Wednesday, August 21 9:40 - 10:25

1A: Device Modeling, Simulation and Design (I)

Room: Mesmera 4

Chair: Md Ralib Aliza Aini (International Islamic University Malaysia, Malaysia)

9:40 *Stacking SiO2/ High-K Dielectric Material in 30nm Junction-less Nanowire Transistor Optimized Using Taguchi Method For Lower Leakage Current*

Fatimah K.A Hamid (Universiti Teknologi Malaysia (UTM), Malaysia); Razali Ismail and Nurul Ezaila Alias (Universiti Teknologi Malaysia, Malaysia); Muhammad Faizal Muhammad Rasol (UTM, Malaysia); Zaharah Johari (Universiti Teknologi Malaysia, Malaysia); Nurul Nasuha (UTM, Malaysia)

pp. 1-4

9:55 *Optimisation of short channel Strained Surrounding Gate MOSFET with Stacked SiO2/High-K using Variable Oxide Thickness for Low Power Application*

Fatimah K.A Hamid (Universiti Teknologi Malaysia (UTM), Malaysia); Nurul Ezaila Alias, Zaharah Johari and Razali Ismail (Universiti Teknologi Malaysia, Malaysia)

pp. 5-8

10:10 *Anti-reflector coating on the bases of detecting high temperature black body radiators*

Sebahattin Tüzemen (Ataturk University, Turkey)

pp. 9-11
Wednesday, August 21 9:40 - 10:25

1B: RF Devices

Room: Irama 7

Chair: Siti Noorjannah Ibrahim (International Islamic University Malaysia & International Islamic University Malaysia, Malaysia)

9:40 CMOS RF-DC Convertor for RF Wireless Energy Harvesting Based on Threshold Voltage Compensation

Osamah Y. Al-Harbi and Naif S. Al-Ghamdi (King Fahd University of Petroleum and Minerals, Saudi Arabia); Munir Ahmed Al-Absi (King Fahd University of Petroleum & Minerals, Saudi Arabia); Sami R. Al-Batati (King Fahd University of Petroleum and Minerals, Saudi Arabia)

pp. 12-15

9:55 gm/ID Approach for Low Power Sustaining Amplifier Circuit for GHz MEMS SAW Oscillator

Jamilah Karim (Universiti Teknologi MARA, Malaysia); Norlizawati Kamarudin (MARA University of Technology, Malaysia); Md Ralib Aliza Aini (International Islamic University Malaysia, Malaysia)

pp. 16-19

10:10 Inverse Class-F RF Power Amplifier Design Using 10W GaN HEMT

Amirah Fauzi, Zubaida Yusoff and Md. Golam Sadeque (Multimedia University, Malaysia)

pp. 20-23
Wednesday, August 21 10:40 - 11:40

2A: Device Physics and Characterization

Room: Mesmera 4

Chair: Haslina Jaafar (Universiti Putra Malaysia, Malaysia)

10:40  **Effect of the Sensing Layer Resistivity On Sensitivity in DSAWR Sensors**

  Hilal Kubra Saglam and Omer Coban (Atatürk University, Turkey); Mehmet Ertugrul (Ataturk University, Turkey); Mohd Nizar Hamidon (Universiti Putra Malaysia, Malaysia)

  pp. 24-26

10:55  **Two dimensional Ti3C2Tx MXene electrode for supercapacitor application**

  Mehmet Ertugrul (Atatürk University, Turkey); Mohd Nizar Hamidon (Universiti Putra Malaysia, Malaysia); Fatma Nur Tuzluca and Yasar Ozkan Yesilbag (Erzincan Binali Yildirim University, Turkey); Farah Nabilah Shafiee (Institute of Advanced Technology, Malaysia)

  pp. 27-29

11:10  **Investigation of Negative Bias Temperature Instability (NBTI) Effects on Standard Cell Library Circuits Performance**

  Hanim Hussin (Universiti Teknologi MARA, Malaysia); Muhamad Fitri Zainudin (UiTM, Malaysia); Abdul Karimi Halim (Universiti Teknologi MARA, Malaysia); Nur Amalina Zamzuri (UiTM, Malaysia)

  pp. 30-33

11:25  **Design and simulation of Film Bulk Acoustic Wave Resonator (FBAR) gas sensor based on ZnO thin film**

