tellurite Glass H. Nurhafizah, M.S. Rohani, M.R. Sahar and S.K. Ghoshal	415
Optical Absorption of Erbium Doped Zinc Phosphate Glass Containing Fe_3O_4 Nanoparticles P.A. Buchori, M.R. Sahar, M.S. Rohani and S.K. Ghoshal	420
Optical Properties of $[(\text{TeO}_2)_{0.7}(\text{B}_2\text{O}_3)_{0.3}]_{1-x}(\text{Bi}_2\text{O}_3)_x$ Glass System A. Amat, M.K. Halimah and N. Ahmad	426
Optical Properties of Eu^{3+}-Doped Lithium Tellurite Glass S.A. Jupri, M.R. Sahar and S.K. Ghoshal	432
Optical Properties of Oxy-Chloride Tellurite Glass: Role of Samarium Ions S.K. Ghoshal, N.S. Mohamad Zake, R. Arifin, M.R. Sahar, M.S. Rohani and K. Hamzah	437
Samarium Concentration and Optical Correlation of Tellurite Glass S.K. Ghoshal, A. Zainuddin, R. Arifin, M.R. Sahar, M.S. Rohani and K. Hamzah	443
Samarium Ions Concentration Dependent Optical Enhancement in Phosphate Glass R. Arifin, L.P. San, M.R. Sahar, S.K. Ghoshal and K. Hamzah	449
Temperature Stability and Physical Properties of Bi_2O_3-B_2O_3-ZnO-RHA Glass System N.A. Nabilah Razali, I.S. Mustafa, A.R. Ibrahim, M.M. Rosli and H.M. Kamari	454

The Role of Samarium Ion in Optical Properties of Magnesium Tellurite Glass Embedded with Silver Nanoparticles M.Y. Nurulhuda and M.R. Sahar	460
Thermal and Structural Properties of Erbium/Neodymium Co-Doped Lithium-Magnesium-Tellurite Glass R. Arifin, S.A. Roslan, M.R. Sahar, S.K. Ghoshal and K. Hamzah	466
ZnO Nanoparticles Concentration Dependent Optical Properties of Erbium Doped Phosphate Glass R. Arifin, N.A. Zulkifeli, M.R. Sahar and S.K. Ghoshal	471
Aqueous Corrosion Investigation of Yb Doped Lead Oxychloride Tellurite Glass K. Hamzah, M.A.I. Yassin, A.F. Suffian, M.R. Sahar and S.K. Ghoshal	477

