



Ts. Dr. Mohd Firdaus Malek

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No. of Documents: 118

ABOUT ME



Senior Lecturer

Faculty of Applied Sciences, Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia

Research Fellow

NANO-SciTech Lab (NST), Centre for Functional Materials and Nanotechnology (FMN), Institute of Science (IOS), Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia



Sex : Male



DOB : 23 July 1986



Nationality : Malaysia

CONTACT



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EXPERTISE

Nanoscience & Nanomaterials

Materials Science

Solar Cells

Sensors



EDUCATION

□ Doctor of Philosophy (Electrical Engineering) | 2017

University : Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia

Thesis Title : Fabrication and Characterisation of Nanostructured Zinc Oxide Thin Films Incorporated Nanorod Arrays-Based Solar Cells

Scholarship : Program Ahli Sains dan Penyelidik Muda (PSPM)

Award : Royal Chancellor's Excellence Doctoral Award

□ Master of Electrical Engineering | 2012

University : Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia

Thesis Title : The Development of Nanostructured Zinc Oxide Thin Films for Hybrid Solar Cell Applications

Scholarship : National Science Fellowship (NSF), Ministry of Science, Technology & Innovation (MOSTI)

□ Bachelor of Science with Honours (Physics) | 2008

University : Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia

Thesis Title : Monitoring of a 1 kW_p UiTM Solar Photovoltaic (PV) System



WORK EXPERIENCES

□ Position : Senior Lecturer | July 2017 - Present

Department : Faculty of Applied Sciences, Universiti Teknologi MARA / University (UiTM), 40450 Shah Alam, Selangor, Malaysia

□ Position : Researcher | Dec 2017 - Present

Department : NANO-SciTech Centre (NST), Institute of Science (IOS), / University Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia

□ Position : Research Assistant | 2008 - 2013

Department : NANO-SciTech Centre (NST), Institute of Science (IOS), / University Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia
NANO-ElecTronic Centre (NET), Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM), 40450 Shah Alam, Selangor, Malaysia



INTERNATIONAL PROGRAM

- Program** : Japan-Asia Youth Exchange Program in Science (SAKURA Exchange Programme in Science)
 - Sponsored by** : Japan Science and Technology Agency
 - Institution/ Department** : Department of Frontier Materials, The Graduate School of Engineering Nagoya Institute of Technology
 - Presentation** : Controllable growth of vertically aligned ZnO nanorod array driven by ultrasonic sol-gel immersion technique
 - Period** : 13 January - 2 February 2015
-

- Program** : Exchange Program for Fostering Young Researchers Capable of Reducing Environmental Risk in Asia by Using Nanomaterials
- Sponsored by** : Exchange Program for East Asia Young Researchers under Japanese Society for Promotion of Science (JSPS), Japanese Government, Japan
- Institution/ Department** : Nagoya Institute of Technology
- Presentation** : Effects of various withdrawal speed on the properties of Zinc Oxide thin films
- Period** : 05 December - 20 December 2009



TEACHING

Lecture

PHY406	Basic Physics : Mechanics and Thermodynamics
PHY430	Physics I
PHY431	Physics II
PHY440	Mechanics, Waves and Thermal Physics
PHY555	Photovoltaic Energy Systems
PHY569	Nanoscience and Nanotechnology
PHY583	Modern Physics II

Laboratory

PHY433	Fundamental Physics : Mechanics and Heat
PHY442	Introductory Physics Lab
PHY443	Fundamental Physics : Electricity, Magnetism and Optics
PHY565	Practicals for Photovoltaic Energy Systems
PHY631/636	Advanced Physics Laboratory



RESEARCH GRANT

-
- Grant** : Geran Insentif Penyelidikan
Project Code : 600-RMC/GIP 5/3 (098/2021)
Amount : RM 20 000
Title : Synthesisation of vertically aligned ZnO based nanorod arrays as photoanode for perovskite solar cell applications
Start Date : 15 December 2021
End Date : 14 December 2023
Responsibility : Project Leader
-
- Grant** : Geran Kolaborasi Entiti Penyelidikan UiTM (KEPU)
Project Code : 600-RMC/KEPU 5/3 (018/2021)
Amount : RM 40 000
Title : Fabrication of isovalent doping engineered- and oxygen vacancies modulated-metal oxide nanocomposite film with hydrophobic and triboelectric properties for waste motion energy harvesting
Start Date : 15 December 2021
End Date : 14 December 2023
Responsibility : Project Member
-
- Grant** : Young Talent Researcher Grant – YTRG
Project Code : 600-RMC/YTR/5/3 (005/2021)
Amount : RM 50 000
Title : Ultrarapid synthesis of ZnO nanowires by microwave-assisted ultrasonic irradiation for dye sensitised solar cell applications
Start Date : 01 September 2021
End Date : 31 August 2023
Responsibility : Project Leader
-
- Grant** : Young Talent Researcher Grant – YTRG
Project Code : 600-RMC/YTR/5/3 (004/2021)
Amount : RM 50 000
Title : Synthesis of semiconductor inks using ZnO and NiO nanoflowers for inkjet-printed, high density arrayed ZnO/NiO film-based humidity sensing applications
Start Date : 01 September 2021
End Date : 31 August 2023
Responsibility : Project Member
-
- Grant** : Geran Penelitian MYRA
Project Code : 600-RMC/GPM LPHD 5/3 (072/2021)
Amount : RM 20 000
Title : A facile step fabrication of Titanium Dioxide nanostructures thin films with enhanced photocatalytic performance
Start Date : 01 September 2021
End Date : 31 August 2023
Responsibility : Project Member
-

Grant : IIUM-UMP-UiTM SUSTAINABLE RESEARCH COLLABORATION
Project Code : 600-RMC/SRC/5/3 (027/2020)
Amount : RM 20 000
Title : Highly transparent conductive D-block-ZnO nanorod arrays intercalated Graphene: Formation mechanism, architecture modification and their electron transfer characteristics
Start Date : 23 Dec 2020
End Date : 22 Dec 2022
Responsibility : Project Leader

Grant : IIUM-UMP-UiTM SUSTAINABLE RESEARCH COLLABORATION
Project Code : 600-RMC/SRC/5/3 (023/2020)
Amount : RM 20 000
Title : New approach on biodegradable antimicrobial polylactic acid film incorporated with Cinnamon/ZnO nanocomposite for replacement current banana packaging
Start Date : 23 Dec 2020
End Date : 22 Dec 2022
Responsibility : Project Member

Grant : MyRA-LESTARI
Project Code : 600-RMC/MYRA 5/3/LESTARI (132/2020)
Amount : RM 20 000
Title : Fabrication and characterization of Silicon-Silver nanoparticles (Si-AgNPs) for wound
Start Date : 21 December 2020
End Date : 20 December 2022
Responsibility : Project Member

Grant : FRGS-RACER
Project Code : 600-IRMI/FRGS-RACER 5/3 (102/2019)
Amount : RM 51 200
Title : Synthesis of self-organised Graphene wrapped Fe-doped TiO₂ nanorod arrays via a single-step facile aqueous chemical route
Start Date : 01 September 2019
End Date : 31 May 2022
Responsibility : Project Leader

Grant : FRGS
Project Code : 600-IRMI/FRGS 5/3 (264/2019)
Amount : RM 96 200
Title : Interfacial layer of Zinc Oxide embedded with Graphene Oxide as photoanode in suppressing charge recombination
Start Date : 01 September 2019
End Date : 31 May 2022
Responsibility : Project Member

Grant : LESTARI
Project Code : 600-IRMI 5/3/LESTARI (036/2019)
Amount : RM 30 000
Title : ZnO nanorod arrays/nanoparticles: Novel sonication synthesis, characterisation and formation mechanism for photoresponse and photosensitivity properties
Start Date : 01 July 2019
End Date : 25 June 2022
Responsibility : Project Leader

Grant : Research Acculturation Collaborative Effort (RACE)
Project Code : 600-RMI/RACE 16/6/2 (9/2013)
Amount : RM 50 000
Title : Nanostructure evolution of ZnO thin films incorporated with nanorod layers: The amelioration of highly c-axis oriented for the growth of defect free film
Start Date : 15 January 2014
End Date : 14 January 2016
Responsibility : Project Member



PROFESSIONAL BODIES

<input type="checkbox"/> Bodies	Membership
1. Malaysia Board of Technologist	Professional Technologist (Ts.)
2. Persatuan Sains Analisis Malaysia (ANALIS)	Ordinary Member
3. Institute of Materials, Malaysia (IMM)	Ordinary Member
4. Malaysian Institute of Physics (IFM)	Ordinary Member
5. Malaysia Nanotechnology Association (MNA)	Ordinary Member



EDITORIAL BOARD

<input type="checkbox"/> Journal	Publisher
1. Nanoscience & Nanotechnology-Asia	Bentham Science



NATIONAL COMMITTEE

<input type="checkbox"/> Journal
1. AJK and facilitator for Seminar Rangkaian Makmal Nanoteknologi Kebangsaan 2021 (RMNK2021)



AWARDS

<input type="checkbox"/> Award	Year
1. Royal Chancellor's Excellence Doctoral Award	2017
2. Anugerah Penyelidik Cemerlang	2017
3. Graduate on Time Certificate	2017



JUDGE/REFEREE

<input type="checkbox"/> Program	Level	Year
1. Kejujutan Raket Kebangsaan 2019 (Planetarium Negara, Kementerian Tenaga, Sains, Teknologi, Alam Sekitar & Perubahan Iklim, MESTECC)	National	2019
2. Selangor Innovation & Creativity Exposition 2018 (SLICE18) Universiti Selangor, UNISEL	Selangor State	2018
3. i-Spaghetti Bridge INTEC Education College	College/University	2018



THESIS EXAMINER

<input type="checkbox"/> External
PhD
1. Al Masoodi Ali Abdul Ameer Mohammed (P20162002430) - 2 August 2019 Fabrication of Zinc Oxide/Graphene Oxide Nanocomposite through Spraying Method for Ultraviolet Photoconductive Sensor and Photocatalytic Applications, Universiti Pendidikan Sultan Idris, Perak Darul Ridzuan, Malaysia.
Master
2. Rosmanisah Binti Mohamat (M20181001454) - 11 Mac 2020 Fabrication of Graphene Oxide – Based Membrane and Durian-Based Activated Carbon for Water Treatment Application, Universiti Pendidikan Sultan Idris, Perak Darul Ridzuan, Malaysia.
<input type="checkbox"/> Internal
Master
1. Fatin Nabilah Binti Sazman (2017832018) – 18 June 2021 First-Principles Study on Structural and Electronic Properties of Hydrated and Pure Prussian Blue with Potassium Ion (K ⁺) Intercalation for Cathode Material of Potassium Ion Battery.
2. Muhammad Suffian bin Sazali (2018838086) - 11 November 2021 Structural, Electrical, Magnetic Properties and Electroresistance Effect of La _{0.7} Ba _{0.3} Mn _{1-x} M _x O ₃ (M = Fe ³⁺ , Mo ⁶⁺ : x = 0, 0.01, 0.02, 0.03, 0.04) Doped Manganites.



SUPERVISION

□ | Postgraduate – Doctor of Philosophy

Student	Thesis/Project Title	Role	Date Completed
1. Nurfatini Atiqrah Binti Khairul Azhar (AS950) Student ID: 2022767259	Synthesisation and Characterisation of ZnO-based Nanowires for Nanogenerator Applications	Main Supervisor	On Going
2. Nur Fairuz Binti Mohd Rostan (AS950) Student ID: 2022596099	Ultrarapid Synthesis of ZnO Nanowires by Microwave-Assisted Ultrasonic Irradiation for Dye Sensitised Solar Cell Applications	Main Supervisor	On Going
3. Nurfarhana Binti Rosman (AS950) Student ID: 2022964593	Synthesis graphene from biomass waste soybean curd via chemical vapor deposition method	Co-Supervisor	On Going
4. Maryam Binti Mohammad (AS950) Student ID: 2020193169	Controllable synthesis of Zinc Oxide-based nanowires by hybrid microwave-assisted sonochemical technique	Main Supervisor	On Going
5. Norfarariyanti Binti Parimon (EE950) Student ID: 2017343701	Fabrication of Nickel Oxide nanosheet arrays for humidity sensor applications	Co-Supervisor	Completed

□ | Postgraduate – Master

Student	Thesis/Project Title	Role	Date Completed
1. Muhammad Naaim Bin Mansor (AS759) Student ID: 2020756161	The Structural, Optical and Photoluminescence Studies of Borotellurite Mixed Former Glass	Co Supervisor	On Going
2. Nurul Izzati Binti Kamal Ariffin (CEEE750) Student ID: 2022565785	Fabrication And Characterization of Copper and Nickel doped Zinc Oxide Nanostructures for Nanogenerator Applications	Co Supervisor	On Going
3. Nurul Zulaikha Bt Mohammad Zamri (AS759) Student ID: 2020410628	Synthesisation and characterisation of Zinc Oxide nanowires via microwave-assisted ultrasonic technique	Main Supervisor	On Going
4. Mohd Rasydan Bin Mustapha (AS759) Student ID: 2020459952	Controllable synthesis of Titanium Dioxide nanorod arrays via aqueous chemical route deposition technique	Main Supervisor	On Going
5. Mohamad Dzulfiqar Bin Bakri (AS759) Student ID: 2020668454	Synthesisation and characterisation of Zinc Oxide nanowires by ultrasonic-assisted immersion technique	Main Supervisor	On Going
6. Aida Fadhlina Aqilah Binti Mat Yusof (EE750) Student ID: 2020499088	Mechanistic aspects of novel composited Zinc Oxide/Tin Oxide nanoblock arrays formation and their surface interaction at diverse humidity	Co-Supervisor	On Going
7. Kamil Muhammad Bin Yusoff (AS759) Student ID: 2020540577	Growth mechanism study uncovering structure function relationship in metal (Pt) nanoparticles intergrated on ZnO NFs	Co-Supervisor	On Going
8. Myzatul Azylin Binti Muhamad (AS759) Student ID: 2020509335	Fabrication and characterisation of Zinc Oxide: Titanium Dioxide nanostructured for humidity sensor application	Co-Supervisor	On Going

