CURRICULUM VITAE

PERSONAL INFORMATION

1.	Name:	**MOHAMMAD NUZAIHAN BIN MD NOR**
2.	IC Number:	780924-02-5647
3.	Marital Status:	Married
4.	Phone Number:	(H) +6012- 4296433, (O) +604-9798577
5.	Fax. Number:	+604-9798578
6.	Religious:	Muslim
7.	E-mail Address:	m.nuzaihan@unimap.edu.my
8.	Home Address:	31, Jalan Khaya 5, Taman Khaya, 06010 Changlun, Kedah.
9.	Office Address:	**INSTITUT KEJURUTERAAN NANO ELEKTRONIK (INEE)** **UNIVERSITI MALAYSIA PERLIS (UniMAP),** Lot 106, 108 & 110, Tingkat 1 Blok A, Taman Pertiwi Indah, Seriab, 01000 Kangar, Perlis.

ACADEMIC QUALIFICATIONS

1. Ph.D (Nanoelectronic Engineering)
   Universiti Malaysia Perlis (UniMAP) – 2016
   Thesis – Development of Novel Silicon Nanowire Biosensor for Detection of DNA Molecules at Femtomolar Concentration

2. M.Sc (Microelectronic Engineering)
   Universiti Malaysia Perlis (UniMAP) – 2007
   Thesis – Fabrication of Silicon Nanowires using Scanning Electron Microscope Based Electron Beam Lithography Method

3. B.Eng (Hons) – Electrical Engineering (Electronics)
   Universiti Teknologi Malaysia (UTM) – 2002

4. Dip.Eng – Electronics Engineering
   Universiti Teknologi Malaysia (UTM) – 1999

EMPLOYMENT HISTORY

UNIVERSITI MALAYSIA PERLIS (UniMAP) / KOLEJ UNIVERSITI KEJURUTERAAN UTARA MALAYSIA (KUKUM)

First appointment at UniMAP / KUKUM: **15th April 2002 (Staff Number: 0100027)**
Appointment to current Grade: **1st November 2019**

1.	Nov 2019 – current	**Associate Professor,** Institute of Nanoelectronic Engineering, Universiti Malaysia Perlis.
2.	Oct 2014 – Oct 2019	**Senior Lecturer,** Institute of Nanoelectronic Engineering, Universiti Malaysia Perlis.
3.	Dec 2008 - Oct 2014	**Lecturer,** Institute of Nanoelectronic Engineering, Universiti Malaysia Perlis.
4.	Oct 2007 - Nov 2008	**Lecturer**, School of Microelectronic Engineering, Universiti Malaysia Perlis.
5.	April 2002 - Sep 2007	**Teaching Engineer (PLV),** School of Microelectronic Engineering, Universiti Malaysia Perlis.

ADMINISTRATIVE POSTS

1.	Mac 2019 – Sept 2022	**Deputy Director,** Institute of Nanoelectronic Engineering, Universiti Malaysia Perlis.
2.	Mac 2017 – Mac 2019	**Postgraduate Programme Chairman,** Institute of Nanoelectronic Engineering, Universiti Malaysia Perlis.
3.	Mac 2017 – Mac 2019	**Jawatankuasa Ijazah Tinggi Member (JITU)**, Universiti Malaysia Perlis.
4.	Mac 2017 – Mac 2019	**Jawatankuasa Kecil Jitu (JKJITU) Member, CGS,** Universiti Malaysia Perlis.
5.	Mac 2017 – current	**Jawatankuasa Kecil Ijazah Tinggi (JKIT) Member, INEE,** Universiti Malaysia Perlis.
6.	2008 – 2013	**Pegawai Kehormat** Kor SUKSIS UniMAP.
7.	2005 – 2007	**Penolong Pengetua** Kolej-Kolej Kediaman UniMAP/KUKUM.

AREA OF SPECIALIZATION

1. Micro & Nanofabrication,
2. E-Beam Lithography & Photolithography,
3. Nanotechnology & Nanoelectronic,
4. Nanostructure, Nanowire & Nanogap Devices,
5. Nanobiosensors.

PROFESSIONAL BODY MEMBERS

1.	Since 2019	Exco, Malaysia Nanotechnology Association (MNA)
2.	Since 2017	Members, Institute of Electrical and Elctronic Engineer (IEEE).
3.	Since 2017	Members, IEEE Sensor Council, IEEE Nanotechnology Council.
4.	Since 2017	IEEE Malaysia Section Sensor and Nanotechnology joint Council Chapter.
5.	Since 2004	Members (Graduated Engineer), Board of Engineers Malaysia (BEM).
6.	Since 2005	Members, Malaysia Solid State Science and technology Society (MASS).
7.	Since 2006	Members, Microscopy Society of Malaysia (EMSM).

TEACHING EXPERIENCES

1.	2022/2024	Lecturer and Lab Instructor, Microelectronic Fabrication II NMJ 30503. 2nd Semester/3rd Year.
2.	2023/2024	Lecturer and Lab Instructor, Digital Electronic Principles II NMJ20503. 1st Semester/2nd Year.
3.	2022/2023	Lecturer and Lab Instructor, Microelectronic Fabrication II NMJ 30503. 2nd Semester/3rd Year.
4.	2022/2023	Lecturer and Lab Instructor, Digital Electronic Principles II NMJ20503. 1st Semester/2nd Year.
5.	2021/2022	Lecturer and Lab Instructor, IC Design NMJ 21603. 2nd Semester/2nd Year.
6.	2021/2022	Lecturer, Nanofabrication YSJ10303. MSc Coursework.
7.	2021/2022	Lecturer and Lab Instructor, Circuit Theory NMJ 11303. 1st Semester/1st Year.
8.	2020/2021	Lecturer and Lab Instructor, IC Design (EMT 243). 2nd Semester/2nd Year.
9.	2020/2021	Lecturer and Lab Instructor, Digital Electronic Principles II (EMT 235). 1st Semester/2nd Year. (MOD FLEXI)
10.	2020/2021	Lecturer and Lab Instructor, Digital Electronic Principles II (EMT 235). 1st Semester/2nd Year.
11.	2019/2020	Lecturer and Lab Instructor, Control Engineering (EMT 360). 2nd Semester/3rd Year.
12.	2019/2020	Lecturer and Lab Instructor, Digital Electronic Principles II (EMT 235). 1st Semester/2nd Year. (MOD FLEXI)

13. 2019/2020 Lecturer and Lab Instructor, Digital Electronic Principles II (EMT 235). 1st Semester/2nd Year.
14. 2018/2019 Lecturer, Nanoelectronic Engineering (EMT 454). 2nd Semester/4th Year.
15. 2018/2019 Lecturer and Lab Instructor, Digital Electronic Principles II (EMT 235). 1st Semester/2nd Year.
16. 2017/2018 Lecturer, Nanoelectronic Engineering (EMT 454). 2nd Semester/4th Year.
17. 2017/2018 Lecturer and Lab Instructor, Digital Electronic Principles II (EMT 235). 1st Semester/2nd Year.
18. 2016/2017 Lecturer, Nanoelectronic Engineering (EMT 454). 2nd Semester/4th Year.
19. 2016/2017 Lecturer and Lab Instructor, Digital Electronic Principles II (EMT 235). 1st Semester/2nd Year.
20. 2012/2013 Lecturer and Lab Instructor, Digital Electronic Principles II (EMT 235). 1st Semester/2nd Year.
21. 2011/2012 Subject Leader, Lecturer and Lab Instructor, Digital Electronic Principles I (EMT 125). 2nd Semester/1st Year.
22. 2011/2012 Subject Leader, Lecturer and Lab Instructor, Digital Principles II (EMT 221). 1st Semester/3th Year.
23. 2010/2011 Lecturer and Lab Instructor, Digital Electronic Principles I (EMT 125). 2nd Semester/1st Year.
24. 2010/2011 Subject Leader, Lecturer, Digital Principles II (EMT 221). 1st Semester/3th Year.
25. 2008/2009 Lecturer and Lab Instuctor, Electronic Packaging (DMT 243). 2nd Semester/2nd Year.
26. 2008/2009 Subject Leader, Lecturer and Lab Coordinator, Digital System II (DKT 212). 1st Semester/2nd Year.
27. 2007/2008 Lecturer and Lab Instructor, Semiconductor Packaging (EMT 453). 1st Semester/4th Year.
28. 2007/2008 Lab Instructor, Semiconductor Process Technology (EMT 261). 2nd Semester/2nd Year.
29. 2007/2008 Lab Instructor, Microelectronic Fabrication (EMT 361). 1st Semester/3rd Year.
30. 2005/2006 Lab Instructor, Semiconductor Process Technology (EMT 261). 2nd Semester/2nd Year.
31. 2005/2006 Lab Instructor, Microelectronic Fabrication (EMT 361). 1st Semester/3rd Year.
32. 2004/2005 Lab Instructor, Semiconductor Process Technology (EMT 261). 2nd Semester/2nd Year.
33. 2004/2005 Lab Instructor, Microelectronic Fabrication (EMT 361). 1st Semester/3rd Year.
34. 2003/2004 Lab Instructor, Electronic Devices (EMT 111). 1st Semester/1st Year.

35. 2003/2004 Lab Instructor, Digital Electronic I (EKT 121). 2nd Semester /1st Year.

36. 2002/2003 Lab Instructor, Electronic Devices (EMT 111). 1st Semester/1st Year.

37. 2002/2003 Lab Instructor, Digital Electronic I (EKT 121). 2nd Semester /1st Year.