  Zarifsofia Sabani (Engineer, Malaysia); Md Raib Aliza Aini (International Islamic University Malaysia, Malaysia); Jamilah Karim (Universiti Teknologi Mara, Malaysia); Norazlina Saidin (International Islamic University Malaysia, Malaysia); Nur Fatin Mohamad Razali (IIUM, Malaysia)

  pp. 34-37
Wednesday, August 21 10:40 - 11:40

2B: Nano Electronics

Room: Irama 7

Chair: Ir. Hazian Bin Mamat (Mimos Berhad, Malaysia)

10:40 *Effect of deposition time on Gd doped ZnO thin films using simultaneous DC and RF sputtering*

_**Nur Amaliyana Raship**_ and _**Siti Nooraya Mohd Tawil**_ (Universiti Pertahanan Nasional Malaysia, Malaysia); _**Nafarizal Nayan**_ (Universiti Tun Hussein Onn Malaysia & Microelectronic and Nanotechnology - Shamsuddin Research Centre (MiNT-SRC), Malaysia); _**Khadijah Ismail**_ (Universiti Pertahanan Nasional Malaysia, Malaysia); _**Muliana Tahan**_ and _**Anis Suhaili Bakri**_ (Universiti Tun Hussein Onn Malaysia, Malaysia)

pp. 38-41

10:55 *Characteristics of Asphaltenes Thin Film extracted from Crude-Oil-Tank-Bottom-Sludge (COTBS)*

_**Sundarajoo Thulasiraman**_ (Universiti Teknologi Petronas, Malaysia); _**Mona Yunus**_ (UTP, Malaysia); _**Pradeep Kumar**_ (Universiti Teknologi PETRONAS & UTP, Malaysia); _**Zainal Arif Burhanudin**_ (Universiti Teknologi PETRONAS & Center of Innovative Nanostructure & Nanodevice, Malaysia); _**Nor Hisham Hamid**_ (Universiti Teknologi Petronas, Malaysia); _**Cecilia Devi Wilfred**_ (Universiti Teknologi PETRONAS, Malaysia)

pp. 42-45

11:10 *The Surface Morphology, Optical and Electrical Properties of SnO2 Thin Films Prepared by Electrospaying Method*

_**Puteri Sarah Mohamad Saad, Nor Arifah Azyyati Azhar**_ and _**Hashimah Hashim**_ (Universiti Teknologi MARA, Malaysia); _**Shafinaz Sobihana Sharifudin**_ (Universiti Teknologi Mara, Malaysia)

pp. 46-49

11:25 *Outstanding optical and electrical hydrogen gas sensing performance of WO3 nano-walls*

_**Emre Gur**_ (Faculty of Science, Ataturk University, Turkey); _**Soheil Mibtakeri**_ (Ataturk University, Turkey); _**Saman Habashyani**_ and _**Omer Coban**_ (Atatürk University, Turkey)

pp. 50-52
Wednesday, August 21 14:30 - 17:15

3A: Nano Technology

Room: Mesmera 4

Chair: Jahariah Sampe (Universiti Kebangsaan Malaysia (UKM) & Institute of Microengineering and Nanoelectronics (IMEN), Malaysia)

14:30 *Raman Study on Dispersion of Carbon Nanotube in Organic Solvent as The Preparation of Conductive Nano-Ink*

*Nur Haziqah Abdul Aziz* and *Haslina Jaafar* (Universiti Putra Malaysia, Malaysia); *Suhaidi Shafie* (UPM, Malaysia); *Roslina Mohd Sidek* and *Mohd Nizar Hamidon* (Universiti Putra Malaysia, Malaysia)

pp. 53-56


*Nur Munirah Safiay* (Universiti Teknologi Mara, Malaysia); *Rozina Abdul Rani* (UiTM, Malaysia); *Najwa Ezira Ahmed Azhar* and *Nur Amierah Mohd Asib* (Universiti Teknologi MARA, Malaysia); *Zuraida Khusaimi* (NANO-SciTech Centre, Institute of Science, UiTM Shah Alam, Malaysia); *Fazlena Hamzah* (Universiti Teknologi MARA, Malaysia); *Mohamad Rusop* (Universiti Teknologi MARA - UiTM & NANO-SciTech Centre / NANO-ElecTronic Centre, Malaysia)

pp. 57-60

15:00 *The Effect of Precursor Concentration on Structural and Optical Properties of Ag-doped ZnO/TiO2*