9.	Saedah Munirah Binti Sanusi (AS759) Student ID: 2020187701	Growth of Zinc Oxide/Graphene Oxide nanorods via simple solution immersion method	Co-Supervisor	On Going
10.	Nur Liyana Binti Samshir (AS759) Student ID: 2020126293	Effect of Graphene addition on microwave properties in $\text{La}_{0.85}\text{Ag}_{0.15}\text{MnO}_3$ prepared by sol-gel method	Co-Supervisor	On Going
11.	Noor Fatin Sofea Binti Zulkifli (AS762) Student ID: 2019609636	Controllable growth of ZnO-based nanowires synthesized via ultrasonic-assisted sol-gel and immersion technique	Main Supervisor	On Going
12.	Nurfazianawatie Binti Mohd Zin (AS762) Student ID: 2019626714	Growth of Graphene film synthesized from waste industrial cooking oil, (WICO) AYAMAS using DTCVD method	Co-Supervisor	On Going

□ | Undergraduate – Degree

Student	Thesis/Project Title	Role	Date Completed
1. Anis Athirah Binti Saiful Khairi (2019405248)	Synthesisation and characterization of $\alpha\text{-Fe}_2\text{O}_3$ nanoparticles thin films at various annealing temperatures by sol-gel method	Main Supervisor	On Going
2. Nurul Iffah Binti Ahmad Fauzi Student ID: 2019268254	Effect of precursor concentration on the structural, optical and electrical properties of $\alpha\text{-Fe}_2\text{O}_3$ thin films elaborated by the spin-coating technique	Main Supervisor	On Going
3. Maisarah Binti Mohd Idris Student ID: 2019455636	Band gap tuning and properties of Iron (III) Oxide nanostructured thin films via sol-gel approach	Main Supervisor	On Going
4. Nurani Izzaty Binti Mohd Alip Student ID: 2019268622	Controllable synthesis and properties of Ferric Oxide nanoparticles thin films	Main Supervisor	On Going
5. Fatin Nur Syazwani Bt Mohd Noor Azlan Student ID: 2018276676	Effect of TiO_2 seeded layer on the hydrothermal synthesis of TiO_2 nanostructures thin films	Co-Supervisor	On Going
6. Ahmad Faeizan Bin Ahmad Student ID: 2019294282	Structural and Electrical Properties of ZnO Nanostructures with GO Modification	Co-Supervisor	On Going
7. Fatin Nurnabila Bt Mohd Dziaudin Student ID: 2018439986	Synthesisation of Zinc Oxide nanowires prepared by sol-gel assisted microwave technique	Main Supervisor	July 2021
8. Anis Humaira' binti Affandi Student ID: 2018659836	A facile microwave approach for tunable growth of ZnO nanowires and their properties	Main Supervisor	July 2021
9. Puteri Norbainuri Binti Mohd Asri Student ID: 2018653482	Hydrothermal growth of ZnO nanowire arrays: fine tuning by precursor concentration	Main Supervisor	July 2021
10. Siti Nur Syafikah Binti Zakaria Student ID: 2018424044	Controllable synthesis of TiO_2 nanorod arrays via aqueous chemical route deposition	Main Supervisor	July 2021
11. Nur Malisa Binti Abdih Student ID: 2018695624	Aqueous chemical growth of oriented crystalline TiO_2 nanorod arrays	Main Supervisor	July 2021
12. Nurul Izzati Binti Zulkifli (AS203) Student ID: 2017404676	Synthesis of Al-doped ZnO nanoparticles:Graphene by ultrasonic-assisted sol-gel spin coating technique	Main Supervisor	July 2020
13. Mohamad Dzulfiqar Bin Bakri (AS203) Student ID: 2017299482	Synthesis of Zinc Oxide nanowires prepared by catalytic-immersion technique	Main Supervisor	July 2020

14.	Mohd Aiman Bin Rosli (AS203) Student ID: 2017299476	A facile hydrothermal approach for tunable growth of ZnO nanowires and their properties	Main Supervisor	July 2020
15.	Anisyatul Najwa Binti Ramli (AS203) Student ID: 2017404596	Hydrothermal growth of ZnO nanowire arrays: Fine tuning by precursor concentration	Main Supervisor	July 2020
16.	Mohamad Taufiq Bin Mohamad Yusoff (AS203) Student ID: 2017404674	Investigation of the growth time parameter of ZnO nanowires via Ultrasonic-Assisted hydrothermal method	Main Supervisor	July 2020
17.	Mohd Rasydan Bin Mustapha (AS203) Student ID: 2017404614	Aqueous chemical growth of oriented crystalline Sn-doped TiO ₂ nanorod arrays	Main Supervisor	July 2020
18.	Widawati Bt Abdul Wahab (AS203) Student ID: 2017420406	Synthesis of tantalum-doped TiO ₂ nanorod arrays via hydrothermal method	Main Supervisor	July 2020
19.	Nurul Zulaikha Bt Mohammad Zamri (AS203) Student ID: 2017404592	Controllable synthesis of vanadium-doped TiO ₂ nanorod arrays via aqueous chemical route deposition	Main Supervisor	July 2020
20.	Nik Nur Syakira Binti Mohd Rodzi (AS203) Student ID: 2016564969	The properties of Zinc Oxide with Graphene Oxide on different substrate	Co-Supervisor	January 2020
21.	Siti Aisyah Kamal Arifin (AS203) Student ID: 2016447892	Synthesis and characterization of AZO NPs/Graphene Oxide nanocomposite prepared via ultrasonic-assisted sol-gel spin coating technique	Main Supervisor	July 2019
22.	Nur Fatini Nadziri @ Ismail (AS203) Student ID: 2016646712	Aqueous chemical route synthesis and the effect of deposition temperature on the properties of Titanium Dioxide nanorod arrays	Main Supervisor	July 2019
23.	Suley Norsyakila Yahya (AS203) Student ID: 2016447538	Controlled aqueous chemical growth of oriented crystalline Titanium Dioxide nanorod arrays	Main Supervisor	July 2019
24.	Norliza Binti Mohd Salleh (AS203) 2016447804	The influence of annealing temperature on Zinc Oxide, Graphene Oxide nanorod arrays for solar cell application	Co-Supervisor	July 2019
25.	Fatin Najriah Binti Mohamad Dol (AS203) 2016447912	Effect of immersion time on structural and optical properties of Zinc Oxide, Graphene Oxide nanorod arrays thin film	Co-Supervisor	July 2019
26.	Noor Fatin Sofea Binti Zulkifli (AS203) Student ID: 2015836722	Properties of Zinc Oxide/Graphene Oxide nanostructured for UV sensor application	Co-Supervisor	July 2018



□ | International/National/University Journal

	Journal/Publisher	Title	Year
1.	Materials Chemistry and Physics	Role of preparation conditions in tuning the dielectric properties of $\text{Nd}_2\text{CuTiO}_6$	2022
2.	Arabian Journal of Chemistry	Fabrication and structural elucidation of Graphene Oxide based nanocomposites (GOAg, rGO-Ag) for wastewater purification	2022
3.	Materials Chemistry and Physics	Crystallization of ZnO without the need of calcination at high temperatures	2022
4.	Journal of Science and Technology	Green Synthesis of TiO_2 -ZnO Nanoparticles using Avocado Seed Extract (<i>Persea americana</i>) by Sol-Gel Method and Its Application as a Semiconductor for Solar Cells	2022
5.	Journal of Cleaner Production	Nano sensors as a sustainable solution for the detection, monitoring and evaluation of essential nutrients, moisture, temperature, pesticides and other toxic elements in agriculture sector: A review	2021
6.	Microelectronic Engineering	Nickel Oxide Thin Film Flexible RRAM prepared by Low-Temperature Combustion Process	2021
7.	Journal of Cleaner Production	Impacts of pollution-related punitive measures on adoption of cleaner production technologies: An evolutionary game perspective	2021
8.	Journal of Cleaner Production	Applications of <i>Saccharomyces cerevisiae</i> and its byproducts in dairy cattle feed: Trends in the use of residual brewer's yeast	2021
9.	Materials Science in Semiconductor Processing	Enhanced Ethanol Sensing Performance of Cu-Doped ZnO Nanorods	2021
10.	Materials Chemistry and Physics	UV-durable superhydrophobic ZnO/ SiO_2 nanorod arrays obtained directly on an aluminum substrate using catalyst-free chemical vapor deposition and their corrosion performance	2021
11.	Microelectronic Engineering	Morphology dependent humidity sensing properties of Zn doped SnO_2 nanostructures	2021
12.	Ceramics International	Effect of TiN coating on the field-emission and electrochemical performance of ZnO nanorod arrays on carbon cloth	2021
13.	Materials Chemistry and Physics	Sequential physical vapor deposited methylammonium lead tri-iodide perovskites on FTO and ITO modified Zinc Oxide nanorods for solar cells	2021
14.	Advanced Power Technology	Hexavalent chromium reduction by ZnO, SnO_2 and ZnO- SnO_2 synthesized using biosurfactants from extract of <i>Solanum macrocarpon</i>	2021
15.	Journal of Smart Science and Technology	Prediction of superconductivity in compressed Li-Sn system	2021
16.	GADING Journal for Science and Technology	Structural properties of Cerium Oxide doped Zinc Borotellurite glass	2021
17.	Nanotechnology Malaysia Annual Symposium - Scientific.Net	Study of Surface Morphology Change with Humidity on Copper Wire in Discrete Semiconductor	2021
18.	Nanotechnology Malaysia Annual Symposium - Scientific.Net	GGA-PBE Calculations for Electronic Structure and Optical Properties of pure and Strontium Doped $\beta\text{-Ga}_2\text{O}_3$	2021
19.	Pertanika Journal of Science and Technology	Optimization of Transparent Dye-sensitized Solar Cells utilizing Yellow Sensitizer TASTCA and Transparent TiO_2	2021

20.	Surfaces and Interfaces	Single-step ZnO nanorod bunches formation on p-type Si-conductive substrates by electrophoretic deposition	2020
21.	Materials Characterization	Hydrothermal growth of overlapping ZnO nanorod arrays on the porous substrate and their H ₂ gas sensing	2020
22.	Materials Science in Semiconductor Processing	Tailoring the structure-morphology-vibrational-optical-dielectric and electrical characteristics of Ce@NiO NPs produced by facile combustion route for optoelectronics	2020
23.	Gading Journal for Science and Technology	Improvements in the structural and optical properties of In ₂ O ₃ nanostructure by in-situ thermal annealing	2020
24.	Journal of Cleaner Production	Effective visible light photocatalysis of selected pharmaceutical pollutants in water using supported Zinc Oxide nanorods catalyst	2020
25.	Materials Chemistry and Physics	Acceleration of portland cement with lithium, sodium and potassium silicates and hydroxides	2019
26.	Materials Chemistry and Physics	Dye sensitized solar cells with the Pt/Ti system as the transparent conductive oxide-less counter electrode	2019
27.	Arabian Journal of Chemistry	Zinc Aluminum mixed oxide/polyvinyl alcohol (ZnAl M _x O/PVA) nanocomposite: One pot synthesis, characterization and application in Pb ²⁺ removal from aqueous solution	2019
28.	Science Letters	Acidic and alkaline condition influence nanotube structure of TiO ₂ by anodizing titanium substrate	2019
29.	Optik – International Journal for Light and Electron Optics	Effect of surfactants on the morphology and photocatalytic properties of ZnO nanostructures	2019
30.	Educatum Journal of Science, Mathematics & Technology	Oxygen effect in annealing process of Aluminium doped Zinc Oxide films	2017
31.	ACS Applied Materials & Interfaces	Comprehensive study of sol-gel versus hydrolysis-condensation methods to prepare ZnO films: Electron transport layers in perovskite solar cells	2017
32.	Optik – International Journal for Light and Electron Optics/Elsevier	Room temperature synthesis of ZnO nano-rods by co-precipitation method: structural, optical and antibacterial analysis	2016
33.	Applied Surface Science/Elsevier	Charge transfer processes at ZnO nanocrystals/MEH-PPV interface: The effects of nanocrystals synthetic route, film deposition and electrolyte counter-ion on the photo-electrochemical properties	2015
34.	Journal of Inorganic and Organometallic Polymers and Materials/Springer	Investigation of growth dynamics of nanostructured Aluminum doped Zinc Oxide thin films deposited for the solar cell applications	2015
35.	Optical Materials/Elsevier	Influence of thermal annealing on structural and optical properties of Se ₇₀ Te ₁₅ Sb ₁₅ thin films	2015
36.	Thin Solid Films/Elsevier	Effects of low-temperature preheating for seed layer deposited by sol-gel spin coating on the structural properties of hydrothermal ZnO nanorods	2015
37.	Thin Solid Films/Elsevier	Sol-gel derived oriented multilayer ZnO thin films with memristive response	2015
38.	Journal of Materials Science/Springer	Low-temperature preparation of transparent conductive Al-doped ZnO thin films by a novel sol-gel method	2014
39.	Physica Status Solidi A/Wiley	Structural properties and elemental composition of Au ⁺ implanted ZnO films, obtained by sol-gel method	2014



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<input type="checkbox"/>	Title	Application No.	Notification No.
1.	Fabrication of hierarchical NiO nanosheet/nanoball-flower-like structure film for humidity sensor applications	LY2020003572	CRLY00025583
2.	Antiviral and antimicrobial nanocoating based on Copper-based Zinc Oxide nanorod-assembled nanoflower structures	LY2020002661	CRLY00024755
3.	Synthesis of NiO nanostructures powder using a sonicated solution immersion approach	LY2020002659	CRLY00024756
4.	Flexible humidity sensor based on NiO nanostructures	LY2020002658	CRLY00024757
5.	Fabrication of NiO nanosheet array films using a novel solution immersion method	LY2019006661	CRLY00021389
6.	Preparation of aligned ZnO nanorod arrays on Sn-doped ZnO thin films by sonicated sol-gel immersion fabricated for dye-sensitized solar cell	LY2014001545	CRLY00001859
7.	Fabrication of an ultraviolet photoconductive sensor using novel nanostructured, nanohole-enhanced, aligned Aluminium-doped Zinc Oxide nanorod arrays at low immersion times	LY2014001542	CRLY00001857
8.	Fabrication of ultraviolet photoconductive sensor using a novel Aluminium-doped Zinc Oxide nanorod-nanoflake network thin film prepared via ultrasonic-assisted sol-gel and immersion methods	LY2014001541	CRLY00001856
9.	Novel synthesis of vertically aligned Zinc Oxide nanorod array via dual sonication sol-gel process	LY2014001540	CRLY00001855
10.	A novel fabrication of MEH-PPV/Al:ZnO nanorod arrays based ordered bulk heterojunction hybrid solar cells	LY2013001075	CRLY00000785
11.	Fabrication of nanocubic ZnO/SnO ₂ film-based humidity sensor with high sensitivity by ultrasonic-assisted solution growth method at different Zn:Sn precursor ratios	LY2013001074	CRLY00000784



BOOK CHAPTER

- M.F. Malek**, M.H. Mamat, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Crystallographic Orientation of ZnO Nanorod Array Thin Films", in Renewable Energy and Sustainable Development, Y.A. Douri, Ed. USA: Scientific & Academic Publishing, 2015, pp. 71-123.
- M.H. Mamat, **M.F. Malek**, N.D. Md Sin, N.N. Hafizah, A.B. Suriani, J. Rouhi, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Aluminium Doped Zinc Oxide Nanorod Array Ultraviolet Photoconductive Sensors", in Renewable Energy and Sustainable Development, Y.A. Douri, Ed. USA: Scientific & Academic Publishing, 2015, pp. 313-356.