SUPERVISION WORKS

Postgraduate Supervision (updated May 2024)

Status	M.Sc.		Ph.D		Total
	Main-Sup.	Co-Sup.	Main-Sup.	Co-Sup.	
Graduated	3	4	-	2	9
On-going	1	-	-	-	1

Ph.D – Research Students

1. 2016-2019 **(Graduated)** **Co-Supervisor**: Conlathan A/L Ibau. Underlap Field Effect Transistor (FET) Based Biosensing Device for Detection of Prostate-Specific Antigen (PSA) Biomarkers.

2. 2018-2020 **(Graduated)** **Co-Supervisor**: Nur Dalila Rizuan. Fabrication and Characterization of Label-Free Biosensing for Detection of CR-P.

M.Sc – Research Students

1. 2022- (Active) **Main Supervisor**: Mohamad Shaifullah Bin Ahmad Sharafae. Gold Nanoparticles Decorated Silicon Nanowire Biosensor for Diabetes Mellitus Detection

2. 2018-2020 **(Graduated)** **Main Supervisor**: Aidil Shazereen Bin Azlan. Development of Polysilicon Nanowire Biosensors for Early Detection of Dengue Virus (DENV).

3. 2018-2020 (**Graduated)** **Main Supervisor**: Wan 'Amirah Basyarah Zainol Abidin. Development of Back-Gated Silicon Nanowire Field Effect Transistor for Dengue Virus DNA Detection.

4. 2010-2012 **(Graduated)** **Main Supervisor**: Mohd Syamsul Nasyriq Samsol Baharin Design and Fabrication of Carbon Nanotube Based Biosensor for Medical Diagnostics Application.

5. 2011-2013 **(Graduated)** **Co-Supervisor**: Low Foo Wah. Development and Fabrication of CNT Based Biosensor for Halal Detection.

6. 2009-2011 **(Graduated)** **Co-Supervisor**: Nurul Syuhada Md Desa. Design and fabrication of N-ISFET using Si_3N_4/SiO_2 structures for pH Measurement.

7.	2008-2010 **(Graduated)**	**Co-Supervisor**: Siti Fatimah Abdul Rahman. Design and Fabrication of Silicon Nanowire Based DNA Biosensor using Electron Beam Lithography.
8.	2008-2010 **(Graduated)**	**Co-Supervisor**: Mat Tarmizi Zainuddin. Micropatterning of Inorganic-Organic Hybrid Sol Gel Materials for Planar Optical Waveguides Application.

B. Eng – Final Year Research Project Students

1.	2023/2024 (Active)	**Main Supervisor**: Goh Juin Ping**.** Design and Fabrication of Silicon Nanowire-Based Biosensors: Toward Ultrasensitive Specific Detection of Retinol Binding Protein 4.
2.	2022/2023 (Graduated)	**Main Supervisor**: Julaiha Binti Jumat. Gold Nanoparticle-Decorated Silicon Nanowire Biosensor For Sensitivity Enhancement In Diabetes Mellitus Monitoring.
3.	2022/2023 (Graduated)	**Main Supervisor**: Muhammad Syammim Bin Dzairi. Electrical Detection Of Retinol Binding Protein 4 (Rbp4) Using Silicon Nanogap Biosensors.
4.	2022/2023 (Graduated)	**Main Supervisor**: Nur Suhaila Farahiyah Binti Suriyani. Simulation Of A Silicon Nanowire Fet Biosensor For Detection Of Diabetes Mellitus (DM)**.**
5.	2020/2021 (Graduated)	**Main Supervisor**: Muhammad Hisyamuddin Bin Hashim. Silicon Nanogap Biosensors for Electrical Detection of Retinol Binding Protein 4 (RBP4) as a Diabetes Mellitus Biomarker.
6.	2020/2021 (Graduated)	**Main Supervisor**: Chean Chia Yi. Gold Nanoparticles-decorated Silicon Nanowire Biosensors for Sensitivity Enhancement in Diabetes Mellitus (DM) Monitoring.
7.	2019/2020 (Graduated)	**Main Supervisor**: Nur Arif Isamkhan Bin Amirkhan. Fabrication And Characterization Of Polysilicon Nanowire Biosensors For Ph Sensing Applications
8.	2019/2020 (Graduated)	**Main Supervisor**: Aidil Nur Binti Mustafa. Simulation Of Silicon Nanowire Based Field Effect Transistors (Sinw-Fet) With Different Back Gate Biasing For Dna Detection.
9.	2018/2019 (Graduated)	**Main Supervisor**: Nor Atiqah Binti Md Isa. Gold Nanoparticles-Enhanced Sensitivity of Polysilicon Nanogaps Biosensors for Detection of Dengue Virus (DENV). **- IEEE Special Award: Under Track Biosensors**
10.	2018/2019 (Graduated)	**Main Supervisor**: Ellina Yasmin Yusri. Polysilicon Nanowire Field-Effect Transistor Functionalized by Gold Nanoparticles for the Highly Sensitive Determination of Dengue Virus (DENV).
11.	2018/2019 (Graduated)	**Main Supervisor**: Muhammad Haziq BIn Hadfi. Fabrication and Characterization of Polysilicon Nanogap Biosensors for DNA sensor.

12.	2017/2018 (Graduated)	**Main Supervisor**: Siti Nur Athirah binti Hamdan. Electrical Detection of Specific Single-Stranded DNA Molecules using Silicon Nanowire Biosensors. **- Special/Gold Award**
13.	2017/2018 (Graduated)	**Main Supervisor**: Nurul Atiqah Maulad Arifin. SiliconNanowire with Liquid Gate Control for pH Sensing.
14.	2017/2018 (Graduated)	**Main Supervisor**: Siti Murni Binti Hazri. Silicon Nanowire Biosensors for Detection of Cardiac Troponin I (cTnI).
15.	2017/2018 (Graduated)	**Main Supervisor**: Muhamad Nurshahriza Fitri Bin Zulkiffli. Top-Down Nanofabrication of Silicon Nanogap for Detection Of Dengue Virus (DENV).
16.	2017/2018 (Graduated)	**Main Supervisor**: Ching Wei Chung. Electrical Detection of Prostate Specific Antigen (PSA) using Silicon Nanowire **Biosensors IEEE Special Award: Under Track Sensors.**
17.	2016/2017 (Graduated)	**Main Supervisor:** Muhammad Nizam B Aziz. Top-down Fabrication of Polysilicon Nanowire Biosensor for Cardiac Troponin Detection.
18.	2016/2017 (Graduated)	**Main Supervisor:** Muhammad Izzuddin Bin Mazlan. Electrical detection of Dengue Virus (DENV) using Polysilicon Nanowire Biosensors.
19.	2016/2017 (Graduated)	**Main Supervisor:** Muhammad Fathimy Bin Farizal. Polysilicon Nanowire with Molecular Gate Control for pH Sensing.
20.	2011/2012 (Graduated)	**Main Supervisor**: Nik Alman Faluthi Bin Nik Yusuf. Synthesis of CNTs using LTCVD : Optimization of temperature controlling.
21.	2011/2012 (Graduated)	**Main Supervisor:** Hairul Bin Mohammed Hamid. Structural studies on CNTs for different catalyst using LTCVD method.
22.	2011/2012 (Graduated)	**Main Supervisor:** Zamzarudin Bin Che Lah. Fabrication of CNTs Biosensor for Medical Application.
23.	2011/2012 (Graduated)	**Main Supervisor:** Mohamad Sohaidi B Kasim. Mask Design of CNTs FET Biosensor for Medical Application.
24.	2008/2009 (Graduated)	**Main Supervisor:** Nur Atiqah Mohd Yahaya. Silicon Nanostructures Formation by Resist Trimming Process.
25.	2008/2009 (Graduated)	**Main Supervisor:** Nurul Nadia Azmi. Size Reduction of Silicon Nanostructures by Thermal Oxidation Process.
26.	2008/2009 (Graduated)	**Main Supervisor:** Syah Nazreen Sahari. Fabrication and Profile Characterization of Thermal Actuators using Surface Micromachining Technique.
27.	2008/2009 (Graduated)	**Main Supervisor:** Mohd Noorazam Aziz. Design Optimization of Thermosonic Wire Bonding for Electronic Device Application.

RESEARCH GRANTS

	No. of grant Main-researcher	No. of grant Co-researcher	Total Amount RM
National and University	4	25	17,498,546
Industrial Grants	-	3	463,563
International	-	2	212,744

Government Grants

1. **Project Leader,** 2020 - 2023. FRGS/1/2020/STG01/UNIMAP/02/1. 'Elucidation of Surface Modification and Interaction of Retinol Binding Protein 4 (RBP4) with Gold Nanoparticles-Decorated Silicon Nanowires for Continuous Monitoring of Diabetes Mellitus (DM)'. Project cost RM 111,040.00.

2. **Project Leader,** 2011 - 2013. FRGS 9003-00298. 'Synthesis and Characterization of Carbon Nanotube Using Low Temperature Chemical Vapor Deposition for Biosensor Application. Project cost RM 91,460.00.

3. **Project Leader,** 2009 - 2011. Sciencefund 9005-00043. 'DNA Label-Free Detection using Carbon Nanotube FET'. Project cost RM 149,186.00.

4. Project Member, 2021 - 2024. FRGS/1/2021/TK0/UNIMAP/02/49. 'Mechanistic study on the role of mixed cation in improving the stability of tin-germanium based perovskite for solar cells'. Project cost RM RM168,830.00.

5. Project Member, 2020 - 2022. FRGS/1/2020/STG07/UNIMAP/02/7. 'Correlation between Carrier Mobility and Structural & Material Variations in a Junctionless Transistor by Numerical Modeling Using Direct Current (DC) Analysis for Label-free Sensors Applications'. Project cost RM 56,700.00.