*Siti Zulaikha Umbaidilah* (Universiti Teknologi MARA Shah Alam, Malaysia); *Nur Amierah Mohd Asib* (Universiti Teknologi MARA, Malaysia); *Nurul Afaah Abdullah* (NANO-SciTech Centre, Institute of Science, UiTM Shah Alam, Malaysia); *Rabiatuladawiyah Md Akhir* (Universiti Teknologi Mara & Kampus Shah Alam, Malaysia); *Noor Aasnida Asli* (NANO-SciTech, Institute Of Science, Universiti Teknologi MARA, MALAYSIA, Malaysia); *Mohamad Rusop* (Universiti Teknologi MARA - UiTM & NANO-SciTech Centre / NANO-ElecTronic Centre, Malaysia); *Zuraida Khusaimi* (NANO-SciTech Centre, Institute of Science, UiTM Shah Alam, Malaysia)

pp. 61-64

15:15 *Role of Electrolyte Concentration in Enhancing The Physical Properties on TiO2 Nanotube Arrays via Anodization Method*

*Najwa Ezira Ahmed Azhar* (Universiti Teknologi MARA, Malaysia); *Shafinaz Sobihana Shariffudin* and *Nur Munirah Safiay* (Universiti Teknologi Mara, Malaysia); *Rozina Abdul Rani* (UiTM, Malaysia);
Malaysia); Mohamad Rusop (Universiti Teknologi MARA - UiTM & NANO-SciTech Centre / NANO-ElecTronic Centre, Malaysia)

pp. 65-68

15:30 Tea Break

15:45 Preparation and Characterization of Zn and Al doped SnO2 nanofibers by Electrospinning Method

Yusof Ramli (University of Technology Mara, Malaysia); Anees Abdul Aziz (Universiti Teknologi MARA, Malaysia)

pp. 69-71

16:00 Electrochemical Sensing of Nitrite using Flexible Carbon Nanotube Platforms

Murat Alanyalioğlu (Ataturk University, Turkey)

pp. 72-74

16:15 Investigation on Structural Properties of Calcium Carbonate Synthesized by Precipitation, Gas Diffusion, and Thermal Chemical Vapour Deposition Method

Nurul Hidah Sulimai (Universiti Teknologi Mara, Malaysia); Salifairus Mohammad Jafar (Universiti Teknologi MARA, Malaysia); Rozina Abdul Rani (UiTM, Malaysia); Zuraida Khusaimi (NANO-SciTech Centre, Institute of Science, UiTM Shah Alam, Malaysia); Saifollah Abdullah (University Technology MARA, Malaysia); Firdaus Malek (Universiti Teknologi MARA, Malaysia); Mohamad Rusop (Universiti Teknologi MARA - UiTM & NANO-SciTech Centre / NANO-ElecTronic Centre, Malaysia)

pp. 75-78

16:30 Effect of Synthesis Procedure on the Size of Ag/Ag2S Core-Shell Nanoparticles for Memristive Brain-Like Devices

Yusuke Nakao (Kyushu Institute of Technology, Japan); Srikimkaew Oradee (Suranaree University of Technology, Thailand); Hadiyawarman Tukiman and Hirofumi Tanaka (Kyushu Institute of Technology, Japan)

pp. 79-82

16:45 Electrochemical Reduce Graphene Oxide (ERGO) as Humidity Sensor: Effect of voltage range and cycle