□ | Refereed Journal

1. N.A. Asli, N.E.A. Azhar, M.Z. Nurfazianawatie, K.M. Yusoff, H. Omar, N.F. Rosman, N.S.A. Malek, R.Md. Akhir, I. Buniyamin, M.J. Salifairus, F.S. Husairi, Z. Khusaimi, **M.F. Malek**, M. Rusop, S. Abdullah, "Mechanism of vertically arrays of carbon nanotubes by camphor based catalysed in-situ growth", **Fullerenes, Nanotubes and Carbon Nanostructures**, pp. 1-11, 2021. DOI: <https://doi.org/10.1080/1536383X.2021.1958317>.
2. N.H. Sulimai, M.J. Salifairus, Z. Khusaimi, **M.F. Malek**, S. Abdullah, Haseeb Khan, Salman Al Rokayan, M. Rusop, "Synthesis of nanostructured calcite thin film by additive-free carbonation reaction via thermal chemical vapor deposition method", **Journal of Materials Science: Materials in Electronics**, vol. 32, pp. 3072-3082, 2021.
3. **M.F. Malek**, M. Robaiah, A.B. Suriani, M.H. Mamat, M.K. Ahmad, T. Soga, M. Rusop, S. Abdullah, Z. Khusaimi, M. Aslam, N.A. Asli, "The utilization of waste cooking palm oil as a green carbon source for the growth of multilayer Graphene", **Journal of the Australian Ceramic Society**, vol. 57, pp. 347-358, 2021.
4. S.S. Taib, M.K. Ahmad, N. Nafarizal, C.F. Soon, N.J. Yaacob, J. Lias, N.M. Ramli, A.B. Suriani, A. Mohamed, M.H. Mamat, **M.F. Malek**, M. Shimomura, "Hydrophobic properties of microrods and flower-like rutile phased TiO₂ on FTO glass using hydrothermal method", **Journal of Optoelectronics and Advanced Materials**, vol. 23, pp. 79-85, 2021.
5. N. Parimon, M.H. Mamat, A.S. Zoolfakar, **M.F. Malek**, I.B. Shameem Banu, N. Vasimalai, M. Rusop, "Deposition of NiO thin films by sol-gel spin coating: Effect of annealing temperature on structural, optical and electrical properties", **Journal of Electrical and Electronic Systems Research**, vol. 17, pp. 28-34, 2020. DOI: <https://doi.org/10.24191/jeesr.v17i1.009>
6. M.Z. Musa, M.H. Mamat, M.A. Othman, I.B. Shameem Banu, N. Vasimalai, **M.F. Malek**, M. Rusop, "Enhanced sensitivity of humidity sensor prepared using vertically aligned V-doped TiO₂ Nanorods Array", **Journal of Electrical and Electronic Systems Research**, vol. 17, pp. 68-73, 2020.
7. R. Mohamed, M.H. Mamat, **M.F. Malek**, A.S. Ismail, H.A. Rafeie, M. Rusop, "Controllable synthesis of Sn:ZnO/SnO₂ nanorods: pH-dependent growth for an ethanol gas sensor", **Journal of Materials Science: Materials in Electronics**, vol. 31, pp. 15394-15406, 2020. <https://doi.org/10.1007/s10854-020-04103-1>.
8. M.Z. Musa, M.H. Mamat, N. Vasimalai, I.B. Shameem Banu, **M.F. Malek**, M.K. Ahmad, A.B. Suriani, A. Mohamed, M. Rusop, "Fabrication and structural properties of flower-like TiO₂ nanorod array films grown on glass substrate without FTO layer", **Materials Letters**, vol. 273, pp. 127902, 2020.
9. Z. Sofea, **M.F. Malek**, R. Mohamed, M.H. Mamat, M. Rusop, "Optical and structural properties of Zinc Oxide:Graphene Oxide nanorods via sol-gel assisted immersion technique", **International Journal of Electroactive Materials**, vol.2, pp. 19-24, 2020.
10. M.H. Mamat, N. Parimon, A.S. Ismail, I.B. Shameem Banu, S. Sathik Basha, R.A. Rani, A.S. Zoolfakar, **M.F. Malek**, A.B. Suriani, M.K. Ahmad, M. Rusop, "Synthesis, structural and optical properties of mesostructured, X-doped NiO (x = Zn, Sn, Fe) nanoflake network films", **Materials Research Bulletin**, vol. 127, pp. 110860, 2020.
11. M.M. Yusoff, M.H. Mamat, M.A.R. Abdullah, A.S. Ismail, **M.F. Malek**, A.S. Zoolfakar, S.A.M. Al Junid, A.B. Suriani, A. Mohamed, M.K. Ahmad, I.B. Shameem Banu, M. Rusop, "Coupling heterostructure of thickness-controlled Nickel Oxide nanosheets layer and Titanium Dioxide nanorod arrays via immersion route for self-powered solid-state ultraviolet photosensor applications", **Measurement**, vol. 149, pp. 106982, 2020.
12. A.S. Ismail, M.H. Mamat, I.B. Shameem Banu, R. Amiruddin, **M.F. Malek**, N. Parimon, A.S. Zoolfakar, N.D. Md. Sin, A.B. Suriani, M.K. Ahmad, M. Rusop, "Structural modification of ZnO nanorod array through Fe-doping: ramification on UV and humidity sensing properties", **Nano-Structures & Nano-Objects**, vol. 18, pp. 100262, 2019.
13. M.A.R. Abdullah, M.H. Mamat, A.S. Ismail, **M.F. Malek**, A.B. Suriani, M.K. Ahmad, I.B. Shameem Banu, R. Amiruddin, M. Rusop, "Direct and seedless growth of Nickel Oxide nanosheet architectures on ITO using a novel solution immersion method", **Materials Letters**, vol. 236, pp. 460-464, 2019.

-
14. A.S. Ismail, M.H. Mamat, **M.F. Malek**, M.M. Yusoff, N.D. Md. Sin, S.S. Shariffudin, A.S. Zoolfakar, A.B. Suriani, M.K. Ahmad, I.B. Shameem Banu, M. Rusop, "Intrinsic ZnO/Al-doped ZnO homojunction: Structural and optical properties", **Indonesian Journal of Electrical Engineering and Computer Science**, vol. 12, pp. 393-398, 2018.
 15. A.S. Ismail, M.H. Mamat, I.B. Shameem Banu, **M.F. Malek**, M.M. Yusoff, R. Mohamed, W.R.W. Ahmad, M.A.R. Abdullah, N.D. Md. Sin, A.B. Suriani, M.K. Ahmad, M. Rusop, "Modulation of Sn concentration in ZnO nanorod array: intensification on the conductivity and humidity sensing properties", **Journal of Materials Science: Materials in Electronics**, vol. 29, pp. 12076–12088, 2018.
 16. A.S. Ismail, M.H. Mamat, **M.F. Malek**, M.M. Yusoff, R. Mohamed, N.D. Md. Sin, A.B. Suriani, M. Rusop, "Heterogeneous SnO₂/ZnO nanoparticulate film: Facile synthesis and humidity sensing capability", **Materials Science in Semiconductor Processing**, vol. 81, pp. 127-138, 2018.
 17. M.M. Yusoff, M.H. Mamat, A.S. Ismail, **M.F. Malek**, Z. Khusaimi, A.B. Suriani, A. Mohamed, M.K. Ahmad, M. Rusop, "Enhancing the performance of self-powered ultraviolet photosensor using rapid aqueous chemical-grown Aluminum-doped Titanium Oxide nanorod arrays as electron transport layer", **Thin Solid Films**, vol. 655, pp. 1-12, 2018.
 18. A.B. Suriani, A. Mohamed, N. Hashim, M.S. Rosmi, M.H. Mamat, **M.F. Malek**, M.J. Salifairus, H.P.S. Abdul Khalil, "Reduced Graphene Oxide/platinum hybrid counter electrode assisted by custom-made triple-tail surfactant and Zinc Oxide/Titanium Dioxide bilayer nanocomposite photoanode for enhancement of DSSCs photovoltaic performance", **OPTIK**, vol. 161, pp. 70-83, 2018.
 19. M.K. Ahmad, C.F. Soon, N. Nafarizal, A.B. Suriani, A. Mohamed, M.H. Mamat, **M.F. Malek**, M. Shimomura, K. Murakami, "Improvement in photo voltaic performance of rutile-phased TiO₂ nanorod/nanoflower-based dye-sensitized solar cell", **Journal of the Australian Ceramic Society**, vol. 54, pp. 663-670, 2018.
 20. A.S. Ismail, M.H. Mamat, M.M. Yusoff, **M.F. Malek**, A.S. Zoolfakar, R.A. Rani, A.B. Suriani, A. Mohamed, M.K. Ahmad, M. Rusop, "Enhanced humidity sensing performance using Sn-Doped ZnO nanorod Array/SnO₂ nanowire heteronetwork fabricated via two-step solution immersion", **Materials Letters**, vol. 210, pp. 258-262, 2018.
 21. A.B. Suriani, A. Mohamed, M.H. Mamat, N. Hashim, I.M. Isa, **M.F. Malek**, M.I. Kairi, A.R. Mohamed, M.K. Ahmad, "Improving the photovoltaic performance of DSSCs using a combination of mixed-phase TiO₂ nanostructure photoanode and agglomerated free reduced Graphene Oxide counter electrode assisted with hyperbranched surfactant", **OPTIK**, vol. 158, pp. 522-534, 2018.
 22. R. Mohamed, M.H. Mamat, A.S. Ismail, **M.F. Malek**, A.S. Zoolfakar, Z. Khusaimi, A.B. Suriani, A. Mohamed, M.K. Ahmad, M. Rusop, "Hierarchically assembled Tin-doped Zinc Oxide nanorods using low-temperature immersion route for low temperature ethanol sensing", **Journal of Materials Science: Materials in Electronics**, vol. 28, pp. 16292-16305, 2017.
 23. F.I.M. Fazli, M.K. Ahmad, C.F. Soon, N. Nafarizal, A.B. Suriani, A. Mohamed, M.H. Mamat, **M.F. Malek**, M. Shimomura and K. Murakami, "Dye-sensitized solar cell using pure anatase TiO₂ annealed at different temperatures", **OPTIK**, vol. 140, pp. 1063-1068, 2017.
 24. A.B. Suriani, M.D. Nurhafizah, A. Mohamed, M.H. Mamat, **M.F. Malek**, M.K. Ahmad, A. Pandikumar and N.M. Huang, "Enhanced photovoltaic performance using reduced Graphene Oxide assisted by triple-tail surfactant as an efficient and low-cost counter electrode for dye-sensitized solar cells", **OPTIK**, vol. 139, pp. 291-298, 2017.
 25. A.B. Suriani, M.D. Nurhafizah, A. Mohamed, A.K. Masrom, M.H. Mamat, **M.F. Malek**, M.K. Ahmad, M.S. Rosmi, M. Tanemura, "Electrical enhancement of radiation-vulcanized natural rubber latex added with reduced Gaphene Oxide additives for supercapacitor electrodes", **Journal of Materials Science**, vol. 52, pp. 6611–6622, 2017.
 26. A.B. Suriani, A.R. Dalila, A. Mohamed, M.S. Rosmi, M.H. Mamat, **M.F. Malek**, M.K. Ahmad, N. Hashim, I.M. Isa, T. Soga, M. Tanemura, "Parametric study of waste chicken fat catalytic chemical vapour deposition for controlled synthesis of vertically aligned carbon nanotubes", **Cogent Physics**, vol. 3, pp. 1247486, 2016.
 27. M.Z. Sahdan, **M.F. Malek**, M.S. Alias, S.A. Kamaruddin, C.A. Norhidayah, N. Sarip, N. Nafarizal, M. Rusop, "Metamorphosis of the ZnO buffer layer thicknesses on the performance of inverted organic solar cells", **Journal of Materials Science: Materials in Electronics**, vol. 27, pp. 12891-12902, 2016.
 28. A.B. Suriani, J. Norhafizah, A. Mohamed, M.H. Mamat, **M.F. Malek**, M.K. Ahmad, "Scaled-up prototype of carbon nanotube production system utilizing waste cooking palm oil precursor and its nanocomposite application as supercapacitor electrodes", **Journal of Materials Science: Materials in Electronics**, vol. 27, pp. 11599-11605, 2016.
-