6. Project Member, 2019 - 2021. FRGS/1/2019/STG07/UNIMAP/02/5. 'Evaluation of Bioaffinity and Surface Interaction between 17-α-ethinylestradiol (EE2) and Estrogen Receptor for Water Analysis'. Project cost RM 72,200.00.

7. Project Member, 2017 - 2019. FRGS (Ref: FRGS/1/2017/STG05/UNIMAP/03/3). Elucidation of Surface Modification and Interaction of CRP antigen-antibody with semiconductor surface for diagnosis of cardiovascular disease risks. Project cost RM 92,800.00.

8. Project Member, 2015 - 2017. FRGS (Ref: FRGS/1/2015/TK04/UNIMAP/02/13). Interaction between Mechanism of Cardiac Troponin and Anti-Troponin on the Transducer Surface Towards Prediction of Mild Heart Attack. Project cost RM 128,700.00.

9. Project Member, 2013 - 2015. FRGS (Ref: FRGS/2/2013/SG02/UNIMAP/02/2). Junctionless Transistor: Fundamental study of revolutionized conventional doping in MOSFETs. Project cost RM 131,000.00.

10. Project Member, 2013 - 2015. FRGS (Ref: FRGS/2/2013/TK05/UNIMAP/02/1). Elucidation on Surface Interaction between Aptamer and Multiwalled Carbon Nanotubes (MWCNTs) Project cost RM 100,500.00.

11. Project Member, 2009 - 2011. FRGS 9003-00203. 'Development and Fabrication of BIOFET with CMOS Compatible Sensing Membrane'. Project cost RM 50,000.00.

12. Project Member, 2010 – 2012. Sciencefund (MOA) 9006-00009. 'Development of Carbon Nanotube (CNT) based biosensor for Halal Detection'. Project cost RM 212,000.00.

13. Project Member, 2008-2010. FRGS 9003-00189. 'Design, Fabrication and Characterization of Electromagnetic Sensors Based on Armorphous and Plycrystaline Silicon. Project cost RM 87,000.00.

International Grants

1. Project Member, 2022 - 2024. Shandong University (9008-00040). Project cost RM 188,000.00.

2. Project Member, 2017 - 2019. Royal Society- Newton Mobility (9008-00010). Project cost RM 32,744.40.

Industrial Grants

1. Project Member, 2017 - 2019. Makna Cancer Research Award 17. Project cost RM 27,295.00.

2. Bionexus Partners ('BNP') 2009 - 2011. Services Maintenance Contract and Training of Staff. Project cost RM 399,268.80.

3. Project Member, Agilent Diversity Grant 2008 - RM 37,000 (USD 9.25K).

University Grants

1. **Project leader,** 2008 - 2009. STG 9001-00099. 'Fabrication of Silicon Nanowires using Size Reduction Method. Project cost RM 5,000.00.

2. Project Member, 2012 - 2014. COE MTUN 9016-00004. 'Development of nano DNA Lab On Chip Diagnostic System for E. Coli Pathogen Detection. Project cost RM 254,400.00.

3. Project Member, 2009-2010. STG 9001-000162. 'Optimization of BIOFET Fabrication for DNA Detection'. Project cost RM15,000.00.

4. Project Member, 2005-2007. KUKUM Short term grant, 'Development of MEMS Fabrication Process Using Microfabrication tools in KUKUM', Project cost RM 28,000.00.

5. Project Member, 2004 - 2007. KUKUM IRPA grant 09-02-15-0000-SR0013/06-06 (KUKUM Vot 910200). 'Fabrication and Characterization of Single Electron Transistor (SET) Transistor'. Project cost RM 2,760,240.00

6. Project Member, 2003 - 2004. KUKUM Short term grant 931300.'Fabrication and Characterization of in - house PMOS and NMOS Transistor Using Spin in Dopant Tecnique'. Project cost RM 20,000.00.

7. Project Member, 2004 - 2007. USM IRPA grant 09-02-05-4086- SR0013/06- 04. The development of Electron Transport Analysis in The Quantum Dost/Wires. Project cost RM 1,945,240.00.

8. Project Member, 2003 - 2004. KUKUM Short term grant 931500. 'Design and Construction of the Teaching Fab for Microelectronics Engineering: Project Management Perspective'. Project cost RM 19,250.00.

9. MSc Research Project 2004 - 2006: KUKUM IRPA grant 09-02-15-0000- SR0013/06-06 (KUKUM Vot 910200). 'Silicon Nanowaries Formation and Characterization Using SEM Based E-beam Lithography System'. Project Cost RM 2,700,000.00.

10. Project Member, 2005. Micro Fabrication Cleanroom Extension Project for Nanoelectronic Research Activities. Project Cost RM 2,500,000.00.

11. Project Member, 2004. Setting Up Failure Analysis Teaching Laboratory for the School of Microelectronics Engineering, KUKUM'. KUKUM development project. Project cost RM 3,000,000.00.

12. Project Member, 2003. Setting Up Micro Fabrication Cleanroom Teaching Fab for the School of Microelectronics Engineering, KUKUM. KUKUM development project. Project cost RM 5,500,000.00.

PUBLICATIONS

Scopus ID: 57219031365
http://orcid.org/0000-0001-6828-3762, Web of Science Researcher ID R-1132-2019
https://www.researchgate.net/profile/M_N_M_Nuzaihan_Md_Nor

H Index, Citation and No of Papers (Updated May 2024)

Scopus			Google Scholar		
H-index	Papers	Citation	H Index	Papers	Citation
14	84	841	17	104	1190

Impact Factor Journal

1. **Nuzaihan, M.M.N.,** Hashim, U., Md Arshad, M.K., Kasjoo, S.R., Rahman, S.F.A., Ruslinda, A.R., Fathil, M.F.M., Adzhri, R., Shahimin, M.M. (2016.) Electrical detection of dengue virus (DENV) DNA oligomer using silicon nanowire biosensor with novel molecular gate control. Biosensors and Bioelectronics, 83, pp. 106-114. (Supplementary data at http://dx.doi.org/10.1016/j.bios.2016.04.033). **IF: 7.476, Q1.**

2. **Nuzaihan, M.N.M**., Hashim, U., Arshad, M.K.Md., Ruslinda, A.R., Rahman, S.F.A., Fathil, M.F.M., Ismail, M.H., (2016). Top-down nanofabrication and characterization of 20 nm silicon nanowires for biosensing applications. PLoS ONE, 11 (3), art. no. e0152318,. **IF: 3.234, Q1.**

3. **Nuzaihan, M.N.M.,** Hashim, U., Ruslinda, A.R., Arshad, M.K.M., Baharin, M.H.A., (2015). Fabrication of silicon nanowires array using e-beam lithography integrated with microfluidic channel for pH sensing, Current Nanoscience, 11 (2), pp. 239-244. **IF: 1.10, Q2.**

4. Adli Azizman, M.S., Azhari, A.W., Ibrahim, N., Che Halin, D.S., Sepeai, S., Ludin, N.A., **Md Nor, M.N.,** Ho, L.N. Mixed cations tin-germanium perovskite: A promising approach for enhanced solar cell applications (2024) Heliyon, 10 (8), art. No/ **Q1.**

5. Azizman, M.S.A., Azhari, A.W., Halin, D.S.C., Ibrahim, N., Sepeai, S., Ludin, N.A., **Nor, M.N.M.,** Ho, L.N. Progress in tin-germanium perovskite solar cells: A review (2023) Synthetic Metals, 299, art. no. 117475.

6. Y. J. Beh, **M. N. M. Nuzaihan,** S. N. Sabki, S. B. Chia, C. H. Ng, C. C. Ong, M. F. M. Fathil, and Z. Zailan, "Nanoparticle-based Biosensors for Detection of Heavy Metal Ions," *Int. J. Nanoelectron. Mater.*, vol. 16, no. 4, pp. 827–842, 2023.

7. K. Y. Koay, M. F. M. Fathil, **M. N. M. Nuzaihan**, R. M. Ayub, and M. K. Md Arshad, "Numerical Simulation on the Impact of Back Gate Voltage in Thin Body and Thin Buried Oxide of Silicon on Insulator (SOI) MOSFETs," *Int. J. Nanoelectron. Mater.*, vol. 16, no. 4, pp. 819–826, 2023.

8. Aris, H., Rosli, M.N.B., **Nuzaihan, M.N.M.,** Sauli, Z., Norhaimi, W.M.W. "Simulation and Investigation of Si-Based Piezoelectric Micromachined Ultrasonic Transducer (PMUT) Performances" (2023) *International Journal of Nanoelectronics and Materials*, 16 (3), pp. 695-704.