Ahmad Sabirin Zoolfakar (Universiti Teknologi MARA, Malaysia); Azlina Mohd Zain and Nazrah Omar (MIMOS Berhad, Malaysia); Farah Aqilah Zainor (Universiti Teknologi MARA, Malaysia); Syono Mohd. Ismahadi (Mimos Berhad, Malaysia); Azrif Manut (UiTM & Faculty of Electrical
17:00 **Analysis of a Novel Non-Volatile Look-Up Table (NV LUT) Controller Design with Resistive Random-Access Memories (RRAM) for Field-Programmable Gate Arrays (FPGA)**

Hock Leong Chee (University of Nottingham Malaysia Campus, Malaysia); Nandha Kumar Thulasiraman (University of Nottingham, Malaysia); Haider Abbas F. Almurib (The University of Nottingham Malaysia Campus, Malaysia); Desmond Wen Hui Kang (University of Nottingham Malaysia Campus, Malaysia)

pp. 87-90
Wednesday, August 21 14:30 - 17:15

3B: Material and Failure Analysis

Room: Irama 7

Chair: Suhana Mohamed Sultan (Faculty of Electrical Engineering, Universiti Teknologi Malaysia & University of Southampton, Malaysia)

14:30 Enhanced Trench Shielded Power UMOSFET for Single Event Burnout Hardening

Saranya Krishnamurthy (Universiti Teknologi PETRONAS, Malaysia); Ramani Kannan, Fawnizu Azmadi Hussin and Erman Yahya (Universiti Teknologi Petronas, Malaysia)

pp. 91-94

14:45 Electrodeposited Cu2O Microstructure as an Effective Ultraviolet (UV) sensor operating at low bias voltages

Rozina Abdul Rani (UiTM, Malaysia); MOhd Hafiz Zulkifli, Ahmad Sabirin Zoolfakar, Nor Hayati Saad and Siti Rabizah Makhsin (Universiti Teknologi MARA, Malaysia); Mohamad Rusop (Universiti Teknologi MARA - UiTM & NANO-SciTech Centre / NANO-ElecTronic Centre, Malaysia); Mohamad Hafiz Mamat (Universiti Teknologi MARA, Malaysia)

pp. 95-98

15:00 Facile Synthesis Of Cellulose Acetate Nanofiber For Biosensing Application

Mugashini A/P Alagari @ Vasudevan (University Teknologi Petronas & Malaysia, Malaysia); Satisvar Sundera Murthe and Melvin J.Y. Tai (Universiti Teknologi PETRONAS, Malaysia); Veeradasan Perumal and Norani Muti Mohamed (Universiti Teknologi Petronas, Malaysia); Subash C. B. Gopinath (University Malaysia Perlis, Malaysia)

pp. 99-101

15:15 Synthesis of Laser Scribed Graphene Electrode with Optimized Power for Biosensing

Melvin J.Y. Tai (Universiti Teknologi PETRONAS, Malaysia); Mugashini A/P Alagari @ Vasudevan (University Teknologi Petronas & Malaysia, Malaysia); Veeradasan Perumal (Universiti Teknologi Petronas, Malaysia); Wei Wen Liu (Universiti Malaysia Perlis, Malaysia); Norani Muti Mohamed (Universiti Teknologi Petronas, Malaysia)

pp. 102-104

15:30 Tea Break

15:45 Effect of Different Amount of Precursor on Graphene Synthesis from Waste Cooking Palm Oil
16:00 Rheology Properties of Carbon Nanotube Thick Film Paste for Potential Application in Patch Antenna

Intan Helina Hasan, Mohd Nizar Hamidon, Ismayadi Ismail and Muhammad Asnawi Mohd Kusaimi (Universiti Putra Malaysia, Malaysia); Saman Azhari (University Putra Malaysia, Malaysia); Farah Nabilah Shafiee (Universiti Putra Malaysia, Malaysia)

pp. 109-111

16:15 Effect of Target Voltage on Tribological and Adhesive Properties of c-BN Films Coated with HiPIMS

Ihsan Efeoglu and Aysenur Keles (Ataturk University, Turkey)

pp. 112-115

16:30 Surface Patterning of Silicon and Germanium using Focused Ion Beam for the Development of FinFET Structure