-
29. M.K. Ahmad, S.M. Mokhtar, C.F. Soon, N. Nafarizal, A.B. Suriani, A. Mohamed, M.H. Mamat, **M.F. Malek**, M. Shimomura, K. Murakami, "Raman investigation of rutile-phased TiO₂ nanorods/nanoflowers with various reaction times using one step hydrothermal method", *Journal of Materials Science: Materials in Electronics*, vol. 27, pp. 7920-7926, 2016.
 30. A.S. Ismail, M.H. Mamat, N.D.M Sin, **M.F. Malek**, A.S. Zoolfakar, A.B. Suriani, A. Mohamed, M.K. Ahmad, M. Rusop, "Fabrication of hierarchical Sn-doped ZnO nanorod arrays through sonicated sol-gel immersion for room temperature, resistive-type humidity sensor applications", *Ceramics International*, vol. 42, pp. 9785-9795, 2016.
 31. R. Mohamed, J. Rouhi, **M.F. Malek**, A.S. Ismail, S.A.H. Alrokayan, H.A. Khan, Z. Khusaimi, M.H. Mamat, M.R. Mahmood, "Sol gel synthesized Zinc Oxide nanorods on single and Co-doped ZnO seed layer templates: Morphological, optical and electrical properties", *International Journal of Electrochemical Science*, vol. 11, pp. 2197-2204, 2016.
 32. M.H. Mamat, **M.F. Malek**, N.N. Hafizah, M.N. Asiah, A.B. Suriani, A. Mohamed, N. Nafarizal, M.K. Ahmad, M. Rusop, "Effect of oxygen flow rate on the ultraviolet sensing properties of Zinc Oxide nanocolumn arrays grown by radio frequency magnetron sputtering", *Ceramics International*, vol. 42, pp. 4107-4119, 2016.
 33. M.M. Yusoff, M.H. Mamat, **M.F. Malek**, A.B. Suriani, A. Mohamed M.K. Ahmad, S.A.H. Alrokayan, H.A. Khan, M. Rusop, "Growth of Titanium Dioxide nanorod arrays through the aqueous chemical route under a novel and facile low-cost method", *Materials Letters*, vol. 164, pp. 294-298, 2016.
 34. A.B. Suriani, R.N. Safitri, A. Mohamed, S. Alfarisa, **M.F. Malek**, M.H. Mamat, M.K. Ahmad, "Synthesis and field electron emission properties of waste cooking palm oil-based carbon nanotubes coated on different Zinc Oxide nanostructures", *Journal of Alloys and Compounds*, vol. 656, pp. 368-377, 2016.
 35. M.K. Ahmad, C.F. Soon, N. Nafarizal, A.B. Suriani, A. Mohamed, M.H. Mamat, **M.F. Malek**, M. Shimomura, K. Murakami, "Effect of heat treatment to the rutile based dye sensitized solar cell", *OPTIK*, vol. 127, pp. 4076-4079, 2016.
 36. A.B. Suriani, A.R. Dalila, A. Mohamed, M.H. Mamat, **M.F. Malek**, T. Soga, M. Tanemura, "Fabrication of vertically aligned carbon nanotubes-Zinc Oxide nanocomposites and their field electron emission enhancement", *Materials & Design*, vol. 90, pp. 186-195, 2016.
 37. **M.F. Malek**, M.H. Mamat, T. Soga, S.A. Rahman, S.A. Bakar, A.S. Ismail, R. Mohamed, S.A.H. Alrokayan, H.A. Khan, M.R. Mahmood, "Thickness-controlled synthesis of vertically aligned c-axis oriented ZnO nanorod arrays: Effect of growth time via novel dual sonication sol-gel process", *Japanese Journal of Applied Physics*, vol. 55, 01AE15, 2016.
 38. N.D. Sin, A.K. Shafura, **M.F. Malek**, M.H. Mamat, M. Rusop, "Enhancing the Sensitivity Properties of ZnO/SnO₂ Composite Nanorods Based Humidity Sensor via Thermal Chemical Vapour Deposition at Various Substrate Temperature", *Advanced Science Letters*, vol. 21, pp. 3689-3697, 2015.
 39. A. Ishak, K. Dayana, M.H. Mamat, **M.F. Malek**, M. Rusop, "Nano-structured amorphous carbon films using novel palm oil precursor for solar cell applications", *OPTIK*, vol. 126, pp. 1610-1612, 2015.
 40. A.B. Suriani, S. Alfarisa, A. Mohamed, A. Kamari, N. Hashim, I.M. Isa, M.H. Mamat, **M.F. Malek**, M.K. Ahmad, "Amorphous Al-Cu alloy nanowires decorated with carbon spheres synthesised from waste engine oil", *Journal of Alloys and Compounds*, vol. 642, pp. 111-116, 2015.
 41. A.B. Suriani, R.N. Safitri, A. Mohamed, S. Alfarisa, I.M. Isa, A. Kamari, N. Hashim, M.K. Ahmad, **M.F. Malek**, M. Rusop, "Enhanced field electron emission of flower-like Zinc Oxide on Zinc Oxide nanorods grown on carbon nanotubes", *Materials Letters*, vol. 149, pp. 66-69, 2015.
 42. M.Z. Sahdan, **M.F. Malek**, M.S. Alias, S.A. Kamaruddin, C.A. Norhidayah, N. Sarip, N. Nafarizal, M. Rusop, "Fabrication of inverted bulk heterojunction organic solar cells based on conjugated P3HT:PCBM using various thicknesses of ZnO buffer layer", *OPTIK*, vol. 126, pp. 645-648, 2015.
 43. **M.F. Malek**, M.H. Mamat, M.Z. Musa, T. Soga, S.A. Rahman, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Metamorphosis of strain/stress on optical band gap energy of ZAO thin films via manipulation of thermal annealing process", *Journal of Luminescence*, vol. 160, pp. 165-175, 2015.
-

-
44. I. Saurdi, M.H. Mamat, **M.F. Malek**, M. Rusop, "Preparation of aligned ZnO nanorod arrays on Sn-doped ZnO thin films by sonicated sol-gel immersion fabricated for dye-sensitized solar cell", **Advances in Materials Science and Engineering**, vol. 2014, Article ID 636725, 8 pages, 2014. doi:10.1155/2014/636725.
 45. A. Ishak, K. Dayana, M.H. Mamat, **M.F. Malek**, M. Rusop, "Deposition of amorphous carbon film using natural palm oil by bias assisted pyrolysis-CVD for solar cell applications", **International Journal of Power and Renewable Energy Systems**, vol. 1, pp. 12-23, 2014.
 46. **M.F. Malek**, M.H. Mamat, M.Z. Musa, Z. Khusaimi, M.Z. Sahdan, A.B. Suriani, A. Ishak, I. Saurdi, S.A. Rahman, M. Rusop, "Thermal annealing-induced formation of ZnO nanoparticles: minimum strain and stress ameliorate preferred c-axis orientation and crystal growth", **Journal of Alloys and Compounds**, vol. 610, pp. 575-588, 2014.
 47. M.H. Mamat, **M.F. Malek**, N.N. Hafizah, Z. Khusaimi, M.Z. Musa, M. Rusop, "Fabrication of an ultraviolet photoconductive sensor using novel nanostructured, nanohole-enhanced, aligned Aluminium-doped Zinc Oxide nanorod arrays at low immersion times", **Sensors and Actuators B: Chemical**, vol. 195, pp. 609-622, 2014.
 48. Nor Diyana Md Sin, **Mohd Firdaus Malek**, Mohamad Hafiz Mamat, Mohamad Rusop Mahmood, "Humidity sensor-based ZnO/SnO₂ nanocomposite synthesised by sol gel immersion method", **International Journal of Materials Engineering Innovation**, vol. 5, pp. 159-170, 2014.
 49. **M.F. Malek**, M.H. Mamat, Z. Khusaimi, M.Z. Sahdan, M.Z. Musa, A.R. Zainun, A.B. Suriani, N.D. Md Sin, S.B. Abd Hamid, M. Rusop, "Sonicated sol-gel preparation of nanoparticulate ZnO thin films with various deposition speeds: The highly preferred c-axis (002) orientation enhances the final properties", **Journal of Alloys and Compounds**, vol. 582, pp. 12-21, 2014.
 50. N.D. Md Sin, M.H. Mamat, **M.F. Malek**, M. Rusop, "Fabrication of nanocubic ZnO/SnO₂ film-based humidity sensor with high sensitivity by ultrasonic-assisted solution growth method at different Zn:Sn precursor ratios", **Applied Nanoscience**, vol. 4, pp. 829-838, 2014.
 51. **M.F. Malek**, M.Z. Sahdan, M.H. Mamat, M.Z. Musa, Z. Khusaimi, S.S. Husairi, N.D. Md Sin, M. Rusop, "A novel fabrication of MEH-PPV/Al:ZnO nanorod arrays based ordered bulk heterojunction hybrid solar cells", **Applied Surface Science**, vol. 275, pp. 75-83, 2013.
 52. **Mohd Firdaus Malek**, Mohamad Hafiz Mamat, Mohd Zainizan Sahdan, Musa Mohamed Zahidi, Zuraida Khusaimi, Mohamad Rusop Mahmood, "Influence of various sol concentrations on stress/strain and properties of ZnO thin films synthesised by sol-gel technique", **Thin Solid Films**, vol. 527, pp. 102-109, 2013.
 53. M.H. Mamat, Z. Khusaimi, M.Z. Musa, **M.F. Malek**, M. Rusop "Fabrication of ultraviolet photoconductive sensor using a novel Aluminium-doped Zinc Oxide nanorod-nanoflake network thin film prepared via ultrasonic-assisted sol-gel and immersion methods", **Sensors and Actuators A: Physical**, vol. 171, pp. 241-247, 2011.
 54. M.H. Mamat, Z. Khusaimi, M.Z. Musa, **M.F. Malek**, M. Rusop, "Ultraviolet sensing mechanism and characteristics of environmentally friendly aligned Aluminium doped Zinc Oxide nanorod arrays prepared using low cost solution growth method", **Materials Research Innovations (MRI)**, vol. 15, pp. s148-s152, 2011.
-

| Proceeding Paper

1. A.M. Nor, **M.F. Malek**, R. Mohamed, M.R. Mahmood, "Structural and optical properties of ZnO-TiO₂ nanocomposite synthesized with various molar ratios by hydrothermal technique", **Materials Science Forum**, vol. 1055, pp 147-154, 2022.
 2. N.J. Ahmad, R. Mohamed, **M.F. Malek**, N.I. Ikhsan, M.R. Mahmood, "Ultrasonic-assisted exfoliation of pristine graphite into few layers of Graphene sheets using NH₃ as intercalation agent", **Materials Science Forum**, vol. 1055, pp 111-121, 2022.
 3. K.M. Yusoff, S.H.N.I.D. Dasiano, **M.F. Malek**, M.R. Mahmood, N.A. Jani, N.A. Asli, "Effect of applied potential on the morphological and structural properties of ZnO nanostructures", **AIP Conference Proceedings**, vol. 2368, pp. 020002, 2021.
 4. M.A. Muhamad, R. Mohamed, **M.F. Malek**, M.H. Mamat, S.M. Sanusi, N.J. Ahmad, M.R. Mahmood, "Growth of Zinc Oxide thin film with Titanium Dioxide at different concentration prepared by hydrothermal method", **Recent Trends in Manufacturing and Materials Towards Industry 4.0**, pp. 971-979, 2021.
-

-
5. M.Z. Musa, M.H. Mamat, N. Vasimalai, I.B. Shameem Banu, N. Parimon, H. Hassan, **M.F. Malek**, M. Rusop, "Humidity Sensing Performance of V: TiO₂ 3D Nanostructurebased Humidity Sensor", IOP Conf. Series: Earth and Environmental Science, vol. 682, pp. 012073, 2021.
 6. N.E.A. Azhar, S. Munirah, R. Abdul Rani, A. Shuhaimi, **M.F. Malek**, M.H. Mamat, S.S. Shariffudin, M. Rusop, "Anodization voltage effect on physical properties of anodic TiO₂ nanotube arrays film", AIP Conference Proceedings, vol. 306, pp. 020015, 2020.
 7. R. Mohamed, N.F.A. Rasul, N. Yahya, M.H. Mamat, **M.F. Malek**, A.S. Ismail, M.M. Yusoff, S.A. Senawi, M. Rusop, "The influence of sintering temperature to the structural and densification of silica doped Zinc Oxide for varistor application", AIP Conference Proceedings, vol. 2151, pp. 020033, 2019.
 8. R. Mohamed, N. Osman, N. Yahya, M.H. Mamat, **M.F. Malek**, A.S. Ismail, M.M. Yusoff, Z. Khusaimi, M. Rusop, "Structural and electrical properties of ZnO and SiO₂ doped ZnO powder for varistor application", AIP Conference Proceedings, vol. 2151, pp. 020032, 2019.
 9. A.S. Ismail, M.H. Mamat, **M.F. Malek**, M.A.R. Abdullah, W.R.W. Ahmad, M.M. Yusoff, R. Mohamed, N.D. Md. Sin, A.B. Suriani, M. Rusop, "UV photoresponsivity of sol-gel derived Al-doped ZnO nanorod array", AIP Conference Proceedings, vol. 2151, pp. 020007, 2019.
 10. A.S. Ismail, M.H. Mamat, **M.F. Malek**, M.A.R. Abdullah, W.R.W. Ahmad, M.M. Yusoff, R. Mohamed, N.D. Md. Sin, A.B. Suriani, M. Rusop, "Fabrication of Al-doped ZnO nanorod array using different type and thickness of metal contact", AIP Conference Proceedings, vol. 2151, pp. 020006, 2019.
 11. A.S. Ismail, M.H. Mamat, **M.F. Malek**, M.A.R. Abdullah, W.R.W. Ahmad, M.M. Yusoff, R. Mohamed, N.D. Md. Sin, A.B. Suriani, M. Rusop, "Effect of SnO₂ coating to the properties of ZnO nanorod array", AIP Conference Proceedings, vol. 2151, pp. 020005, 2019.
 12. N.H. Sulimai, S.M. Jafar, Z. Khusaimi, **M.F. Malek**, S. Abdullah, R.A. Rani, M.R. Mahmood, "Investigation on structural properties of calcium carbonate synthesized by precipitation, gas diffusion, and thermal chemical vapour deposition method", 2019 IEEE Regional Symposium on Micro and Nanoelectronics (RSM), pp. 75-78, 2019.
 13. N.H. Sulimai, Rozina Abdul Rani, M.J. Salifairus, M.H. Mamat, **M.F. Malek**, A.S. Zoolfakar, Z. Khusaimi, S. Abdullah, Haseeb Khan, Salman Alrokayan, M. Rusop, "Effect of different metal contact distance and light on electrical properties of calcium carbonate thin film", 2018 IEEE International Conference on Semiconductor Electronics (ICSE), pp. 73-76, 2018.
 14. A.S. Ismail, M.H. Mamat, **M.F. Malek**, N.E.A. Azhar, N.H. Sulimai, R. Abdul Rani, A.S. Zoolfakar, M. Rusop, "Facile synthesis of N-doped ZnO nanorod arrays: Towards enhancing the UV-sensing performance", 2018 IEEE International Conference on Semiconductor Electronics (ICSE), pp. 77-80, 2018.
 15. N.E.A. Azhar, S.S. Shariffudin, R. Abdul Rani, A.S. Zoolfakar, **M.F. Malek**, Salman Alrokayan, Haseeb A. Khan, M. Rusop, "Effect of ZnO composition on the electrical properties of MEH-PPV: ZnO nanocomposites thin film via spin coating", 2018 IEEE International Conference on Semiconductor Electronics (ICSE), pp. 136-139, 2018.
 16. A. Ishak, A.N. Fadzilah, K. Dayana, I. Saurdi, **M.F. Malek**, Z. Nurbaya, A.K. Shafura, M. Rusop, "Raman spectra boron doped amorphous carbon thin film deposited by bias assisted-CVD", AIP Conference Proceedings, 1963, 020047, 2018. <https://doi.org/10.1063/1.5036893>.
 17. M.M. Yusoff, M.H. Mamat, **M.F. Malek**, M.A.R. Abdullah, A.S. Ismail, S.A. Saidi, R. Mohamed, A.B. Suriani, Z. Khusaimi, M. Rusop, "Sn-doped TiO₂ nanorod arrays produced by facile one step aqueous chemical route: Structural characterization", AIP Conference Proceedings, 1963, 020071, 2018. <https://doi.org/10.1063/1.5036917>.
 18. A.S. Ismail, M.H. Mamat, **M.F. Malek**, S.A. Saidi, M.M. Yusoff, R. Mohamed, N.D. Md. Sin, A.B. Suriani, M. Rusop, "Structural, optical, and electrical properties of Ni-doped ZnO nanorod arrays prepared via sonicated sol-gel immersion method", AIP Conference Proceedings, 1963, 020029, 2018. <https://doi.org/10.1063/1.5036875>.
 19. R. Mohamed, M.H. Mamat, **M.F. Malek**, A.S. Ismail, M.M. Yusoff, M.N. Asiah, Z. Khusaimi, M. Rusop, "Effect of different coating layer on the topography and optical properties of ZnO nanostructured", AIP Conference Proceedings, 1963, 020048, 2018. <https://doi.org/10.1063/1.5036894>.
 20. A. Ishak, A.N. Fadzilah, K. Dayana, I. Saurdi, **M.F. Malek**, Z. Nurbaya, A.K. Shafura, M. Rusop, "Raman studied of undoped amorphous carbon thin film deposited by bias assisted-CVD", AIP Conference Proceedings, 1963, 020044, 2018. <https://doi.org/10.1063/1.5036890>.
-