9. Dalila, N.R., Arshad, M.K.M., Gopinath, S.C.B., **Nuzaihan, M.N.M**., Fathil, M.F.M. Molybdenum disulfide—gold nanoparticle nanocomposite in field-effect transistor back-gate for enhanced C-reactive protein detection (2020) *Microchimica Acta*, 187 (11), art. no. 588, . **Q1.**

10. Ibau, C., Arshad, M.K.M., Gopinath, S.C.B., **Nuzaihan M.N, M.,** Fathil, M.F.M., Shamsuddin, S.A. Immunosensing prostate-specific antigen: Faradaic vs non-Faradaic electrochemical impedance spectroscopy analysis on interdigitated microelectrode device (2020) *International Journal of Biological Macromolecules*, 162, pp. 1924-1936. **Q1.**

11. Ibau, C., Md Arshad, M. K., Gopinath, S. C. B., **Nuzaihan, M.M.N.,** Fathil, M.F.M., (2019). Gold interdigitated triple-microelectrodes for label-free prognosticative aptasensing of prostate cancer biomarker in serum. Biosensors and Bioelectronics, 136, pp. 118-127. **IF: 8.713, Q1.**

12. Arshad, M. K. M., Adzhri, R., Fathil, M. F. M., Gopinath, S. C. B., & **N M., Nuzaihan. M.,** (2018). Field-Effect Transistor-Integration with TiO_2 Nanoparticles for Sensing of Cardiac Troponin I Biomarker. Journal of Nanoscience and Nanotechnology, 18(8), 5283–5291. **IF: 1.354, Q1.**

13. R., A., Md Arshad, M. K., Gopinath, S. C. B., A.R., R., Fathil, M. F. M., Ibau, C., & **M.Nuzaihan., M. N.,** (2017). Enhanced sensitivity mediated ambipolar conduction with p-type TiO 2 anatase transducer for biomarker capturing. Sensors and Actuators A: Physical, 259, 57–67. doi:10.1016/j.sna.2017.03.015. **IF: 2.311, Q1.**

14. Fathil, M.F.M., Md Arshad, M.K., Ruslinda, A.R., Gopinath, S.C.B., **Nuzaihan M.N., M.,** Adzhri, R., Hashim, U., Lam, H.Y., (2016). Substrate-gate coupling in ZnO-FET biosensor for cardiac troponin I detection. Sensors and Actuators, B: Chemical, **IF: 4.758, Q1.**

15. Md Arshad, M.K., Fathil, M.F.B.M., Gopinath, S.C.B., Ruslinda, A.R., **Nor, M. Nuzaihan. M.**, Lam, H.Y., Hashim, U., (2016). Cardiac biomarkers: Invasive to non-invasive assessments. Current Medicinal Chemistry, 23 (37), pp. 4270-4284. **IF: 3.455, Q1.**

16. Rahman, S.F.A., Yusof, N.A., Hashim, U., Hushiarian, R., **M.N., M. Nuzaihan**., Hamidon, M.N., Zawawi, R.M., Fathil, M.F.M., (2016). Enhanced sensing of dengue virus DNA detection using O2 plasma treated-silicon nanowire based electrical biosensor. Analytica Chimica Acta, 942, pp. 74-85. **IF: 4.712, Q1.**

17. Fathil, M.F.M., Md Arshad, M.K., Ruslinda, A.R., **Nuzaihan M.N, M.,** Gopinath, S.C.B., Adzhri, R., Hashim, U., (2016). Progression in sensing cardiac troponin biomarker charge transductions on semiconducting nanomaterials. Analytica Chimica Acta, 935, pp. 30-43. **IF: 4.712, Q1.**

18. Adzhri, R., Md Arshad, M.K., Gopinath, S.C.B., Ruslinda, A.R., Fathil, M.F.M., Ayub, R.M., **Nor, M. Nuzaihan.M**., Voon, C.H., (2016). High-performance integrated field-effect transistor-based sensors. Analytica Chimica Acta, 917, pp. 1-18. **IF: 4.712, Q1.**

19. Fathil, M.F.M., Md Arshad, M.K., Gopinath, S.C.B., Hashim, U., Adzhri, R., Ayub, R.M., Ruslinda, A.R., **Nuzaihan M.N., M.,** Azman, A.H., Zaki, M., Tang, T.-H., (2015). Diagnostics on acute myocardial infarction: Cardiac troponin biomarkers. Biosensors and Bioelectronics, 70, pp. 209-220. **IF: 7.476, Q1.**

20. Rahman, S.F.A., Yusof, N.A., Hashim, U., **Nuzaihan Md Nor, M**., (2013). Design and fabrication of silicon nanowire based sensor. International Journal of Electrochemical Science, 8 (9), pp. 10946-10960. **IF: 1.692, Q3.**

Indexed Journal & Proceeding

1. **M. Nuzaihan M.N.,** M.F. Farizal, C.W. Chung, M.N. Aziz, M.F.M. Fathil, C. Ibau, M.K. Md Arshad and S. Johari, (2018). Polysilicon Nanowire with Liquid Gate Control for pH Sensing. International Journal of Nanoelectronics and Materials. **Scopus.**

2. **M. Nuzaihan M.N.,** M.I. Mazlan, M.N.F. Zulkiffli, S.M. Hazri, M.F.M. Fathil, C. Ibau, M.K. Md Arshad, S.F.A. Rahman, S.R. Kasjoo, (2018). Electrical Responses of Dengue Virus (DENV) using poly-Si Nanowire Array Biosensors. Joint International Conference On Nanoelectronics Engineering And Green Materials-International Conference On Nanoelectronics Engineering (Bond21-ICNE) 2018. **Scopus.**

3. **Md Nuzaihan, M. N.,** Hashim, U.; Arshad, M. K. Md; Ruslinda, A. Rahim; Azman, A. H., (2015). The Electrical Signals Measurement for Silicon Nanowires pH sensor. Advanced Materials Research . 2015, Vol. 1109, p219-222. 4p.

4. **Md Nuzaihan, M. N.,** Hashim, U., Voon, C. H., & Rahim Ruslinda, A. (2015). An In-House Approach for Fabrication of Poly-Silicon Nanobiosensor Using Conventional Photolithography and Etching Method. Advanced Materials Research, 1109, 210–213.

5. **Md Nor, Mohammad Nuzaihan,** Uda Hashim, Taib Nazwa, A Rahim Ruslinda, (2014). Fabrication of Poly-Si Nanowire Using Conventional Photolithography Technique. Advanced Materials Research, 925,pp. 460-463. **Scopus.**

6. **Md Nor, M.Nuzaihan.,** Hashim, U., Nazwa, T., Adam, T., (2014). Fabrication of silicon nanowires by electron beam lithography and thermal oxidation size reduction method. Advanced Materials Research, 832, pp. 415-418. **Scopus.**

7. **Md Nor, M. Nuzaihan.,** Hashim, U., Abdul Rahman, S. F., & Adam, T. (2013). Negative Pattern Scheme (NPS) Design for Nanowire Formation Using Scanning Electron Microscope Based Electron Beam Lithography Technique. Advanced Materials Research, 832, 419–422. **Scopus.**

8. **M. Nuzaihan M.N**, U.Hashim, T. Nazwa**,** (2013). Resist Mask and Nanowires Formation by Direct-Write Electron Beam Lithography. Jurnal of Applied Science Research (JASR). 9 (11).5580-5587.

9. **Nuzaihan, M.N.M.,** Hashim, U., Nazwa, T., Ruslinda, A.R., (2013). Fabrication of poly-silicon microwire using conventional photolithography technique: Positive resist mask vs aluminium hard mask Proceedings RSM 2013: 2013 IEEE Regional Symposium on Micro and Nano Electronics*,* art. no. 6706511, pp. 211-214. **Scopus.**

10. **M.Nuzaihan M.N.**, Uda Hashim, Nur Hamidah, Nik Hazura N.Hamat, (2010). Top- Down Approach: Fabrication of Silicon Nanowires using Scanning Electron Microscope based Electron Beam Lithography Method and Inductively Coupled Plasma Reactive Ion Etching. Published in American Institute of Physics (AIP), USA.p272. **Scopus.**

11. **M.Nuzaihan Md Nor,** Uda Hashim, Nur Nazihah Halemi, Nur Hamidah Abdul Halim, (2016) "Nanostructure Formation Using Scanning Electron Microscope (SEM) Based E-Beam Lithography (EBL) Technique: Wet Etch Profile", Malaysia Journal of Microscopy Vol.3, p146-150.

12. **M.Nuzaihan Md Nor**, U.Hashim, Armiza Rasmi, N.H.A. Halim, (2007). Nanowire Formation Using SEM Based Electron Beam Lithography (EBL) Technique: Dimension and Developments Profile of Negative Tone E-Beam Resist. Journal Solid State Science & Technology Letters, Volume 14 No.1, RCSST 2007, p51-56. ISSN 0128-8393.

13. **M.Nuzaihan Md Nor,** Nur Hamidah Abdul Halim, Uda Hashim, Hasnizah Aris, Sanna Taking, Zaliman Sauli, KC Phang, (2006). KUKUM Nano Fabrication Cleanroom: Efforts Towards Nanotechnology. Seminar Penyelidikan Kejuruteraan KUKUM 2006.

14. **M.Nuzaihan Md Nor**, U.Hashim, N.H.A. Halim, S.N. M. Bajuri, (2006). Nanowire formation for Single Electron Transistor using SEM Based Electron Beam Lithography (EBL) Technique: Positive Tone Vs Negative Tone E-beam Resist. Technical Proceeding of **NSTI Nanotech 2006**, HCC Boston USA, NSTI 2006, p266-269. ISBN 0-9767985-8-1 Vol.3. **Scopus.**

15. **M.Nuzaihan Md Nor**, S Niza Mohammad Bajuri, Nur Hamidah Abdul Halim, Uda Hashim, (2005). Positive Pattern Scheme and Negative Pattern Scheme For Nanowire Formation Using Scanning Electron Microscope Based Electron Beam Lithography Technique. Journal Solid State Science & Technology Letters. Volume 12, RCSST 2005, p62. ISSN 0128-8393.

16. **M.Nuzaihan Md Nor**, S Niza Mohammad Bajuri, Uda Hashim, (2005). Pattern Design for Nanowire Formation Using Raith Elphy Quantum GDSII Editor. Proceeding of Annual Fundamental Science Seminar 2005, AFSS 2005, 110-116. ISBN 983-43098-0-5 (2nd Price for **Best Poster Presentation**).