Siti Rahmah Aid, Wan Ramizah Wan Razali, Nur Nadhirah Mohd Rashid and Nor Khaleeda Hosman (Universiti Teknologi Malaysia, Malaysia)

pp. 116-118

16:45 Formation of Three Dimensional (3D) ZnO nanostructures via Electric Field Manipulation To Enhance UV Sensing Performance

Maizatul Zolkapli and Ahmad Sabirin Zoolfakar (Universiti Teknologi MARA, Malaysia)

pp. 119-122

17:00 CZTS growth for solar cell application by electrochemical deposition; pH effect

Emre Gur (Faculty of Science, Ataturk University, Turkey); Kubra Cinar Demir (Oltu Earth Sciences Faculty, Ataturk University, Turkey); Cevdet Coskun (Faculty of Arts and Sciences, Giresun University, Turkey)

pp. 123-125
Thursday, August 22 9:00 - 11:30

4A: Device Modeling, Simulation and Design (II)

Room: Mesmera 4

Chair: Ahmad Sabirin Zoolfakar (Universiti Teknologi MARA, Malaysia)

9:00 Modified Double Grating Plasmonic THz Detector

Ahmed M. Attiya (Electronics Research Institute, Egypt); Mahmoud Magdy (Researcher Assistant, Egypt); Tamer Abulfadl (Cairo University, Egypt); Walaa Hassan (Electronics Research Institute (ERI), Egypt)

pp. 126-128

9:15 The Effect of Illumination Intensity on the Performance of Germanium Based-Thermophotovoltaic Cell

Mansur Gamel (Universiti Tenaga Nasional & Institute of Electrical Engineering, Malaysia); Lau Kuen Yao (Universiti Tenaga Nasional, Malaysia); Pin Jern Ker (University Tenaga Nasional, Malaysia); Wan Emilin Suliza Wan Abdul Rashid (Universiti Tenaga National, Malaysia); Md Zaini Jamaludin (Universiti Tenaga Nasional, Malaysia)

pp. 129-132

9:30 Simulation And Optimization Of Emitter Thickness For Indium Arsenide-Based Thermophotovoltaic Cell

Benjamin Wong (Universiti Tenaga Nasional, Malaysia); Mansur Gamel (Universiti Tenaga Nasional & Institute of Electrical Engineering, Malaysia); Hui Jing Lee (Universiti Tenaga Nasional, Malaysia); Wan Emilin Suliza Wan Abdul Rashid (Universiti Tenaga National, Malaysia); Lau Kuen Yao (Universiti Tenaga Nasional, Malaysia); Pin Jern Ker (University Tenaga Nasional, Malaysia)

pp. 133-136

9:45 An Arduino Microcontroller Based RLC Meter

Mohammad Mominul Hoque, S m a Motakabber, Muhammad I Ibrahimy and Ahm Zahirul Alam (International Islamic University Malaysia, Malaysia)

pp. 137-140

10:00 Tea Break

10:15 Design of 6T SRAM Cell using optimized 20 nm SOI Junctionless Transistor
Muhammad Faris Md Noor (Universiti Teknologi Malaysia (UTM), Malaysia); Nurul Ezaila Alias, Afiq Hamzah, Zaharah Johari and Michael Loong Peng Tan (Universiti Teknologi Malaysia, Malaysia)

pp. 141-144

10:30 Design of a Broadband Continuous Class-F RF Power Amplifier for 5G Communication System

Md. Golam Sadeque and Zubaida Yusoff (Multimedia University, Malaysia); Mardeni Roslee (MMU, Malaysia); Noor Syakirah Ruslan Hadi (Multimedia University, Malaysia)

pp. 145-148

10:45 Single Particle Movement analysis in a Continuous Flow Fluid with Magnetophoresis Effect

Siti Noorjannah Ibrahim (International Islamic University Malaysia & International Islamic University Malaysia, Malaysia); Musanna Jahangir (IIUM, Malaysia); Noreha Abdul Malik (International Islamic University Malaysia, Malaysia)

pp. 149-152

11:00 Inverters with Different Loads for Ring Oscillators True Random Number Generator Analysis