-
21. M.M. Yusoff, M.H. Mamat, **M.F. Malek**, M.A.R. Abdullah, A.S. Ismail, S.A. Saidi, R. Mohamed, A.B. Suriani, Z. Khusaimi, M. Rusop, "Synthesis of p-type Nickel Oxide nanosheets on n-type Titanium Dioxide nanorod arrays for pn heterojunction-based UV photosensor", AIP Conference Proceedings, 1963, 020016, 2018. <https://doi.org/10.1063/1.5036862>.
 22. A.S. Ismail, M.H. Mamat, **M.F. Malek**, S.A. Saidi, M.M. Yusoff, R. Mohamed, N.D. Md. Sin, A.B. Suriani, M. Rusop, "Effect of growth time to the properties of Al-doped ZnO nanorod arrays", AIP Conference Proceedings, 1963, 020011, 2018. <https://doi.org/10.1063/1.5036857>.
 23. R. Mohamed, M.H. Mamat, **M.F. Malek**, A.S. Ismail, M.M. Yusoff, S.A. Syamsir, Z. Khusaimi, M. Rusop, "Effect of co-doping process on topography, optical and electrical properties of ZnO nanostructured", AIP Conference Proceedings, 1963, 020028, 2018. <https://doi.org/10.1063/1.5036874>.
 24. **M.F. Malek**, R. Mohamed, M.H. Mamat, A.S. Ismail, M.M. Yusoff, M. Rusop, "Effect of various SnO₂ pH on ZnO/SnO₂-composite film via immersion technique", AIP Conference Proceedings, 1963, 020040, 2018. <https://doi.org/10.1063/1.5036886>.
 25. S.A. Saidi, M.H. Mamat, A.S. Ismail, **M.F. Malek**, M.M. Yusoff, N.D. Md. Sin, A.S. Zoolfakar, Z. Khusaimi, M. Rusop, "Effect of intrinsic Zinc Oxide coating on the properties of Al-doped Zinc Oxide nanorod arrays", AIP Conference Proceedings, 1963, 020038, 2018. <https://doi.org/10.1063/1.5036884>.
 26. A.S. Ismail, M.H. Mamat, **M.F. Malek**, S.A. Saidi, M.M. Yusoff, R. Mohamed, N.D. Md. Sin, A.B. Suriani, M. Rusop, "Polyethylene glycol assisted growth of Sn-doped ZnO nanorod arrays prepared via sol-gel immersion method", AIP Conference Proceedings, 1963, 020046, 2018. <https://doi.org/10.1063/1.5036892>.
 27. **M.F. Malek**, M.H. Mamat, A.S. Ismail, M.M. Yusoff, R. Mohamed, M. Rusop, "ZnO-based transparent conductive thin films via sonicated-assisted sol-gel technique", AIP Conference Proceedings, 1963, 020055, 2018. <https://doi.org/10.1063/1.5036901>.
 28. M.M. Yusoff, M.H. Mamat, **M.F. Malek**, N. Othman, A.S. Ismail, S.A. Saidi, R. Mohamed, A.B. Suriani, Z. Khusaimi, M. Rusop, "Effect of the polymeric coating thickness on the photocurrent performance of Titanium Dioxide nanorod arrays-polyaniline composite-based UV photosensor", AIP Conference Proceedings, 1963, 020041, 2018. <https://doi.org/10.1063/1.5036887>.
 29. M.M. Yusoff, M.H. Mamat, **M.F. Malek**, M.A.R. Abdullah, A.S. Ismail, S.A. Saidi, R. Mohamed, A.B. Suriani, Z. Khusaimi, M. Rusop, "Preparation of TNAs/NiO pn heterojunction and their applications in UV photosensor", AIP Conference Proceedings, 1963, 020070, 2018. <https://doi.org/10.1063/1.5036916>.
 30. S.A. Saidi, M.H. Mamat, A.S. Ismail, **M.F. Malek**, M.M. Yusoff, N.D. Md. Sin, A.S. Zoolfakar, Z. Khusaimi, M. Rusop, "Humidity sensing properties of Al-doped Zinc Oxide coating films", AIP Conference Proceedings, 1963, 020017, 2018. <https://doi.org/10.1063/1.5036863>.
 31. S.A. Saidi, M.H. Mamat, A.S. Ismail, **M.F. Malek**, M.M. Yusoff, W.R.W. Ahmad, N.D. Md. Sin, A.S. Zoolfakar, Z. Khusaimi, M. Rusop, "Surface topology and optical properties of nanostructured Zinc Oxide thin films prepared using two-stage solution immersion method", IOP Conference Series: Materials Science and Engineering, 340, 012011, 2018. doi:10.1088/1757-899X/340/1/012011.
 32. A. Ishak, K. Dayana, I. Saurdi, **M.F. Malek**, M. Rusop, "Hydrogenated nanostructure boron doped amorphous carbon films by DC bias", IOP Conf. Series: Materials Science and Engineering, 341, 012017, 2018. doi:10.1088/1757-899X/341/1/012017.
 33. M.K. Ahmad, N.A. Marzuki, C.F. Soon, N. Nafarizal, R. Sanudin, A.B. Suriani, A. Mohamed, M. Shimomura, K. Murakami, M.H. Mamat, **M.F. Malek**, "Effect of anneal temperature on Fluorine doped Tin Oxide (FTO) nanostructured fabricated using hydrothermal method", AIP Conference Proceedings, 1788, 030044, 2017.
 34. **M.F. Malek**, M.H. Mamat, A.S. Ismail, R. Mohamed, M.J. Salifairus, Z. Khusaimi, M. Rusop, "Effects of Mg and Cu dopants on the properties of Zinc Oxide nanorod arrays", Science Letters, vol. 11, pp. 36-40, 2017.
 35. Ruziana Mohamed, Khairunisa Md Salleh, **Mohd Firdaus Malek**, Mohamad Hafiz Mamat, Yahya Norihan, Zuraida Khusaimi, Mohamad Rusop Mahmood, "The influence of growth duration process on morphology and electrical properties of SnO₂ nanostructured films", Solid State Phenomena, vol. 268, pp. 274-278, 2017.
 36. **M.F. Malek**, A.S. Ismail, M.M. Yusoff, R. Mohamed, M.K. Ahmad, M. Rusop, "Influence of polyethylene glycol on the properties of TiO₂ films by squeegee method", EDUCATUM JSMT, vol. 3, pp. 16-21, 2016.
 37. M.M. Yusoff, M.H. Mamat, **M.F. Malek**, A.S. Ismail, S.A. Saidi, M. Rusop, "Low temperature growth of rutile Titanium Dioxide nanorod arrays using a novel facile method for UV photosensor application", 2016 IEEE Student Conference on Research and Development (SCOREd), pp. 1-6, 2016.
-

-
38. Nur Izzati binti Izam, Tengku Norazman Tengku Abd Aziz, Rohanieza Abdul Rahman, **Mohd Firdaus Malek**, Sukreen Hana Herman, Zurita Zulkifli, "The effect of dip-coating speed on Graphene decorated ZnO films for memristor application", 2016 IEEE Student Conference on Research and Development (SCORED), pp. 1-6, 2016.
 39. S.A. Saidi, M.H. Mamat, A.S. Ismail, M.M. Yusoff, **M.F. Malek**, N.D. Md Sin, A.S. Zoolfakar, Z. Khusaimi, M. Rusop, "Effect of deposition speed on properties of Zinc Oxide nanoparticle decorated Zinc Oxide nanorod arrays", 2016 IEEE Student Conference on Research and Development (SCORED), pp. 1-6, 2016.
 40. A.S. Ismail, M.H. Mamat, N.D. Md Sin, **M.F. Malek**, S.A. Saidi, M.M. Yusoff, M. Rusop, "Structural and optical properties of N-doped ZnO nanorod arrays prepared using sol-gel immersion method", 2016 IEEE Student Conference on Research and Development (SCORED), pp. 1-6, 2016.
 41. M.M. Yusoff, M.H. Mamat, **M.F. Malek**, A.S. Ismail, S.A. Saidi, M. Rusop, "Fabrication of Titanium Dioxide nanorod arrays-based UV photosensor from low-concentration of Titanium (IV) Butoxide with hydrochloric acid", 2016 IEEE Student Conference on Research and Development (SCORED), pp. 1-6, 2016.
 42. M.A.R. Abdullah, M.H. Mamat, A.S. Ismail, **M.F. Malek**, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Preparation on Nickel Oxide thin films at different annealing temperature by sol-gel spin coating method", AIP Conference Proceeding of the 2nd International Conference on Nano-Electronic Technology Devices and Materials (IC-NET 2015), 1733, 020013, 2016.
 43. I. Saurdi, A.K. Shafura, Najwa Ezira Ahmed Azhar, A. Ishak, M.H. Abdullah, **M.F. Malek**, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Effect of Nb-doped TiO₂ on nanocomposited aligned ZnO nanorod/TiO₂:Nb for dye-sensitised solar cells", AIP Conference Proceeding of the 2nd International Conference on Nano-Electronic Technology Devices and Materials (IC-NET 2015), 1733, 020064, 2016.
 44. I. Saurdi, A.K. Shafura, Najwa Ezira Ahmed Azhar, A. Ishak, M.H. Abdullah, **M.F. Malek**, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Effect of TiO₂ thickness on nanocomposited aligned ZnO nanorod/TiO₂ for dye-sensitised solar cells", AIP Conference Proceeding of the 2nd International Conference on Nano-Electronic Technology Devices and Materials (IC-NET 2015), 1733, 020063, 2016.
 45. A.S. Ismail, M.H. Mamat, **M.F. Malek**, N.D. Md Sin, R. Mohamed, M.A.R. Abdullah, M. Rusop, "Effect of thermal implying during ageing process of nanorods growth on the properties of Zinc Oxide nanorod arrays", AIP Conference Proceeding of the 2nd International Conference on Nano-Electronic Technology Devices and Materials (IC-NET 2015), 1733, 020009, 2016.
 46. A.S. Ismail, M.H. Mamat, **M.F. Malek**, N.D. Md Sin, R. Mohamed, M.A.R. Abdullah, M. Rusop, "A study on different morphological structural of Zinc Oxide nanostructures for humidity sensing application", AIP Conference Proceeding of the 2nd International Conference on Nano-Electronic Technology Devices and Materials (IC-NET 2015), 1733, 020010, 2016.
 47. **M.F. Malek**, M.H. Mamat, M.Z. Musa, I. Saurdi, A. Ishak, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Optimization of processing parameters on the controlled growth of c-axis oriented ZnO nanorod arrays", AIP Conference Proceeding, 1733, 020015, 2016.
 48. A. Ishak, **M.F. Malek**, M.H. Mamat, M. Rusop, "Influence of nitrogen gas flow rate on nitrogenated amorphous carbon film for solar cell applications", *Advanced Materials Research*, 1109, pp. 138-142, 2015.
 49. A. Ishak, **M.F. Malek**, M.H. Mamat, M. Rusop, "Properties of boron doped amorphous carbon films at -30V and -50 V for carbon based solar cell applications", *Advanced Materials Research*, 1109, pp. 143-147, 2015.
 50. **M.F. Malek**, M.H. Mamat, M.Z. Musa, M. Rusop, "Thermal annealing-activated crystallinity metastasis of Al:ZnO thin films", *Advanced Materials Research*, 1109, pp. 181-185, 2015.
 51. **M.F. Malek**, M.H. Mamat, M.Z. Musa, M. Rusop, "Influence of thermal annealing on the properties of sol-gel-derived Al:ZnO thin films", *Advanced Materials Research*, 1109, pp. 186-190, 2015.
 52. I. Saurdi, M.H. Mamat, A.K. Shafura, **M.F. Malek**, A. Ishak, M. Rusop, "Physical and electrical properties of nano-structured Sn-doped Zinc Oxide thin film at different Sn doping concentrations", *Advanced Materials Research*, 1109, pp. 276-280, 2015.
 53. I. Saurdi, M.H. Mamat, A.K. Shafura, **M.F. Malek**, A. Ishak, M. Rusop, "Photovoltaic properties of dye-sensitized solar cells using novel aligned ZnO nanorod arrays on Sn-doped ZnO seeded catalyst with different aspect ratio", *Advanced Materials Research*, 1109, pp. 281-285, 2015.
 54. I. Saurdi, M.H. Mamat, **M.F. Malek**, A. Ishak, M. Rusop, "Structural, optical and electrical properties of multiple layers nano-structured Zinc Oxide thin film", *Advanced Materials Research*, 1109, pp. 401-404, 2015.
-