17. Shazereen Azlan, A., **Nuzaihan Md Nor,** M., Khairuddin Md Arshad, M., Amirah Basyarah, W., Ibau, C., Faris Mohamad Fathil, M. Fabrication and Characterizations of Poly-Si Nanowire Biosensor using Conventional Photolithography Technique for Detection of Dengue Virus DNA Type 2 (DENV-2) (2020) *IOP Conference Series: Materials Science and Engineering*, 864 (1), art. no. 012186, . **Scopus.**

18. Ong, C.C., Fathil, M.F.M., Md Arshad, M.K., **Md Nor, M.N.,** A. Rahim, R., Hashim, U., Abdullah, R.F., Mohd Ghazali, M.H., Tamjis, N.Field-Effect Transistor-based Biosensor Optimization: Single Versus Array Silicon Nanowires Configuration (2020) *Lecture Notes in Electrical Engineering*, 678, pp. 31-40. **Scopus.**

19. Zulkiffli, M.N.F., **Md Nor, M.N.,** Fathil, M.F.M., Zailan, Z., Isa, N.A.M., Ibau, C., Zainol Abidin, W.'A.B., Azlan, A.S., Md Arshad, M.K.Top-Down Fabrication of Silicon Nanogap for Detection of Dengue Virus (DENV) (2020) *Lecture Notes in Electrical Engineering*, 678, pp. 41-49. **Scopus.**

20. Ibau, C., Md Arshad, M.K., Gopinath, S.C.B., **Md Nor, M.N.,** Rizuan, N.D. Detection of prostate cancer's antigen in Sub-pico range of concentration using the faradaic-mode electrochemical impedance spectroscopy (2019) *2019 IEEE International Conference on Sensors and Nanotechnology, SENSORS and NANO 2019*, art. no. 8940067,. **Scopus.**

21. Tasakaren, T., Md Arshad, M.K., **Nuzaihan, M.M.N.,** Letchumanan, I., Fathil, M.F.M., Ibau, C. Fabrication and characterization of aluminium interdigitated electrodes (IDE) hybrid with zinc oxide (ZnO) nanoparticles for detection of cardiac troponin I (CTNI) biomarker (2019) *2019 IEEE International Conference on Sensors and Nanotechnology, SENSORS and NANO 2019*, art. no. 8940039, . **Scopus.**

22. Shun, M.W., Mohamad Fathil, M.F., Md Arshad, M.K., **Md Nor, M.N.,** Rahim, R.A., Gopinath, S.C.B. The impact of high-k dielectric layers for SINW-FET biosensor performance improvement (2019) *2019 IEEE International Conference on Sensors and Nanotechnology, SENSORS and NANO 2019*, art. no. 8940073, . **Scopus.**

23. Aidil, S.A., **Nuzaihan, M.M.N.,** Md Arshad, M.K., Abidin, W.A.B.Z., Ibau, C., Fathil, M.F.M. Fabrication and characterization of poly-Si nanowire with thin film of Ni/Au contact pad using conventional photolithography (2019) *2019 IEEE International Conference on Sensors and Nanotechnology, SENSORS and NANO 2019*, art. no. 8940057, . **Scopus.**

24. Dalila R., N., Md Arshad, M.K., Gopinath, S.C.B., **Nuzaihan, M.M.N.,** Ibau, C., Letchuman, I. Molybdenum disulfide (MoS2)/gold nanoparticles (AuNPs)-based field-effect transistor for C-reactive protein detection: Early diagnosis of cardiovascular disease (2019) *2019 IEEE International Conference on Sensors and Nanotechnology, SENSORS and NANO 2019*, art. no. 8940056, . **Scopus.**

25. Wan Amirah Basyarah, Z.A., **Nuzaihan, M.M.N.,** Md Arshad, M.K., Fathil, M.F.M., Sisin, N.A.H.T., Letchumanan, I., Ibau, C., Azlan, A.S. Fabrication and characterization of back-gate controlled silicon nanowire based field-effect pH sensor (2019) *2019 IEEE International Conference on Sensors and Nanotechnology, SENSORS and NANO 2019*, art. no. 8940065, . **Scopus.**

26. Iswary, L., Nazri, N.F.N., Arshad, M.K.M., Fathil, M.F.M., **Nuzaihan, N.M.,** Gopinath, S.C.B. Fabrication and characterization of aluminium interdigitated electrode hybrid with ZnO for cardiac troponin T biomarker detection (2018) *AIP Conference Proceedings*, 2045, art. no. 020038, .

27. M. F. M. Fathil, N. Tamjis, M. K. Md Arshad, **M. Nuzaihan M. N.,** S. F. A. Rahman, R. M. Ayub, A. R. Ruslinda, U. Hashim, C. C. Ong, R. F. Abdullah, and M. H. M. Ghazali, (2018). The Impact of Different Channel Doping Concentration on the Performance of Polycrystalline Silicon Nanowire Field-effect Transistor Biosensor. Joint International Conference On Nanoelectronics Engineering And Green Materials-International Conference On Nanoelectronics Engineering (Bond21-ICNE) 2018. **Scopus.**

28. M. F. M. Fathil, M. H. M. Ghazali, M. K. Md Arshad, **M. Nuzaihan M. N.,** S. F. A. Rahman, R. M. Ayub, A. R. Ruslinda, U. Hashim, R. F. Abdullah, C. C. Ong, and N. Tamjis, (2018). Numerical Simulation based on Different Channel Length of Silicon Nanowire Field-effect Transistor for Biosensing Application. Joint International Conference On Nanoelectronics Engineering And Green Materials-International Conference On Nanoelectronics Engineering (Bond21-ICNE) 2018. **Scopus.**

29. N. Dalila R., M.F. Azman, M. Rajaahmoorthi, M.K. Md Arshad, M.F.M. Fathil, **M. Nuzaihan M.N**., N. A. Parmin. (2018). Silicon-On-Insulator FET Biosensor for Detection of Dengue DNA. Joint International Conference On Nanoelectronics Engineering And Green Materials-International Conference On Nanoelectronics Engineering (Bond21-ICNE) 2018. **Scopus.**

30. Fathil, M. F. M., Arshad, M. K. M., **Nuzaihan, M. N. M.,** Gopinath, S. C. B., Ruslinda, A. R., & Hashim, U. (2018). The ZnO-FET Biosensor for Cardiac Troponin I. IOP Conference Series

(MUCET 2017): Materials Science and Engineering, 318, 012031. doi:10.1088/1757-899x/318/1/012031. **Scopus**

31. Johari, S., Omar, M. N. A., & **Nor, M. Nuzaihan. M.** (2017). Microfluidic structure fabrication using soft lithography and laser micromachine. 2016 3rd International Conference on Electronic Design (ICED). doi:10.1109/iced.2016.7804670. **Scopus.**

32. Ibau, C., Arshad, M. K. M., **Nor, M. Nuzaihan. M**., Ayub, R. M., Rahim, R. A., & Hashim, U. (2016). Numerical simulation of underlap FET device architecture for biosensor applications. 2016 IEEE International Conference on Semiconductor Electronics (ICSE). doi:10.1109/smelec.2016.7573602. **Scopus.**

33. Tan, C. M., Md Arshad, M. K., Fathil, M. F. M., Adzhri, R., **Nuzaihan M.N., M.,** Ruslinda, A. R., Hashim, U. (2016). Interdigitated Electrodes integrated with zinc oxide nanoparticles for Cardiac Troponin I biomarker detection. 2016 IEEE International Conference on Semiconductor Electronics (ICSE). doi:10.1109/smelec.2016.7573631. **Scopus.**

34. Fathil, M. F. M., Arshad, M. K. M., Ruslinda, A. R., Adzhri, R., Hashim, U., **Nuzaihan M.N., M.,** & Ibau, C. (2016). The effect of substrate-gate bias on the zinc oxide field-effect transistor for biosensing application. 2016 IEEE International Conference on Semiconductor Electronics (ICSE). doi:10.1109/smelec.2016.7573607. **Scopus.**

35. Adzhri, R., Md Arshad, M. K., Ruslinda, A., Gopinath, S. C. B., Fathil, M. F. M., Ayub, R. M., **M. M. N. M. Nuzaihan**, Hashim, U. (2016). FET-based biosensors with back-gate coupling towards the electrical pre-amplification of cardiac troponin I detection. 2016 IEEE International Conference on Semiconductor Electronics (ICSE). doi:10.1109/smelec.2016.7573628. **Scopus.**

36. Fathil, M. F. M., Arshad, M. K. M., Hashim, U., Ruslinda, A. R., Gopinath, S. C. B., **N., M. Nuzaihan.** M., Azman, A. H. (2016). Design Architecture of field-effect transistor with back gate electrode for biosensor application. doi:10.1063/1.4948889. **Scopus.**

37. Chang, H. Y., Arshad, M. K. M., **N., M. Nuzaihan. M.,** Fathil, M. F. M., & Hashim, U. (2016). Gold nanoparticles embedded silicon channel biosensor for improved sensitivity. doi:10.1063/1.4948892. **Scopus.**

38. L., S. L., Arshad, M. K. M., Fathil, M. F. M., Adzhri, R., **N., M. Nuzaihan. M.,** Ruslinda, A. R., Hashim, U. (2016). Zinc oxide interdigitated electrode for biosensor application. doi:10.1063/1.4948893. **Scopus.**

39. Adzhri, R., Arshad, M. K. M., Fathil, M. F. M., Hashim, U., Ruslinda, A. R., Ayub, R. M**. M. N. M. Nuzaihan**, Zaki, M. (2015). Characteristics of TiO_2 thin film with back-gate biasing for FET-based biosensors application. 2015 IEEE Regional Symposium on Micro and Nanoelectronics (RSM). doi:10.1109/rsm.2015.7355000. **Scopus.**

40. Fathil, M. F. M., Arshad, M. K. M., Hashim, U., Ruslinda, A. R., Ayub, R. M., Gopinath, S. C. B., **M. N. M. Nuzaihan,** Zaki, M. (2015). Deposition and characterization of ZnO thin film for FET with back gate biasing-based biosensors application. 2015 IEEE Regional Symposium on Micro and Nanoelectronics (RSM). doi:10.1109/rsm.2015.7355033. **Scopus.**

41. Adzhri, R., Arshad, M. K. M., Fathil, M. F. M., Hashim, U., Ruslinda, A. R., Ayub, R. M., **M. N. M. Nuzaihan,** Zaki, M. (2015). Reactive Ion etching of TiO_2 thin film: The impact of different gaseous. 2015 IEEE Regional Symposium on Micro and Nanoelectronics (RSM). doi:10.1109/rsm.2015.7354999. **Scopus.**

42. Voon, C. H., Derman, M. N., Foo, K. L., **Nuzaihan, M.,** & Hashim, U. (2015). Fast Fourier Transform Analysis of Images of Scanning Electron Microscope of Porous Anodic Alumina. Advanced Materials Research, 1109, 69-72.