Chapter 9: Materials and Technologies in Electronics and Optoelectronics

An Investigation of Structural and Electronic Properties of Novel Cathode Material $\text{Li}_2\text{MnP}_2\text{O}_7$ and its Delithiated $\text{Li}_{2-x}\text{MnP}_2\text{O}_7$ (x=1,2): A First Principle Study M.S.A. Rasiman, F.W. Badrudin, M.K. Yaakob, M.F.M. Taib, A.M.M. Ali, M.Z.A. Yahya and O.H. Hassan	485
Density Functional Theory (DFT) Calculation of Band Structure of Kesterite K.N. Basri, N.A. Zabidi, H. Abu Kassim and A.N. Rosli	491
Effect of the Ge Mole Fraction on the Electrical Characteristics of Single and Dual Channel Vertical Strained SiGe Impact Ionization MOSFET (VESIMOS) S. Ismail, C. Bun Seng, H. Mohd Zuhir, N. Bolong, K. Anuar Mohamad and G. Bablu	496
DFT Investigations of Ti, V Doped ZnO Based Diluted Magnetic Semiconductors B. Ul Haq, R. Ahmed, A. Shaari, R. Hussain and M. binti Mohamad	502
First Principles Study on Structural and Electronic Properties of LiFeSO_4F Cathode Material for Lithium Ion Batteries F.W. Badrudin, M.S.A. Rasiman, M.F.M. Taib, N.H. Hussin, O.H. Hassan and M.Z.A. Yahya	508
Modelling and Simulation Approach for Organic Thin-Film Transistors Using MATLAB Simulation U.F. Shuib, K.A. Mohamad, A. Alias, T.A. Tabet, B.K. Gosh and I. Saad	514
Multiple Regression Model on Optical Properties of Tin Oxide Thin Film F. Md.Yassin, S. Baco and N. Abdullah	520
Annealing Effect on Photoacoustic Characterization of NiSe Metal Chalcogenide Semiconductor Using Phase Signal Analysis P.Y. Chin, Z.A. Talib, W. Mahmood Mat Yunus, J.L.Y. Chyi, N. Sabli and C. Chung Bin	526
Impedance and Resistivity Behavior of Graphene Oxide-Activated Carbon Hybrids R. Md Ali, A.S. Kamisan, A.I. Kamisan, T.I. Tunku Kudin, F.F. Hatta, O.H. Hassan and M.Z. Yahya	530
Fabrication and Analysis of Photoelectrochemical Properties of Dye Sensitized Solar Cell Using Local Borneon Natural Dye Extracts M.C. Ung, R.F. Mansa, C.S. Sipaut and J. Dayou	536
Synthesis of Graphene via Green Reduction of Graphene Oxide with Simple Sugars A.I. Kamisan, A.S. Kamisan, R. Md Ali, T.I. Tunku Kudin, O.H. Hassan, N. Abdul Halim and M.F. Yahya	542
Effect of CdS Thickness on the Optical and Structural Properties of TiO_2/CdS Nanocomposite Film A.K. Mohsin and N. Bidin	547
Thermoluminescence Characteristics of Aluminium Oxide Doped Carbon Exposed to Cobalt-60 Gamma Radiation N.S. Saharin, H. Wagiran and A.R. Tamuri	553
Luminescence Properties of Europium Ion Doped Barium Borophosphate Phosphor M.M. Kamal, M.N.M. Yusuf, N. Atiqah Jailani, S. Sholehah Hussein, R. Hussin, K. Deraman, W.N.W. Shamsuri and Z. Ibrahim	559
Theoretical Studies on Optical Phonon and Surface Phonon Polariton of Wurtzite AlInN Alloys P. Yew, L. Sai Cheong, S. Shiong Ng, Y. Tiem Leong and H. Abu Hassan	565

Structural and Electronic Properties of Hydrogen-Passivated Silicon Quantum Dots: Density Functional Calculations	
M.M.A.M. Anas, A.P. Othman and G. Gopir	571
Formation of Kirkendall Voids at Low and High Aging Temperature in the Sn-0.7Cu-1.0wt.%Si₃N₄/Cu Solder Joints	
N. Saud, F. Somidin, N.S. Ibrahim and M.A.A. Mohd Salleh	577
The Microstructure Evolutions of Sn-0.7Cu Solder Using Microwave-Assisted Sintering Method at Various Exposure Times	
F. Somidin, N. Saud and M.A.A. Mohd Salleh	582

Chapter 10: Superconductor Materials

Effect of Sintering Temperature on the Superconducting Properties of MgB₂ Superconductor Co-Added with a High Concentration of Si and C	
K.Y. Tan, K.B. Tan, K.P. Lim, A. Halim Shaari and S.K. Chen	589
Effects of Gamma Ray Irradiation on High Temperature Superconductors YBCO with Nanoparticles Fe₃O₄ Addition	
K. Wei, S.N. Abd-Ghani, H. Kah Wye, K. Ing and R. Abd-Shukor	595
Porosity Effect on Superconducting Properties of YBa₂Cu₃O₈ and YCaBa₄Cu₆O₈	
S.A. Senawi, H. Azhan, W.N.F.W. Zainal, W.A.W. Razali, A. Nazree, K. Azman, H.J.M. Ridzwan, A.W. Norazidah, H.N. Hidayah and J.S. Hawa	601
Structural and Superconducting Properties of Bi-Based Low Density HTSC	
C.M.N. Azura, H. Azhan, K. Azman, I.N. Syuhaida, M. Robaiah and M.M. Rosli	606
Synthesis and Characterization of Low Density Bi-2223 Superconductors via Co-Precipitation Method	
I.N. Syuhaida, H. Azhan, K. Azman, C.M.N. Azura and M. Robaiah	611
The Influence of Sintering Time in High and Low Density Bi-2223 Superconductor	
M. Robaiah, H. Azhan, K. Azman, I.N. Syuhaida, C.M.N. Azura and M.M. Mustaqim	616