-
55. A.S. Ismail, **M.F. Malek**, M.A.R. Abdullah, M.H. Mamat, M. Rusop, "Effect of polyethylene glycol concentration on the formation of Aluminium-doped Zinc Oxide nanorods", *Advanced Materials Research*, 1109, pp. 471-475, 2015.
 56. A.S. Ismail, **M.F. Malek**, M.A.R. Abdullah, M.H. Mamat, M. Rusop, "Structural properties of Stannic Oxide coated Aluminium-doped Zinc Oxide nanorods", *Advanced Materials Research*, 1109, pp. 476-480, 2015.
 57. A.S. Ismail, **M.F. Malek**, M.A.R. Abdullah, M.H. Mamat, M. Rusop, "Enhanced performance of Al-doped Zinc Oxide nanorods at different concentration using sol-gel preparation methods towards humidity sensing application", *Advanced Materials Research*, 1109, pp. 519-523, 2015.
 58. A.S. Ismail, **M.F. Malek**, M.A.R. Abdullah, M.H. Mamat, M. Rusop, "Synthesized of highly sensitive Tin (IV)-doped Zinc Oxide humidity sensor", *Advanced Materials Research*, 1109, pp. 559-563, 2015.
 59. Mohd Zainizan Sahdan, Mohamad Syafiq Alias, Jais Lias, **Mohd Firdaus Malek**, Nafarizal Nayan, "Influence of different solvents on the formation of uniform Titanium Dioxide (TiO₂) thin film by sol-gel," *Applied Mechanics and Materials*, 773-774, pp. 667-671, 2015.
 60. M.H. Mamat, **M.F. Malek**, N.N. Hafizah, N.D. Md Sin, I. Saurdi, A.B. Suriani, N. Nafarizal, M.K. Ahmad, J. Rouhi, M. Rusop, "Fabrication of intrinsic Zinc Oxide-coated, Aluminium-doped Zinc Oxide nanorod array-based ultraviolet photoconductive sensors," *Applied Mechanics and Materials*, 773-774, pp. 696-700, 2015.
 61. **M.F. Malek**, M.H. Mamat, N.D. Md Sin, M. Rusop, "Effects of Sn dopant on structural and optical properties of ZnO thin film prepared by sol-gel route", *Applied Mechanics and Materials*, 773-774, pp. 617-621, 2015.
 62. **Mohd Firdaus Malek**, Mohamad Hafiz Mamat, Mohd Zainizan Sahdan, Musa Mohamed Zahidi, Zuraida Khusaimi, Mohamad Rusop Mahmood, "Growth and characterisation of nanocrystalline ZnO thin films by dip coating technique", *Advanced Materials Research*, vol. 832, pp. 368-373, 2014.
 63. **Mohd Firdaus Malek**, Mohamad Hafiz Mamat, Musa Mohamed Zahidi, Mohd Zainizan Sahdan, Zuraida Khusaimi, Mohamad Rusop Mahmood, "Formation of ZnO nanoparticulate thin film: Sol-gel synthesis and characterisation", *Advanced Materials Research*, vol. 832, pp. 362-367, 2014.
 64. M.H. Mamat, N.D. Md Sin, I. Saurdi, N.N. Hafizah, **M.F. Malek**, M.N. Asiah, Z. Khusaimi, Z. Habibah, N. Nafarizal, M. Rusop, "Investigation of stress and electrical properties of air-annealed and oxygen-annealed Aluminium-doped Zinc Oxide nanorod arrays", *Advanced Materials Research*, vol. 832, pp. 303-309, 2014.
 65. M.H. Mamat, N.D. Md Sin, I. Saurdi, N.N. Hafizah, **M.F. Malek**, M.N. Asiah, Z. Khusaimi, Z. Habibah, N. Nafarizal, M. Rusop, "Performance of ultraviolet photoconductive sensor based on Aluminium-doped Zinc Oxide nanorod-nanoflake network thin film using aluminium contacts", *Advanced Materials Research*, vol. 832, pp. 298-302, 2014.
 66. A. Ishak, **M.F. Malek**, M. Rusop, "Properties of boron doped amorphous carbon films by carbon palm oil for carbon based solar cell applications", *Proceeding of the 2014 IEEE International Conference on Semiconductor Electronics (ICSE 2014)*, pp. 424-427, 2014.
 67. N.D. Md Sin, S. Ahmad, **M.F. Malek**, M.H. Mamat, M. Rusop, "Improvement sensitivity humidity sensor based on ZnO/SnO₂ cubic structure", *Proceeding of the 2013 International Conference on Manufacturing, Optimization, Industrial and Material Engineering (MOIME 2013)*, vol. 46, pp. 012005, 2013.
 68. **Mohd Firdaus Malek**, Mohamad Hafiz Mamat, Musa Mohamed Zahidi, Mohd Zainizan Sahdan, Mohamad Rusop Mahmood, "Factors affecting the properties of Zinc Oxide thin films prepared by dip-coating method: A review", *Advanced Materials Research*, vol. 667, pp. 193-199, 2013.
 69. Mohamad Hafiz Mamat, Wan Syafinaz Wan Anwar, Musa Mohamed Zahidi, Zuraida Khusaimi, **Mohd Firdaus Malek**, Salina Muhammad, Diyana Md Sin, Mohamad Rusop, "Effect of oxygen flow rate on the properties of nanocolumnar ZnO thin films prepared using radio frequency magnetron sputtering system for ultraviolet sensor application", *Advanced Materials Research*, vol. 364, pp. 1-6, 2012.
 70. M.Z. Musa, M.H. Mamat, M.H. Abdullah, **M.F. Malek**, A.M. Nor, N.A. Rasheid, U.M. Noor, M. Rusop, "A modified sol-gel method for preparing nanostructured Nb-doped TiO₂ DSSC photoanode", *Proceeding of the 2012 IEEE Symposium on Humanities, Science and Engineering Research (SHUSER 2012)*, pp. 617-620, 2012.
-

-
71. **Mohd Firdaus Malek**, Mohd Zainizan Sahdan, Mohd Hafiz Mamat, Musa Mohamed Zahidi, Zuraida Khusaimi, Mohamad Rusop Mahmood, "Preparation of nano structured ZnO thin films with c-axis (002) orientation via sol-gel dip-coating technique" Proceeding of the International Conference for Nano materials Synthesis and Characterization 2011 (INSC 2011), 2011.
 72. Mohd Zainizan Sahdan, **Mohd Firdaus Malek**, Mohamad Rusop, "Synthesis and characterization of Zinc Oxide nano fibers for high efficiency optoelectronic applications", Proceeding of the International Conference for Nano materials Synthesis and Characterization 2011 (INSC 2011), 2011.
 73. **M.F. Malek**, S. A. Arbain, M.H. Mamat, M.Z. Sahdan, M.Z. Musa, Z. Khusaimi, A.S. Rodzi, M. Rusop, "Photoresponse characteristics of nanostructured Aluminum doped Zinc Oxide thin films", Proceedings of the 2011 IEEE International Conference on Electronic Devices, Systems and Applications (ICEDSA 2011), pp. 322-327, 2011.
 74. M.Z. Musa, Z.F. Ameran, M.H. Mamat, **M.F. Malek**, N.Abd. Rashied, U.M. Noor, M. Rusop, "Effects of cobalt doping concentration on the structural, electrical, and optical properties of Titanium Dioxide thin films", Proceedings of the 2011 IEEE International Conference on Electronic Devices, Systems and Applications (ICEDSA 2011), pp. 339-342, 2011.
 75. M.H. Mamat, Z. Khusaimi, **M.F. Malek**, M.Z. Musa, M. Rusop, "Ultra-violet sensing characteristic and field emission properties of vertically aligned Aluminum doped Zinc Oxide nanorod arrays", American Institute of Physics (AIP) Conference Proceedings, vol. 1341, pp. 440-445, 2011.
 76. M.Z. Musa, **M.F. Malek**, M.H. Mamat, N. Abd. Rashied, U.M. Noor, M. Rusop, "Effects of spin coating speed on nanostructured Titanium Dioxide (TiO₂) thin films properties", American Institute of Physics (AIP) Conference Proceedings, vol. 1341, pp. 33-36, 2011.
 77. **Mohd Firdaus Bin Malek**, Musa Bin Mohamed Zahidi, Mohamad Hafiz Bin Mamat, Zainizan Bin Sahdan, Zuraida Binti Khusaimi, Mohamad Rusop Bin Mahmood, "Electrical and optical properties of nanostructured Zinc Oxide thin films via sol-gel coating", Proceedings of the International Conference on Enabling Science and Nanotechnology (ESciNano 2010). doi: 10.1109/ESCINANO.2010.5701017.
 78. M.Z. Musa, **M.F. Malek**, M.H. Mamat, N. Abd. Rashied, U.M. Noor, M. Rusop, "Effects of spin coating speed on nanostructured Titanium Dioxide thin films properties", Proceedings of the International Conference on Enabling Science and Nanotechnology (ESciNano 2010). doi: 10.1109/ESCINANO.2010.5701016.
 79. S.S. Shariffudin, M.N. Masri, A. Abdul Aziz, **M.F. Malek**, M. Rusop, "Photoresponse characteristics of Aluminium doped Zinc Oxide thin films", Proceedings of the 2010 IEEE International Conference on Semiconductor Electronics (ICSE 2010), pp. 195-198, 2010.
 80. **M.F. Malek**, N. Zakaria, M.Z. Sahdan, M.H. Mamat, Z. Khusaimi, M. Rusop, "Electrical properties of ZnO prepared by sol-gel technique", Proceedings of the 2010 IEEE International Conference on Electronic Devices, Systems and Applications (ICEDSA 2010), pp. 384-387, 2010.
 81. **M.F. Malek**, N. Zakaria, M.Z. Sahdan, M.H. Mamat, Z. Khusaimi, M. Rusop, "Effects of different precursor's concentration on the properties of Zinc Oxide thin films", American Institute of Physics (AIP) Conference Proceedings, vol. 1250, pp. 432-435, 2010.
 82. **M.F. Malek**, M. Alfah, Z. Khusaimi, M.H. Mamat, M.Z. Sahdan, M. Rusop, "Effect of Mg dopant percentage on the photoluminescence property of nano-structured ZnO thin films deposited on Si substrate", American Institute of Physics (AIP) Journal, vol. 1136, pp. 616-620, 2009.
 83. **M.F. Malek**, H. Zainuddin, S.N.M. Rejab, S.N. Shaari, S. Shaari, A.M. Omar, M. Rusop, "Monitoring of a 1 kWp solar photovoltaic system", American Institute of Physics (AIP) Conference Proceedings, vol. 1136, pp. 621-626, 2009.
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LIST OF PRESENTED PAPER

□ | International Conference

1. **M.F. Malek**, M.H. Mamat, A.S. Ismail, R. Mohamed, M.M. Yusoff, M. Rusop, "The effect of scandium doping on the morphology and optical property of nanostructured Zinc Oxide", Presented at 9th International Conference on Nanoscience and Nanotechnology 2018 (NANO-SciTech 2018), Institute of Business Excellence (IBE), Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 26 Feb-1 Mar 2018.
2. **M.F. Malek**, R. Mohamed, M.H. Mamat, A.S. Ismail, M.M. Yusoff, M. Rusop, "Effect of various SnO₂ pH on ZnO/SnO₂-composite film via immersion technique", Presented at 8th International Conference on Nanoscience and Nanotechnology 2017 (NANO-SciTech 2017), Institute of Business Excellence (IBE), Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 24-27 Feb 2017.
3. **M.F. Malek**, M.H. Mamat, A.S. Ismail, M.M. Yusoff, R. Mohamed, M. Rusop, "ZnO-based transparent conductive thin films via sonicated-assisted sol-gel technique", Presented at 8th International Conference on Nanoscience and Nanotechnology 2017 (NANO-SciTech 2017), Institute of Business Excellence (IBE), Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 24-27 Feb 2017.
4. **M.F. Malek**, M.S. Khairudin, M.H. Mamat, A.S. Ismail, M.M. Yusoff, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "The decisive role of polyethyleneglycol content on the properties of TiO₂ thin films for window layer of solar cells", Presented at International Seminar on Nanoscience & Nanotechnology 2016 (NANO SciTech 2016), Institute of Leadership, Assessment and Development (ILEAD), Universiti Teknologi MARA (UiTM) Shah Alam, Selangor Malaysia, 26-29 Feb 2016.
5. **M.F. Malek**, M.S. Khairudin, M.H. Mamat, M.M. Yusoff, A.S. Ismail, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Modified sol-gel synthesis of Titanium Dioxide nanoparticles for dye-sensitized solar cells application", Presented at International Seminar on Nanoscience & Nanotechnology 2016 (NANO SciTech 2016), Institute of Leadership, Assessment and Development (ILEAD), Universiti Teknologi MARA (UiTM) Shah Alam, Selangor Malaysia, 26-29 Feb 2016.
6. **M.F. Malek**, M.H. Mamat T. Soga, S.A. Rahman, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Thickness-controlled synthesis of vertically aligned *c*-axis oriented ZnO nanorod array: Effect of growth time deposition via sonicated sol-gel immersion method", Presented at 7th International Symposium on Advanced Plasma Science and Its Applications for Nitrides and Nanomaterials (ISPlasma 2015), Nagoya University, Nagoya, Japan, 26-31 March 2015.
7. **M.F. Malek**, M.H. Mamat, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Effect of growth time on ZnO nanorod arrays by a facile sonicated sol-gel immersion technique", Presented at 2nd International Conference on Nano-Electronic Technology Devices and Materials (IC-NET 2015), Institute of Leadership and Quality Management (ILQAM), Universiti Teknologi MARA (UiTM) Shah Alam, Selangor Malaysia, 27 February-2 March 2015.
8. **M.F. Malek**, M.H. Mamat, Salman A.H. Alrokayan, Haseeb A. Khan, M. Rusop, "Optimization of processing parameters on the controlled growth of *c*-axis oriented ZnO nanorod arrays", Presented at 2nd International Conference on Nano-Electronic Technology Devices and Materials (IC-NET 2015), Institute of Leadership and Quality Management (ILQAM), Universiti Teknologi MARA (UiTM) Shah Alam, Selangor Malaysia, 27 February-2 March 2015.
9. **M.F. Malek**, M.H. Mamat, N.D. Md Sin, M. Rusop, "Effects of Sn dopant on structural and optical properties of ZnO thin film prepared by sol-gel route", Presented at International Integrated Engineering Summit 2014 (IIES 2014), Dewan Sultan Ibrahim, Universiti Tun Hussein Onn Malaysia (UTHM), Batu Pahat, Johor, Malaysia, 1-4 December 2014.
10. **M.F. Malek**, M.H. Mamat, M.Z. Musa, M. Rusop, "Thermal annealing-activated crystallinity metastasis of Al:ZnO thin films", Presented at Malaysia-Japan International Conference on Nanoscience, Nanotechnology and Nanoengineering 2014 (NANO-SciTech 2014 and IC-NET 2014), Institute of Leadership and Quality Management (ILQAM), Universiti Teknologi MARA (UiTM) Shah Alam, Selangor Malaysia, 28 February-3 March 2014.
11. **M.F. Malek**, M.H. Mamat, M.Z. Musa, M. Rusop, "Influence of thermal annealing on the properties of sol-gel-derived Al:ZnO thin films", Presented at Malaysia-Japan International Conference on Nanoscience, Nanotechnology and Nanoengineering 2014 (NANO-SciTech 2014 and IC-NET 2014), Institute of Leadership and Quality Management (ILQAM), Universiti Teknologi MARA (UiTM) Shah Alam, Selangor Malaysia, 28 February-3 March 2014.