43. Stephen Su, C. S.; Arshad, M. K. Md.; **Md Nor, M. Nuzaihan**; Fathil, M. F. M.; Ruslinda, A. R.; Hashim, U., (2015). Fabrication and Characterization of Doped Polysilicon Nanowire for pH Sensor. Applied Mechanics & Materials . 2015, Vol. 754-755, p561-566. 6p.

44. Hashim, U., Adzhri, R., Arshad, M. K. M., Fathil, M. F. M., Ruslinda, A. R., Ayub, R. M., **Md Nor, M. Nuzaihan**, Suriani, A. B. (2015). Spray pyrolysis of graphene oxide for field-effect transistor biosensor application. 2015 2nd International Conference on Biomedical Engineering (ICoBE). doi:10.1109/icobe.2015.7235909. **Scopus.**

45. Hashim, U., Azman, A. H., Ayub, R. M., Arshad, M. K. M., Norhafiezah, S., Fathil, M. F. M., **Nuzaihan, M. N. M.** (2015). Comparison of deal grove model growth rate with dry thermal oxidation process for ultra-thin silicon dioxide film. 2015 2nd International Conference on Biomedical Engineering (ICoBE). doi:10.1109/icobe.2015.7235905. **Scopus.**

46. Fathil, M. F. M., Adzhri, R., Arshad, M. K. M., Hashim, U., Ruslinda, A. R., Ayub, R. M., **M. Nuzaihan M.N.** Zaki, M. (2015). Preparation and characterization of titanium dioxide thin film for field-effect transistor biosensor application. 2015 2nd International Conference on Biomedical Engineering (ICoBE). **Scopus.**

47. Mohamad Shahimin, M., Mohd Rodzi, N. H., Omar, M. F., Poopalan, P., Man, B., & **Md Nor, M. Nuzaihan.** (2015). Hybrid elastomer-nanotube matrix for hydrophobic surface functionalization. Journal of Adhesion Science and Technology, 29(6), 532–542. **Scopus.**

48. Yee, C. C., Arshad, M. K. M., **Nuzaihan, M. N. M.**, Fathil, M. F. M., & Hashim, U. (2014). Fabrication and characterization of undoped polysilicon nanowire for pH sensor. 2014 IEEE International Conference on Semiconductor Electronics (ICSE2014). **Scopus.**

49. Johari, S., Tamilchelvan, N., **Nor, M. Nuzaihan.** M., Ramli, M. M., Taib, B. N., Mazalan, M., & Wahab, Y. (2014). The effect of softbaking temperature on SU-8 photoresist performance. 2014 IEEE International Conference on Semiconductor Electronics (ICSE2014). **Scopus.**

50. Ang, Y. M., Arshad, M. K. M., Foo, K. L., **Nuzaihan, M. N. M.,** Azman, A. H., & Hashim, U. (2014). Fabrication and characterization of polysilicon for DNA detection. 2014 IEEE International Conference on Semiconductor Electronics (ICSE2014).**Scopus.**

51. Rodzi, N.H.M., Shahimin, M.M., Poopalan, P., Man, B., **Nor, M.N.M.** (2013) Hydrophobicity studies of polymer thin films with varied CNT concentration Proceedings of SPIE - The International Society for Optical Engineering*, 8923, art. no. 89235G,* .**Scopus.**

52. Nazwa Taib, U.Hashim, **M.Nuzaihan.M.N**, (2013). Simple and Reproducible Si Based Master Mould for LOC PDMS Micromixer in Sample Delivery System, Jurnal of Applied Science Research (JASR) 9 (11). 5592-5598.

53. T.Nazwa, U.Hashim, **M.Nuzaihan M.N.,** A.Azniza, N.Hafiza, (2012). Probing the pH measurement of self-alligned polysilicon nanogap capacitor ", The International Conference for Nanomaterials Synthesis and characterization, 4-5th July 2011, INSC 2011, p 118. Scopus-Advanced Materials Research Vol. 364 (2012) p344-347.*www.scientific.net © (2012) Trans Tech Publications, Switzerland*.

54. A.Aniza, **M.Nuzaihan M.N.** (2012). Carbon Nanotubes (CNTs) biosensor design and fabrication for sensoring device. The 3rd ISESCO International Workshop and Conference on Nanotechnology. December 5 th -7 th, 2012 at Universiti Kebangsaan Malaysia, p134.

55. Low Foo Wah, Nur Hamidah Abdul Halim, Uda Hashim **M.Nuzaihan M.N**, (2012). The Aligment of SWNTs between Electrode using dielectrophoresis. The 2nd International Malaysia-Ireland Joint Symposium on Engineering, Science and Business, 18th -20th June 2012, IMIEJS 2012, p946-p952.

56. A.Azniza and **M.Nuzaihan M.N.** (2012). "Carbon Nanotubes: Design and Fabrication for Biosensor Application" The 2nd International Malaysia-Ireland Joint Symposium on Engineering, Science and Business, 18th -20th June 2012, IMIEJS 2012, p881-883.

57. Wah, L.F., Halim, N.H.A., Hashim, U., **Nor, N.M.,** Shamsuddin, S.A. (2011). The alignment of carbon nano tube between Aluminum electrodes using AC dielectrophoresis method 2011 IEEE Regional Symposium on Micro and Nanoelectronics, RSM 2011 - Programme and Abstracts*, art.* no. 6088338, pp. 259-262.

58. N.Hafiza, Derman M.N, **M.Nuzaihan M.N.,** T.Nazwa, A.Azniza, (2011). Nanostructured porous anodized aluminium oxide by using CzHzOa for electronic applications: study of the cell potential effects on formation of porous alumina, The International Conference for Nanomaterials Synthesis and characterization, 4-5th July 2011, INSC 2011, p109.

59. A.Azniza, **M.Nuzaihan M.N.,** and A.asyraf.B.A.Z. (2011). Synthesis of Carbon Nanotubes: Chemical Vapour Deposition (CVD) Technique, 20th Scientific Conference of the Microscopy Society of Malaysia, 20-22 December 2011, EMSM 2011, p75.

60. A.asyraf.B.A.Z, A.Azniza, **M.Nuzaihan M.N.,** and W.M.W.N Haimi (2011). Temperature Manipulation for Carbon Nanotubes Growth by Using Chemical Vapor Deposition (CVD), 20th Scientific Conference of the Microscopy Society of Malaysia, 20-22 December 2011, EMSM 2011, p76.

61. A.Azniza, **M.Nuzaihan M.N.,** N.Hafiza, T.Nazwa. (2011). "Design and Fabrication of Carbon Nanotube for Medical Application", The International Conference for Nanomaterials Synthesis and characterization, 4-5th July 2011, INSC 2011, p117.

62. S.F. Abd Rahman, U. Hashim, **M.N. Md Nor**, M.E.A. Shohini, (2011) "Fabrication of Nano and Micrometer Structures Using Electron Beam and Optical Mixed Lithography Process", International Journal of Nanoelectronics and Materials (IJNeaM) Volume 4, No. 1, 2011, p49-58.

63. S. Fatimah Abd Rahman, U. Hashim, **M. Nuzaihan Md Nor**, (2010). "Application of E-beam Lithography for Nanowire Development", International Postgraduate Conference On Engineering (IPCE 2010), 16-17th October 2010, UniMAP.

64. L.F.Wah, D.Nazree, N.Hamidah Abdul Halim,U.Hashim, M.Nuzaihan Md Nor, (2010). " A review on fabrication of CNT based Biosensor. International Conference on the Advancement of Material&Nanotechnology II (ICAMN II-2010) 29th November 2010 -1st December 2010, Kuala Lumpur. p54.

65. M.Syamsul N.S.B, **M.Nuzaihan M.N,** U.Hashim, (2010). "Dispersion and Integration of Single walled Carbon Nanotubes for CNT based Biosensor", The 2nd ISESCO International Workshop and conference on Nanotechnology 2010, p53.

66. M.Asyraf A.Z, M.Syamsul N.S.B, **M.Nuzaihan M.N**.,U.Hashim, (2010). "Development of Carbon Nanotube Based Biosensor design for Medical Diagnostics Application" Nanotech Malaysia 2010: International Conference on Enabling Science and Nanotechnology.

67. M.Syamsul N.S.B, **M.Nuzaihan M.N.,** U.Hashim, (2010). "Optimization of Carbon Nanotube based Biosensor design for medical Diagnostics Application", 3rd International Conference on Solid State Science & Technology, 1-3 Dec 2010, ICSSST 2010, p81.

68. S.F. Abd Rahman, U.Hashim, A.M. Mohamed Nuri, M.E.A. Shohini, **M.Nuzaihan M.N.**, (2009). "Alignment Strategy in Mix and Match Process Apllication", PSU&UniMAP Seminar, 6 Mac 2009, Prince of Songkla University, Thailand.