Noor Alia Nor Hashim (University Tenaga Nasional, Malaysia); Fazrena Hamid and Julius Teo (Universiti Tenaga Nasional, Malaysia)

pp. 153-155

11:15 Motorcycle Image Application on MATLAB Simulink and FPGA Platform

Mohd Ali Mat Nong (UPM & Institute of Advanced Technology, Malaysia); Juraina Md Yusof, Intan Helina Hasan, Roslina Mohd Sidek and Rosiah Osman (Universiti Putra Malaysia, Malaysia); Suzila Sabil (Universiti Teknologi Malaysia, Malaysia)

pp. 156-159
Thursday, August 22 14:00 - 16:00

5A: VLSI, MEMS

Room: Mesmera 4

Chair: P. Susthitha Menon (Universiti Kebangsaan Malaysia & Institute of Microengineering and Nanoelectronics (IMEN), Malaysia)

14:00 *Projection Optics Design for Projection Stereolithography 3D Printer*

Abang Annuar Ehsan (Universiti Kebangsaan Malaysia & NXPhotonics, Malaysia); Muhammad Syafiq Bin Rahim (Universiti Kebangsaan Malaysia, Malaysia); C. w. Heng (Imiltics Design and Engineering, Malaysia)

pp. 160-163

14:15 *Electrothermal Analysis of a MetalMUMPs device for Acetone Detection*

Abdelaziz Yousif Ahmed and John Ojur Dennis (Universiti Teknologi PETRONAS, Malaysia); Almur Abdelkreem Saeed Rabih (École de Technologie Supérieure (ÉTS), Canada); Mohd Haris Md Khir (Universiti Teknologi PETRONAS, Malaysia)

pp. 164-167

14:30 *Design a low power hybrid energy harvester system using Radio Frequency, Thermal and vibration inputs for mobile phones*

Jahariah Sampe (Universiti Kebangsaan Malaysia (UKM) & Institute of Microengineering and Nanoelectronics (IMEN), Malaysia)

pp. 168-171

14:45 *Tapered Dielectrophoresis Microelectrodes: Devices, Operation and Application*

Muhamad Ramdzan Buyong (UKM, Malaysia); Ahmad Ghadafi Ismail and Farahdiana Yunus (Universiti Kebangsaan Malaysia, Malaysia); Muhammad Izzuddin Abd Samad (Institute of Microengineering and Nanoelectronics (IMEN), Malaysia); Nur Mas Ayu Jamaludin, Muhammad Khairulanwar Abdul Rahim and Norazreen Abd Aziz (Universiti Kebangsaan Malaysia, Malaysia); Azrul A Hamzah (University Kebangsan Malaysia, Malaysia); Burhanuddin Yeop Majlis (Universiti Kebangsaan Malaysia, Malaysia)

pp. 172-175

15:00 Tea Break

15:15 *Uniformizing routing hotspots of ring oscillators on the Cyclone V FPGA for PUF applications*
Zulfikar Zulfikar (Syiah Kuala University, Indonesia); Norhayati Soin, Sharifah Fatmadiana Wan Muhamad Hatta and Mohamad Sofian Abu Talip (University of Malaya, Malaysia); Anuar Jaafar (Universiti Teknikal Malaysia Melaka & Universiti Teknikal Malaysia Melaka, Malaysia)

pp. 176-179

15:30 **A 1.2V and low temperature coefficient 9.106 ppm/°C with low voltage fully MOS sub-BGR compensation circuitry**

Asrulnizam Abd Manaf, Nuha A. Rhaffor and Sofiyah Sal Hamid (Universiti Sains Malaysia, Malaysia)

pp. 180-183

15:45 **Characterization Of Electroplatted Permalloy On Microstructure For BIOMEMS Application**

Siti Noorjannah Ibrahim (International Islamic University Malaysia & International Islamic University Malaysia, Malaysia); Nabila Syafiqa Abdul Rani (IIUM, Malaysia); Noreha Abdul Malik (International Islamic University Malaysia, Malaysia); Musanna Jahangir (IIUM, Malaysia)

pp. 184-187