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12. **M.F. Malek**, M.H. Mamat, M.Z. Sahdan, M.Z. Musa, Z. Khusaimi, M. Rusop, "Formation of ZnO nanoparticulate thin film: Sol gel synthesis and characterisation", Presented at Nanoscience and Nanotechnology International Conference 2013 (NANO-SciTech 2013), Grand Bluewave Hotel, Shah Alam, Selangor, Malaysia, 1-4 March 2013.
 13. **M.F. Malek**, M.H. Mamat, M.Z. Sahdan, M.Z. Musa, Z. Khusaimi, M. Rusop, "Growth and characterisation of nanocrystalline ZnO thin films by dip coating technique", Presented at Nanoscience and Nanotechnology International Conference 2013 (NANO-SciTech 2013), Grand Bluewave Hotel, Shah Alam, Selangor, Malaysia, 1-4 March 2013.
 14. **M.F. Malek**, M.Z. Sahdan, M.H. Mamat, M.Z. Musa, Z. Khusaimi, S.S. Husairi, N.D. Md Sin, M. Rusop, "Fabrication of MEH-PPV/Al:ZnO nanorod arrays based ordered bulk heterojunction hybrid solar cells", Presented at 7th International Conference on Surfaces, Coatings and Nanostructured Materials (NANOSMAT 2012), Prague, Czech Republic, 18-21 September 2012.
 15. **Mohd Firdaus Malek**, Mohamad Hafiz Mamat, Mohd Zainizan Sahdan, Musa Mohamed Zahidi, Mohd Hanapiah Abdullah, Zuraida Khusaimi, Mohamad Rusop Mahmood, "Optimization of seeded catalyst layer for the growth of vertically aligned aluminium-doped ZnO nanorod arrays for optoelectronic applications", Presented at 24th International Microprocesses and Nanotechnology Conference (MNC 2011), ANA Hotel, Kyoto, Japan, 24-27 Oktober 2011.
 16. **Mohd Firdaus Malek**, Mohd Zainizan Sahdan, Mohamad Hafiz Mamat, Musa Mohamed Zahidi, Zuraida Khusaimi, Mohamad Rusop Mahmood, "Preparation of nanostructured ZnO thin films with *c*-axis (002) orientation via sol-gel dip-coating technique", Presented at International Conference on Nanomaterials, Synthesis and Characterization (ICNSC 2011), Mines Wellness Hotel, Seri Kembangan, Selangor, Malaysia, 4-5 July 2011.
 17. **M.F. Malek**, S.A. Arbain, M.H. Mamat, M.Z. Sahdan, M.Z. Musa, Z. Khusaimi, A.S. Rodzi, M. Rusop, "Photoresponse characteristics of nanostructured Aluminum doped Zinc Oxide thin films", Presented at International Conference on Electronic Devices, Systems and Applications (ICEDSA 2011), Boulevard Hotel, Kuala Lumpur, Malaysia, 25-27 April 2011.
 18. **Mohd Firdaus Malek**, Mohamad Hafiz Mamat, Musa Mohamed Zahidi, Mohd Zainizan Sahdan, Mohamad Rusop Mahmood, "Factors affecting the properties of Zinc Oxide thin films prepared by dip-coating method: A review", Presented at International Conference on Nanoscience and Nanotechnology 2011 (NANO-SciTech 2011), Intekma Resort & Convention Centre Shah Alam, Malaysia, 2-3 March 2011.
 19. **Mohd Firdaus Bin Malek**, Musa Bin Mohamed Zahidi, Mohamad Hafiz Bin Mamat, Zainizan Bin Sahdan, Zuraida Binti Khusaimi, Mohamad Rusop Bin Mahmood, "Electrical and optical properties of nanostructured Zinc Oxide thin films via sol-gel coating", Presented at International Conference on Enabling Science and Nanotechnology (ESciNano 2010), Kuala Lumpur Convention Centre, Kuala Lumpur, Malaysia, 1-3 December 2010.
 90. **M.F. Malek**, M.H. Mamat, M.Z. Sahdan, S.A.M. Zobir, N.Y. Zayana, Z. Khusaimi, M. Rusop, "Optical and morphology of the sol-gel prepared Zinc Oxide thin films", Presented at 3rd International Conference on Functional Materials and Devices 2010 (ICFMD 2010), Permai Inn Hotel, Terengganu, Malaysia, 14-17 June 2010.
 91. **M.F. Malek**, M.H. Mamat, M.Z. Sahdan, Z. Khusaimi, M. Rusop, "Electrical and optical properties of nanostructured Zinc Oxide thin films via sol-gel coating", Presented at 3rd International Conference on Functional Materials and Devices 2010 (ICFMD 2010), Permai Inn Hotel, Terengganu, Malaysia, 14-17 June 2010.
 92. **M.F. Malek**, N. Zakaria, M.Z. Sahdan, M.H. Mamat, Z. Khusaimi, M. Rusop, "Electrical properties of ZnO prepared by sol-gel technique", Presented at International Conference on Electronic Devices, Systems and Applications (ICEDSA 2010), Hotel Seri Malaysia, Kuala Lumpur, Malaysia, 12-13 April 2010.
 93. **M.F. Malek**, N. Zakaria, M. Rusop, "Effects of various withdrawal speeds on the properties of Zinc Oxide thin films", Presented at 1st Nanomaterials Seminar for Reducing Environmental Risk in Asia, Nagoya Institute of Technology (NITech), Nagoya, Japan, 9-11 December 2009.
 94. **M.F. Malek**, M. Alfah, Z. Khusaimi, M.H. Mamat, M.Z. Sahdan, M. Rusop, "Effect of Mg dopant percentage on the photoluminescence property of nano-structured ZnO thin films deposited on Si substrate", Presented at Nanoscience and Nanotechnology International Conference 2008 (NANO-SciTech 2008), S&T Twin Tower, Universiti Teknologi MARA (UiTM) Shah Alam, Selangor Malaysia, 18-21 Nov 2008.
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95. **M.F. Malek**, H. Zainuddin, S.N.M. Rejab, S.N. Shaari, S. Shaari, A. M. Omar, M. Rusop, "Monitoring of a 1 kWp solar photovoltaic system", Presented at Nanoscience and Nanotechnology International Conference 2008 (NANO-SciTech 2008), S&T Twin Tower, Universiti Teknologi MARA (UiTM) Shah Alam, Selangor Malaysia, 18-21 Nov 2008.

□ | National Conference

1. **M.F. Malek**, N. Zakaria, M. Z. Sahdan, M.H. Mamat, Z. Khusaimi, M. Rusop, "Effects of different precursor's concentration on the properties of Zinc Oxide thin films", Presented at National Physics Conference 2009 (PERFIK 2009), Avillion Legacy Hotel, Malacca, Malaysia, 7-9 December 2009.
 2. **M.F. Malek**, N. Zakaria, M. Z. Sahdan, M.H. Mamat, Z. Khusaimi, M. Rusop, "Optical and structural properties of Zinc Oxide thin films prepared by sol-gel method", Presented at National Physics Conference 2009 (PERFIK 2009), Avillion Legacy Hotel, Malacca, Malaysia, 7-9 December 2009.
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EXHIBITION / EXPOSITION / RECOGNITION

□ | International

Presented Project	Awards
1. M.F. Malek , M.H. Mamat, R. Mohamed, N.A. Asli, M.R. Mahmood, "Augmented Power Conversion Efficiency of Hybrid Solar Cells by Self-Organized Manoeuvring of ZAO Nanowires as Photoanode via Novel Microwave-Assisted Sonication Approach", Malaysia Technology Expo (MTE) 2022 organised by Protamp Exhibitions and Conferences Sdn Bhd, 21-25 March 2022.	Gold Medal
2. M.M. Zahidi, M.H. Mamat, A.S.R.A. Subki, N. Parimon, M.F. Malek , H. Hassan, "Self-assembled and eco-friendly Titanium Dioxide (TiO ₂) nanoflower thin film for humidity detection", International Research and Symposium and Exposition (RISE 2021), organised by Universiti Tun Hussein Onn Malaysia, 1-15 October 2021.	Gold Medal
3. N.Z.M. Zamri, M.D. Bakri, M.R. Mustapha, C.K.A.S.C.K. Husin, N.A.M. Zakli, N.A.M. Anuar, M.F. Malek , "Fabrication of hybrid solar cell based on novel ramification process of vertically aligned ZAO nanorod arrays", International Virtual Expo of Innovation Product and System Design (In-ViDE) 2021, organised by Faculty of Electrical Engineering Technology, Universiti Malaysia Perlis, Malaysia, 22 November 2021.	Gold Medal
4. M. Mohammad, N.F.S. Zulkifli, M.M. Zahidi, M.S. Ibrahim, R. Mohamed, M.H. Mamat, M.F. Malek , "Augmentation of power conversion efficiency of hybrid solar cells by utilising vertically aligned zao nanowires as photoanode via novel microwave-assisted sonication approach", International Virtual Expo of Innovation Product and System Design (In-ViDE) 2021, organised by Faculty of Electrical Engineering Technology, Universiti Malaysia Perlis, Malaysia, 22 November 2021.	Gold Medal
5. M.F. Malek , M.H. Mamat, R. Mohamed, N.A. Asli, M.R. Mahmood, "Augmentation of power conversion efficiency of hybrid solar cells by utilising vertically aligned ZAO nanowires as photoanode via novel microwave-assisted sonication approach", International Invention, Innovation & Design Expo (INoDEX 2021), organised by Institute of Nano Optoelectronics Research and Technology (INOR), University Sains Malaysia, 11800 USM, Penang, Malaysia, 8-9 November 2021.	Gold Medal
6. M.F. Malek , M.H. Mamat, R. Mohamed, N.A. Asli, M.R. Mahmood, "Rapid amelioration of dsscs performance by self-organized manoeuvring of ZFO nanowires via microwave-assisted sol-gel approach", Invention, Innovation and Design Exposition (IIDEX 2021) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 11-15 October 2021.	Gold Medal