69. N.H. Abdul Halim, U.Hashim, **M.Nuzaihan M.N**., (2009). "Ma -N2403 Resist Development for Electron Beam Lithography Process" Malaysia Technical Universities Conference on Engineering and Technology (MUCEET 09) 20-22 June 2009, p36.

70. S.Fatimah Abd Rahman, U.Hashim, **M.Nuzaihan M.N**., A.M. Mohamed Nuri, M.E.A. Shohini, (2009). "Pattern Designed for Combination of Optical Lithography and Electron Beam Lithography". Malaysia Technical Universities Conference on Engineering and Technology (MUCET 09) 20-22 June 2009, p36.

71. S.F. Abd Rahman, U.Hashim, A.M. Mohamed Nuri, M.E.A. Shohini, **M.Nuzaihan M.N.**, (2009). "Design and Process development of Silicon Nanowire Using Electron Beam Lithography for DNA Hybridization Detection", Engineering Postgraduate Conference 2009 (EPC 09) 18-29 July 2009, p54.

72. N.Syuhada M.D., U.Hashim, **M.Nuzaihan M.N**., (2009). "Development of Source and Drain Structures for n-ISFET Application". Engineering Postgraduate Conference 2009 (EPC 09) 18-29 July 2009, p55.

73. S.Fatimah Abd Rahman, U.Hashim, **M.Nuzaihan M.N**., A.M. Mohamed Nuri, M.E.A. Shohini, (2009). "Silicon Nanowires Biosensor for DNA Hybridization Detection", Nanometerials synthesis & Characterization Conference (nMSC 2009) 3-4 Nov 2009, p28.

74. N.Syuhada M.D., U.Hashim, **M.Nuzaihan M.N**., (2009). "The Development of N-ISFET Gate using Si_3N_4/SiO_2 as a Sensing Membrane for pH Measureme". Nanometerials synthesis & Characterization Conference (nMSC 2009) 3-4 Nov 2009, p29.

75. N.H. Abdul Halim, U.Hashim, **M.Nuzaihan M.N,** (2009). "Micro Patterning of MA-N2403 Negative Resists Using Elecron Beam Lithography", Nanometerials synthesis & Characterization Conference (nMSC 2009) 3-4 Nov 2009, p30.

76. S.Fatimah Abd Rahman, U.Hashim, **M.Nuzaihan M.N**., M.E.A. Shohini, (2009) "Biosensor Based on Silicon Nanowire", International Conference on Nanotechnology –Research and Commercialisation (ICONT 2009), p59.

77. N.Syuhada M.D., U.Hashim, **M.Nuzaihan M.N**, M.Naim. H.Cin.S.F., (2009). "Formation of Silicon Nitride Gate Sensing Membrane by Plasma Enchanced Chemical Vapour Deposition (PECVD)", International Conference on Nanotechnology – Research and Commercialisation (ICONT 2009).

78. N. Syuhada M.D, U.Hashim, **M.Nuzaihan M.N**, M.Naim H, (2009) " Fabrication of Source and Drain Structures for n-ISFET Application", 25th Regional Conference on Solid State Science & Technology 2009 (RCSSST 09) 21-23 Dec 2009, p83.

79. S.Fatimah Abd Rahman, U.Hashim, W.M.W Nor Haimi, **M.Nuzaihan M.N**. (2009). "Fabrication of High Contrast Alignment Marks for E-Beam Lithography using Reactive Ion Etching", 25th Regional Conference on Solid State Science & Technology 2009 (RCSSST 09) 21-23 Dec 2009, p106.

80. M.K. Md Arshad, Lim Moy Fung, **M.N.M.Nor** and Uda Hahim, (2008). "Characterization Of Intermetallic Growth of Gold Ball Bonds On Aluminum Bond Pads" JIMMER Volume 3(2008), Issue 2, p187-197. **Scopus.**

81. Uda Hashim, Siti Fatimah Abd. Rahman, **M. Nuzaihan Md. Nor**, Shahrir Salleh, (2008). Design and Process Development of Silicon Nanowire Based DNA Biosensor using Electron Beam Lithography, 2008 International Conference on Electronic Design. *ICED 2008*, art. no. 4786648

82. M.K.Md Arshad, Lim Moy Fung, **M.Nuzaihan. M Nor**, Z. Sauli, U. Hashim,(2008). The Intermetallic Study of Gold Ball Bonds on Aluminum Bond Pads, ICSE 2008 Proc. 2008.

83. Nur Hamidah Abdul Halim, Uda Hashim, Zul Azhar Zahid Jamal, **M.Nuzaihan Md Nor,** (2006). "Mosfet Process Technology and Device Development For Teaching Microelectronic Engineering Undergraduate Programme", Konvesyen Teknologi Pendidikan ke-19, Langkawi 9-11 Sept 2006, Persatuan Teknologi Pendidikan, USM.

84. Uda Hashim, **M.Nuzaihan Md Nor**, Zul Azhar, Zaliman Sauli, (2006)." Kukum Micro Fabrication Cleanroom Setup For Teaching Undergraduate Microelectronic Engineering Program", International Conference on Science and Technology, ICSTIE 2006: Applications in Industry and Education, UITM 8-9 December 2006.

85. Uda Hashim, Zul Azhar Zahid Jamal, KC Phang, **M.Nuzaihan M.N**, Nurhamidah Abdul Halim and Haffiz Abd Razak. (2006). "Design and Construction of Micro Fabrication Cleanroom for Teaching Microelectronic Undergraduate" ELEKTRIKAL, Journal of electrical engineering faculty of electrical engineering, UTM ISSN 0128-4428 Vol.8, No.2.

86. Nur Hamidah Abdul Halim, Uda Hashim and **M.Nuzaihan Md Nor**, (2006). "Electron Beam Lithography Process Optimization: Effectof electron Dose to the Pattern Line Widths", The Second International Conference on Solid State Science and Technology 2006, ICSSST 2006 KUSTEM, p290-291, ISSN 0128-8393.

87. Uda Hashim, **M.Nuzaihan Md Nor**, (2005). "An Undergraduate Microchip Fabrication Facility In Kukum", Regional Conference on Scientific and Analytical Methods in Manufacturing, SAMM 2005. p21.

88. Uda Hashim, Zul Azhar Zahid Jamal, **M.Nuzaihan Md Nor** and Nur Hamidah Abdul Halim, (2005). "Cost Effective Negative Plenum Cleanroom For Microelectronic Engineering Undergraduate Programme", Jurnal Penyelidikan dan Pendidikan Kejuruteraan, KUKUM, Jilid 2, 2005,ISSN 1823-2981. p95-102.

89. S Niza Mohammad Bajuri, Nur Hamidah Abdul Halim, **M.Nuzaihan Md Nor** and Uda Hashim, (2005). "PMMA Characterization and Optimization for Nano Structure Formation", Proceeding of 1st national Conference on Electronic design (NCED) 2005, p81-83. ISBN 983-42724-0-5.

90. Armiza Rasmi, **M.Nuzaihan Md Nor**, Uda Hashim, (2005). "SOI Single Electron Transistors (SET) Set Design and Process Development". 1st National Conference On Electronic Design 2005, NCED2005, p85-90. ISBN 983-42724-0-5.

91. S Niza Mohammad Bajuri, Nur Hamidah Abdul Halim, **M.Nuzaihan Md Nor** and Uda Hashim, (2005). "495K & 950K PMMA Thickness Characterizations and Optimization", Proceeding of Annual Fundamental Science Seminar 2005, AFSS 2005, p140-144. ISBN 983-43098-0-5.

92. S Niza Mohammad Bajuri, Uda Hashim, **M.Nuzaihan Md Nor**, Nur Hamidah Abdul Halim, (2005). E- Beam Lithography: Direct writing Nanostructure at KUKUM Micro Fabrication

Cleanroom", 3rd International Conference on Advanced Technology (ATCi 2005) – Conference on Advanced Theoretical Sciences (CATS), 6 – 8 Dec. 2005, Marriott Putrajaya.

93. S Niza Mohammad Bajuri, **M.Nuzaihan Md Nor**, Nur Hamidah Abdul Halim, Uda Hashim, Zul Azhar Zahid Jamal, (2005). "Scanning Electron Microscope Based Electron Beam Lithography Technique For Nanostructure Formation At KUKUM Micro Fabrication Cleanroom", Journal Solid State Science & Technology Letters. Volume 12, RCSST 2005,p61. ISSN 0128-8393.

94. Nur Hamidah Abdul Halim, S Niza Mohammad Bajuri, **M.Nuzaihan Md Nor**, Uda Hashim, Zul Azhar Zahid Jamal, (2005). "Scanning Electron Microscope Based Electron Beam Lithography: Lithography Technique for MOS Transistor Fabrication In KUKUM", Journal Solid State Science & Technology Letters. Volume 12, RCSST 2005. p23. ISSN 0128-8393.

95. S Niza Mohammad Bajuri, Uda Hashim, **M.Nuzaihan Md Nor** and Nur Hamidah Abdul Halim. (2005) "The effect of structure sizes in determined the energy-to clear of positive electron beam resist", Proceeding of 14th Scientific Conference Electron Microscopy Society of Malaysia, EMSM 2005, p20-24.

96. Uda Hashim, Norina Idris, Yufridin Wahab, Zul Azhar Zahid Jamal, Zaliman Sauli, **M.Nuzaihan Md Nor**, Nur hamidah Abdul Halim, Rizalafande Che Ismail and Mohd Khairuddin Md Arshad, (2003). "Microelectronics Engineering Curriculum Development for Undergraduate Study", Proceedings of the 2003 IEEE National Symposium on Microelectronics (NSM 2003). p252-258.