Chapter 11: Materials and Technologies in Production of Thin Films

<i>In Situ</i> Cadmium Sulfide Synthesis in Polymer Thin Film for Solar Cells Application	
F.H. Naning, S. Malik and Z. Ahmad	625
Biopolymer-Based Thin Film for Sensor Application	
Y.W. Fen, W. Mahmood Mat Yunus, Z.A. Talib and N.A. Yusof	631
Morphological and Optical Properties of Different Mg Percentage of ZnO/Mg Thin Films Prepared by Sol-Gel Spin-Coating and Immersion Method	
A. Aziz, R. Mohamed, N.A. Abdullah, N.A.M. Asib, M. Rusop and Z. Khusaimi	637
Effect of Duty Cycle on Pulse Electrodeposited Tin Seleno Telluride Semiconductor Thin Film	
C.P. Chia, Z. Zainal, Y. Sulaiman and S.K. Chang	643
Effect of Morphology on SnO₂/MWCNT-Based DSSC Performance with Various Annealing Temperatures	
S. Mahalingam, H. Abdullah, A. Omar, N.A. Md Nawawi, S. Shaari, A. Muchtar and I. Asshari	649
Effect of RF Power on the Chemical Bonding and Humidity Sensing Properties of a-CN_x Thin Films	
N.F.H. Aziz, R. Ritikos, S.A.A. Kamal, N.I. Azman and R. Awang	655
Structural Properties of Al₂O₃:C:Mg Thin Films by RF Magnetron Sputtering	
A.J. Awang, H. Wagiran and A.K. Ismail	661
Growth and Characterization of Aln Thin Film Deposited by Sol-Gel Spin Coating Techniques	
M.A. Nurfahana, Z.Y. Lee, C.Y. Fong and S. Shiong Ng	667
Naphthoyl-Thiourea Thin Film as Potential OLED Featuring Methyl Pyridine Moiety	
W.M. Khairul, S.M. Jasman, T. Tagg and K. Kubulat	672
Effect of Flexible Substrates on the Structural and Optical Properties of ZnO Films Deposited by Sputtering Method	
L. Mui Li, A.M. Mani, S. Salleh and A. Alias	678

Chapter 12: Sensors and Techniques of Measurements in Materials Science and Production

Effect of Gamma Radiation on ZnO Doped PVA Nanocomposite Thin Films for <i>Escherichia coli</i> Sensor N.A. Noor Azmy, H. Abdullah, N. Mohammad Naim, A. Abdul Hamid, S. Shaari and W.H.M. Wan Mokhtar	687
High Sensitivity Optical POF Sensor for Detecting Low Ethanol Concentration in Water H. Saad, M.T. Ali and M.K. Abd Rahman	693
Modular Surface Plasmon Resonance (SPR) Biosensor Based on Wavelength Modulation W.M.A. Wan Ahamad, D. Kamarun, M.K. Abd Rahman and M.S. Kamarudin	699
Synthesis and Characterization of PVA-Ag Doped Metals (Co, Al) Nanocomposite Thin Films Biosensors for Detection of <i>E. coli</i> in Water N. Mohammad Naim, H. Abdullah, N.A. Noor Azmy, A. Abdul Hamid, M.A. Yarmo, A. Ali Umar, S. Shaari, W.H.M. Wan Mokhtar and Z. Osman	706
Evaluation of Bulk Etch Rate of Solid State Nuclear Track Detector CR-39 A.A. Al-Hamzawi, M.S. Jaffar, N.F. Tawfiq and M.S. Aswood	712
ZT Measurements of Thermoelements under Large Temperature Difference N.M. Yatim and G. Min	716
Simulation of Malaysian Small Angle Neutron Scattering Using Monte Carlo Z.A. Ahmad Firdaus, I. Noordin and A.Z. Noriza	722
Corrosion Behavior of Fe-12Cr-2Mo Stainless Steel in Na₂SO₄-50%NaCl with Flowing Ar-20%O₂ Environments at High Temperature M.I. Sahri, N.K. Othman, A.R. Daud and A. Jalar	727