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| 7. | M.F. Malek , M. Mohammad, N.F.S. Zulkifli, M.D. Bakri, N.Z.M. Zamri, "Augmentation of power conversion efficiency of dye sensitised solar cells using vertically aligned ZAO nanorod arrays as photoanode via novel sonication-assisted immersion technique", Invention, Innovation and Design Exposition (IIDEX 2021) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 11-15 October 2021. | Gold Medal |
| 8. | N.A. Asli, Z. Khusaimi, I. Buniyamin, M.F. Malek , K.M. Yusoff, "Alternative approach : Natural dye pigment pandanus amaryllifolius on Zinc Oxide nanoflakes synthesized via anodization method", Invention, Innovation and Design Exposition (IIDEX 2021) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 11-15 October 2021. | Gold Medal |
| 9. | M.H. Mamat, N. Parimon, M.F. Malek , M.K. Yaakob, M.R. Mahmood, "Ultra-highly sensitive humidity sensor based on a novel nanoporous Nickel Oxide nanosheet-anchored 1D Zinc Oxide nanocomposite heterostructure film", Invention, Innovation and Design Exposition (IIDEX 2021) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 11-15 October 2021. | Gold Medal |
| 10. | R. Mohamed, N.J. Ahmad, M.F. Malek , N.I. Ikhsan, M.R. Mahmood, "Conductive Graphene sheet layer with natrium intercalant: Enhanced energy storage performance", Invention, Innovation and Design Exposition (IIDEX 2021) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 11-15 October 2021. | Bronze Medal |
| 11. | R. Mohamed, N.J. Ahmad, M.F. Malek , N.I. Ikhsan, M.R. Mahmood, W.A.W. Razali, "High conductive performance of Graphene assisted with surfactant produced with a simple route", 4 th International Malaysia-Indonesia-Thailand Symposium on Innovation and Creativity (IMIT SIC 2021), organised by Universiti Teknologi MARA Cawangan Pahang, Malaysia, 24 August 2021. | Silver Medal |
| 12. | R. Mohamed, M.A. Muhamad, M.F. Malek , H.A. Rafaie, N.I.T. Ramli, M.R. Mahmood, "Enhance Zinc Oxide characteristic with Titanium Dioxide: Improve the humidity sensor performance", 4 th International Malaysia-Indonesia-Thailand Symposium on Innovation and Creativity (IMIT SIC 2021), organised by Universiti Teknologi MARA Cawangan Pahang, Malaysia, 24 August 2021. | Silver Medal |
| 13. | R. Mohamed, S.M. Sanusi, M.F. Malek , H.A. Rafaie, N.I.T. Ramli, S.A. Senawi, "Facile Synthesis of ZnO/Graphene nanostructures and its superior conductivity performance", 4 th International Malaysia-Indonesia-Thailand Symposium on Innovation and Creativity (IMIT SIC 2021), organised by Universiti Teknologi MARA Cawangan Pahang, Malaysia, 24 August 2021. | Silver Medal |
| 14. | M.H. Mamat, N. Parimon, M.F. Malek , M.K. Yaakob, L. Jasmani, M.R. Mahmood, "Super sensitive humidity sensor based on novel Nickel Oxide nanocarnation-like mesostructure synthesized via low-temperature immersion technique", The 4 th Advanced Innovation & Engineering Exhibition (AiNEX 2021), organised by Centre for Automotive Engineering, Universiti Malaysia, Pahang, Malaysia, 30 August 2021. | Gold Medal &
Best of the Best
Award |
| 15. | M.H. Mamat, N. Parimon, M.F. Malek , M.K. Yaakob, M.R. Mahmood, "Ultra-highly Sensitive Flexible Humidity Sensor Based on Novel Nickel Oxide Nanocarnation-Like Mesostructure Film", 6 th International Invention Innovation Competition in Canada (iCAN 2021), Toronto, Canada, 28 August 2021. | Gold Medal &
Special Award |
| 16. | Mohamad Hafiz Mamat, Norfarariyanti Parimon, Musa Mohamed Zahidi, Mohd Firdaus Malek , Nordiyana Md Sin, Latifah Jasmani, Mohamad Rusop Mahmood, "Ultra-highly sensitive humidity sensor based on novel Nickel Oxide nanocarnation-like mesostructured synthesised via low-temperature immersion approach", 31 st International Invention, Innovation and Technology Exhibition 2020 (ITEX 2020) organised by C.I.S Network Sdn Bhd, Kuala Lumpur Convention Centre, Malaysia, 20-21 Nov 2020. | Gold Medal |
| 17. | Myzatul Azlyin Binti Muhamad, Ruziana Mohamed, Mohd Firdaus Malek , Hartini Ahamd Rafaie, Infaza Talalah Ramli, Saedah Munirah Sanusi, Nurin Jazlina Ahmad, "Enhancement of Zinc Oxide nanostructure with Titanium Dioxide using simple fabrication route", Virtual Materials Technology Challenges 4.0 (V-Mtc4.0) organized by The Malaysian Solid State Science and Technology Society (MASS Chapter UPM), Department of Physics, Faculty of Science, Universiti Putra Malaysia, 2 September 2020. | Gold Medal |
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| 18. Saedah Munirah Sanusi, Ruziana Mohamed, Nurin Jazlina Ahmad, Myzatul Azlyin, Mohd Firdaus Malek , Wan Aizuddin Wan Razali, "Formation of binary system of ZnO-Bismuth Oxide using simple precipitation process for varistor applications", Virtual Materials Technology Challenges 4.0 (V-Mtc4.0) organized by The Malaysian Solid State Science and Technology Society (MASS Chapter UPM), Department of Physics, Faculty of Science, Universiti Putra Malaysia, 2 September 2020. | Bronze Medal |
| 19. M.F. Malek , R. Mohamed, N.I. Ikhsan, M.H. Mamat, M. Rusop, "Designing of Sn:ZnO nanorods on glass substrate coated with Al:Mg co-doped ZnO ssed layer using environmentally friendly nanomaterials:Enhanced the sensors sensitivity", Invention, Innovation and Design Exposition (IIDEX 2019) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 10-15 September 2019. | Silver Medal |
| 20. M.F. Malek , M.H. Mamat, M.A.R. Abdullah, S.M. Jaafar, M. Rusop, "Synthesis and growth of well-arrayed transition metal doped ZnO nanorods and applications for ultraviolet sensing and solar cells", Invention, Innovation and Design Exposition (IIDEX 2018) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 24-28 September 2018. | Silver Medal |
| 21. M.F. Malek , M.H. Mamat, A.S. Ismail, M.M. Yusoff, M. Rusop, "Amelioration of eco-friendly, highly conductive and vertically aligned ZAO nanorod arrays: A novel ramification process of Zinc Oxide-based nanostructures for sensor and solar cell applications", Invention, Innovation and Design Exposition (IIDEX 2017) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 25-29 September 2017. | Gold Medal |
| 22. M.H. Mamat, A.S. Ismail, M.F. Malek , M.M. Yusoff, S.A. Saidi, M. Rusop "Humidity sensor fabricated using highly sensitive Tin-doped Zinc Oxide/Tin Oxide (SZO/SnO ₂) core-shell nanostructures: A novel configuration for humidity sensing application", 28 th International Invention, Innovation and Technology Exhibition 2017 (ITEX 2017) organised by C.I.S Network Sdn Bhd, Kuala Lumpur Convention Centre, Malaysia, 11-13 May 2017. | Gold Medal |
| 23. A.S. Ismail, M.H. Mamat, M.F. Malek , S.A. Saidi, M. Rusop, "Humidity sensor fabricated using low cost, environmental friendly, and sensitivity enhanced Zinc Oxide nanorod array-based for humidity level control", 5 th International Innovation, Invention and Design (INDES 2016) organised by Office of Research, Industrial Community & Alumni Networking and Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA (UiTM) Perak, Malaysia, 9-10 November 2016. | Gold Medal
&
Best of the Best
Award |
| 24. R. Mohamed, M.F. Malek , A.S. Ismail, M.H. Mamat, M. Rusop, "Controllable synthesis one dimensional ZnO/SnO ₂ nanostructures: Highly sensitive sensor using environmentally friendly nanomaterials prepared with simple and low cost method," Invention, Innovation and Design Exposition (IIDEX 2016) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 20-23 September 2016. | Gold Medal |
| 25. M.H. Mamat, A.S. Ismail, M.M. Yusoff, M.F. Malek , M. Rusop, "Humidity sensor fabricated using highly sensitive Tin-doped Zinc Oxide/Tin Oxide (SZO/SnO ₂) core shell nanostructures: A novel configuration for humidity sensing application," Invention, Innovation and Design Exposition (IIDEX 2016) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 20-23 September 2016. | Gold Medal |
| 26. M.H. Mamat, M.M. Yusoff, M.F. Malek , A.S. Ismail, M. Rusop, "Self powered UV photosensor based on Titanium Dioxide nanorod arrays using anovel method," Invention, Innovation and Design Exposition (IIDEX 2016) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 20-23 September 2016. | Gold Medal |
| 27. A.S. Ismail, M.H. Mamat, M.F. Malek , S.A. Saidi, M. Rusop, "Humidity sensor fabricated using highly sensitive Tin-doped Zinc Oxide/Tin Oxide (SZO/SnO ₂) core-shell nanostructures: A novel configuration for humidity sensing application", Innovative practices in eduction and industry exhibition (I-PWINX 2016) organised Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 14 March 2016. | Silver Medal |
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| 28. M.H. Mamat, M.F. Malek , M.D. Sin, A.S. Ismail, M. Rusop, "Ultraviolet photoconductive sensor with high performance fabricated using catalyst-free and eco-friendly nanomaterials: Thin, dense, and small-diameter Zinc Oxide nanorod arrays", Invention, Innovation and Design (IIDEX 2015) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 27-30 April 2015. | Gold Medal & Diamond Award |
| 29. A.S. Ismail, M.F. Malek , M.A.R. Abdullah, M.H. Mamat, M.D. Sin, "Humidity sensor fabricated using highly sensitive Tin Oxide decorated Zinc Oxide nanorod arrays for excessive humidity control", Invention, Innovation and Design (IIDEX 2015) organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 27-30 April 2015. | Bronze Medal |
| 30. Mohamad Hafiz Mamat, Mohd Firdaus Malek , Musa Mohamed Zahidi, Nor Diyana Md Sin, Mohamad Rusop Mahmood, "A novel fabrication of AZO nanorod arrays based ordered bulk heterojunction hybrid solar cells", Invention, Innovation, and Design Expo (IIDEX 2014) organised by Universiti Teknologi MARA (UiTM), Shah Alam, 27-30 April 2014. | Silver Medal |
| 31. Mohamad Hafiz Mamat, Mohd Firdaus Malek , Nor Diyana Md Sin, Zuraida Khusaimi, Mohamad Rusop Mahmood, "Ultraviolet photoconductive sensor with enhanced performance fabricated using eco-friendly and novel nanostructures: Ultra thin, aligned Zinc Oxide nanorod arrays and nanonetwork structures", Malaysia Technology Expo (MTE) 2014 organised by Malaysian Association of Research Scientists (MARS), PWTC, Kuala Lumpur, Malaysia, 20-22 February 2014. | Gold Medal & The Best Award |
| 32. Mohamad Hafiz Mamat, Mohd Firdaus Malek , Nor Diyana Md Sin, Musa Mohamed Zahidi, Mohamad Rusop Mahmood, "Ultraviolet photoconductive sensor with enhanced performance fabricated using eco-friendly and novel nanostructures: Ultra thin, aligned Zinc Oxide nanorod arrays and nanonetwork structures", International Invention, Innovation, and Research Design Platform 2013 organised by Universiti Teknologi MARA (UiTM), Pulau Pinang, 4-5 December 2013. | Silver Medal |
| 33. Mohamad Hafiz Mamat, Mohd Firdaus Malek , Zuraida Khusaimi, Nor Diyana Md Sin, Nik Noor Hafizah Nik Mohammad, Musa Mohamed Zahidi, Mohamad Rusop Mahmood, "Ultraviolet photoconductive sensor with enhanced performance fabricated using eco-friendly and novel nanostructures: Ultra thin, aligned Zinc Oxide nanorod arrays and nanonetwork structures", Invention, Innovation, and Design Expo (IIDEX 2013) organised by Universiti Teknologi MARA (UiTM), Shah Alam, 15-17 March 2013. | Gold Medal |
| 34. Mohamad Hafiz Mamat, Zuraida Khusaimi, Musa Mohamed Zahidi, Mohd Firdaus Malek , Suriani Abu Bakar, Mohamad Rusop Mahmood, "Ultra-violet photoconductive sensor fabricated using environmentally-friendly and novel nanostructures: nanoholes enhanced aligned Zinc Oxide nanorod arrays", Geneva Invention 2011 organised by International Exhibition of Inventions of Geneva, 6-10 April 2011. | Silver Medal |
| 35. Mohamad Hafiz Mamat, Zuraida Khusaimi, Zainizan Sahdan, Mohd Firdaus Malek , Musa Mohamed Zahidi, Mohamad Rusop Mahmood, "Ultra-violet photoconductive sensor fabricated using environmentally-friendly and novel nanostructures: nanoholes enhanced aligned Zinc Oxide nanorod arrays", Malaysia Technology Expo (MTE) 2011 organised by Malaysian Association of Research Scientists (MARS), KLCC, Kuala Lumpur, Malaysia, 17-19 February 2011. | Gold Medal |
| 36. Mohamad Hafiz Mamat, Zuraida Khusaimi, Zainizan Sahdan, Mohd Firdaus Malek , Musa Mohamed Zahidi, Mohamad Rusop Mahmood, "Ultra-violet photoconductive sensor fabricated using environmentally-friendly and novel nanostructures: nanoholes enhanced aligned Zinc Oxide nanorod arrays", Invention, Innovation and Design (IID) 2010 Special Edition competition organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 12-14 October 2010. | Gold Medal, Diamond Award & Grand Prize |
| 37. Mohamad Zainizan Sahdan, Mohamad Hafiz Mamat, Salina Muhamad, Mohd Firdaus Malek , Mohamad Rusop Mahmood, "Synthesiza of layered Zinc Oxide tetrapodes for solar cell applications", Invention, Innovation and Design (IID) 2010 Special Edition competition organised by Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 12-14 October 2010. | Silver Medal |
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□ | National / University

Presented Project	Awards
1. A.S. Ismail, M.H. Mamat, S.A. Saidi, M.F. Malek , M. Rusop, "Humidity sensor fabricated using eco-friendly, highly sensitive, and controllable growth Tin-doped Zinc Oxide nanorod arrays", Invention, Innovation and Design (FKE-IID 2016) organised by Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 7 December 2016.	Silver Medal
2. A.S. Ismail, M.F. Malek , M.M. Yusoff, M.H. Mamat, M.D. Sin, "Humidity sensor fabricated using highly sensitive Zinc Oxide/Tin Oxide core shell nanorod arrays for excessive humidity control", Invention, Innovation and Design (FKE-IID 2015) organised by Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 24 November 2015.	Gold Medal
3. M.M. Yusoff, M.H. Mamat, M.F. Malek , A.S. Ismail, M.A.R. Abdullah, "Fabrication and characterisation of Titanium Dioxide nanorod array-based photosensor using a novel facile aqueous chemical route", Invention, Innovation and Design (FKE-IID 2015) organised by Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 24 November 2015.	Gold Medal
5. A.S. Ismail, M.F. Malek , M.A.R. Abdullah, M.H. Mamat, M. Rusop, "Humidity sensor fabricated using highly sensitive Tin Oxide decorated Zinc Oxide nanorod arrays for excessive humidity control", Invention, Innovation and Design (FKE-IID 2014) organised by Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 19 November 2014.	Silver Medal
6. Mohd Firdaus Malek , Mohamad Hafiz Mamat, Musa Mohamed Zahidi, Nor Diyana Md Sin, Zuraida Khusaimi, Mohamad Rusop Mahmood, "A novel fabrication of Al-doped ZnO nanorod arrays based ordered bulk heterojunction hybrid solar cells" Invention, Innovation and Design (FKE-IID 2013) organised by Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 27 November 2013.	Silver Medal
7. Nor Diyana Md Sin, Samsiah Ahmad, Musa, Mohd Firdaus Bin Malek , Mohamad Hafiz Mamat, Siti Shafura A. Karim, Mohamad Rusop Mahmood, "ZnSnO ₃ /ZnO ₃ based humidity sensor fabricated by novel immersion technique", Invention, Innovation and Design (FKE-IID 2012) organised by Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 2-3 October 2012.	-
8. Nor Diyana Md Sin, Musa Mohamed Zahidi, Mohd Firdaus Bin Malek , Mohamad Rusop Mahmood "A novel fabrication process Zn doped SnO ₂ /ZnO thin film based humidity sensor", Invention, Innovation and Design (FKE-IID 2011) organised by Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia, 20-21 December 2011.	-

□ | Exhibition

Presented Project	Awards
1. Mohamad Hafiz Mamat, Zuraida Khusaimi, Musa Mohamed Zahidi, Mohd Firdaus Malek , Mohamad Rusop Mahmood "Ultra-violet photoconductive sensor fabricated using environmentally-friendly and novel nanostructures: nanoholes enhanced aligned Zinc Oxide nanorod arrays", NanoMalaysia Summit & Expo 2011, Putra World Trade Center (PWTC), Kuala Lumpur, Malaysia, 14-16 June 2011.	-



QUICK LINKS

- Scopus - <https://www.scopus.com/authid/detail.uri?authorId=57192368394>
- ORCID - <https://orcid.org/0000-0002-0714-4117>
- ReseacherID - <https://publons.com/researcher/3761757/mohd-firdaus-malek/>
- Google Scholar - <https://scholar.google.com/citations?user=621R0HsAAAAJ&hl=en>
- ResearchGate - https://www.researchgate.net/profile/Mf_Malek