AWARDS AND APPRECIATION

Academic and Research

1. Anugerah Perkhidmatan Lama (20 Tahun) – Pingat Jasa Bakti
2. UniMAP Young Scientist 2017.
3. Anugerah Kecemerlangan Penyelidikan 2017 -– **1 Award.**
4. Anugerah Perkhidmatan Cemerlang (APC), Universiti Malaysia Perlis 2016.
5. Anugerah Kecemerlangan Penyelidikan 2016 -– **1 Award.**
6. Anugerah Kecemerlangan Jurnal 2016 -– **2 Q1 papers.**
7. Tempat Pertama, PIN **peringkat Kebangsaan** 2016 – Kategori Doktor Falsafah.
8. IPTA Academic Training Scheme for Doctor of Philosophy Study - 2013-2016.
9. Anugerah Kecemerlangan Jurnal 2015 -– **1 Q2 paper.**
10. Anugerah Kecemerlangan Penyelidikan 2015 -– **1 Award.**
11. Anugerah Kecemerlangan Penyelidikan 2014 -– **2 Awards.**
12. Anugerah Kecemerlangan Penyelidikan 2012 -– **2 Awards.**
13. Anugerah Kecemerlangan Penyelidikan 2010 -– **2 Awards.**

14. Anugerah Kecemerlangan Penyelidikan 2009 – **2 Awards.**
15. Anugerah Kecemerlangan Penyelidikan 2008 – **3 Awards.**
16. Anugerah Kecemerlangan Penyelidikan 2007 – **2 Awards.**
17. IPTA Academic Training Scheme for Master of Science Study – 2006 -2007.
18. Anugerah Kecemerlangan Penyelidikan 2006 – **4 Awards.**
19. Anugerah Kecemerlangan Penyelidikan 2005 – **3 Awards.**
20. Anugerah Khas Perkhidmatan Cemerlang, Universiti Malaysia Perlis tahun 2003.

Exposition, Innovation and Invention

1. **Gold Medal** at SIIF Korea 2021 “Modified Silicon Nanostructures as DM Sensor“.
2. **Gold Medal** at MTE 2021 “Modified Silicon Nanostructures as DM Sensor“.
3. **Gold Medal** at The Virtual Research and Innovation Exhibition UniMAP (EREKA) 2021 “ Modified Silicon Nanostructures as DM Sensor “.
4. **Silver Medal** at The Virtual Research and Innovation Exhibition UniMAP (EREKA) 2020“ Polysiliocn Nanowire Trimming for Biomedical Applications“.
5. **Bronve Medal** at The Virtual Research and Innovation Exhibition UniMAP (EREKA) 2020“ Back-Gated Silicon Nanowire FET for Detection of Dengue Virus (DENV)”.
6. **Bronze Medal** at The International Conference and Exhibitions on Inventions by Institutions of Higher Learning (PECIPTA 2017) October 2017 “ Molecular Gate Devices for Detection of Dengue Virus (DENV) at FemtoMolar Concentration”.
7. **Gold Medal** at Seoul International Invention Fair 2016 (SIIF 2016), Seoul, December 2016,“ SAW Based Sensor for E.Coli Detection”.
8. **Silver Medal** at Seoul International Invention Fair 2016 (SIIF 2016), Seoul, December 2016,“ Nanowire Biosensors for Highly Sensitive and Rapid Detection of Dengue Virus (DENV).
9. **Gold Medal** at 26th International Invention Innovation Industrial Design & Technology Exhibition 2015 (ITEX 2015), Kuala Lumpur, May 2015 “Nanowires Nanosensor for DNA molecule Detection”.
10. **Gold Medal** at 25th International Invention Innovation Industrial Design & Technology Exhibition 2014 (ITEX 2014), Kuala Lumpur, 8th -10th May 2014 “Silicon Nanowires Array Ph Sensor with Integrated Microfluidic Channel”.
11. **Gold Medal** at Malaysia Technology Expo 2014 (MTE 2014), PWTC, Kuala Lumpur 20 – 22 February 2014. “Highly sensitive Green Wire Sensor”.
12. **Gold Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2013, 7 January 2014. “Silicon Nanowires Array Ph Sensor with Integrated Microfluidic Channel”.

13. **Gold Medal** (Special Award) at The International Youth Invention Contest (IYIC, in Seoul, Korea), 6-8 Aug. 2013. “Superhydrophobic Surfaces”.

14. **Gold Medal** at Asian Young Inventors Exhibition 2013 held in Conjuction with 24th International Invention Innovation Industrial Design & Technology Exhibition 2013 (ITEX 2013), Kuala Lumpur, 9th-11th May 2013. “Self Cleaning PDMS Thin Film Utilising MWCNT”.

15. **Gold Medal** at International Engineering Invention & Innovation Exhibition (i-envex) and Malaysian International Young Inventors Olympiad (MIYIO) 2012, April 26-29,2012, “Synthesis of Carbon Nanotube using Low Temperature CVD”.

16. **Silver Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2013, 7 January 2014. “Highly sensitive Green Wire Sensor”.

17. **Bronze Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2013, 7 January 2014. “Silicon Nanowire Based Dna Sensor”.

18. **Gold Medal** at Asian Young Inventors Exhibition 2013 held in Conjuction with 24th International Invention Innovation Industrial Design & Technology Exhibition 2013 (ITEX 2013), Kuala Lumpur, 9th-11th May 2013. “Self Cleaning PDMS Thin Film Utilising MWCNT”.

19. **Bronze Medal** at I-NOVA 12 Ekspo Inovasi Isalm 1433H, Universiti Sains Islam Malaysia. 20-21 October 2012, “Synthesis of Carbon Nanotube using Low Temperature CVD”.

20. **Gold Medal** at International Engineering Invention & Innovation Exhibition (i-envex) and Malaysian International Young Inventors Olympiad (MIYIO) 2012, April 26-29,2012, “Synthesis of Carbon Nanotube using Low Temperature CVD”.

21. **Bronze Medal** at International Engineering Invention & Innovation Exhibition (i-envex) and Malaysian International Young Inventors Olympiad (MIYIO) 2012, April 26-29, 2012, “Design and Fabrication of CNT Biosensor for Medical Application”.

22. **Bronze Medal at** Malaysia Technology Expo 2012 (MTE 2012), PWTC, Kuala Lumpur **16**th – 18th February 2012. “Synthesis of Carbon Nanotube Using Low Temperature Chemical Vapor Deposition”.

23. **Bronze Medal at** Malaysia Technology Expo 2012 (MTE 2012), PWTC, Kuala Lumpur **16**th – 18th February 2012. “Carbon Nano Tube Field Effect Transistor”.

24. **Silver Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2011, 11th January 2012. “Synthesis of Carbon Nanotube Using Low Temperature Chemical Vapor Deposition”.

25. **Silver Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2011, 11th January 2012. “Carbon Nano Tube FET”.

26. **Silver Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2011, 11th January 2012. “Development of Carbon Nanotube Based Biosensor Fabrication For Medical Diagnostics Application”.

27. **Silver Medal** at 21st International Invention Innovation Industrial Design & Technology Exhibition 2010 (ITEX 2010), Kuala Lumpur, 14th -16th May 2010. “Mems Thermal Sensor”.

28. **Bronze Medal at** Malaysia Technology Expo 2010 (MTE 2010), PWTC, Kuala Lumpur 4th – 6th February 2010. “Silicon Nanowire Based DNA Biosensor”.

29. **Silver Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2009, 7th January 2010. "Nano Biosensor Structure by Resist Trimming Process".

30. **Silver Medal** at 20th International Invention Innovation Industrial Design & Technology Exhibition 2009 (ITEX 2009), Kuala Lumpur, 15th -17th May 2009. "Electrolyte Insulator Semiconductor (EIS) Diode Ph Sensor".

31. **Bronze Medal** at Malaysia Technology Expo MTE 2009, PWTC Kuala Lumpur. 19th -21st February 2009. "Nanostructure Formation using Size-Reduction Lithography for Nano Biosensor Application".

32. **Gold Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2008, 8th January 2009. "Nanowire Biosensor for DNA Hybridization Detection".

33. **Silver Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2008, 8th January 2009. "Carbon Nanotube Transistor for DNA Detection".

34. **Bronze Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2008, 8th January 2009. "Nanostructure Formation using Size-Reduction Lithography for Nano Biosensor Application".

35. **Bronze Medal** at Ekspo Rekacipta & Pameran Penyelidikan UniMAP 2008, 8th January 2009. "Electrolyte Insulator Semiconductor (EIS) Diode Ph Sensor".

36. **Gold Medal** at 2008 Seoul International Invention Fair (SIIF 2008), Pacific Hall, Coex, Seoul, 11th -15th December 2008. "MOSFET for education".
37. **Bronze Medal** at 19th International Invention Innovation Industrial Design & Technology Exhibition 2008 (ITEX 2008), Kuala Lumpur, 9th -11th May 2008. "Electron Beam Lithography".

38. **Silver Medal** at Malaysia Technology Expo MTE 2008, PWTC Kuala Lumpur. 21st- 23th February 2008. "MOS Transistor".

39. **Silver Medal** at Ekspo Rekacipta dan Penyelidikan UniMAP, Kangar. 9th January 2008. "Electron Beam Lithography".

40. **Silver Medal** at Ekspo Rekacipta dan Penyelidikan UniMAP, Kangar. 9th January 2008. "MOS Transistor".

41. **Silver Medal** at Ekspo Rekacipta dan Penyelidikan UniMAP, Kangar. 9th January 2008. "Slim Probe".

42. **Gold Medal** at 59th International Exhibition 'Ideas – Inventions-New Products', Nuremberg, Germany, 1st – 4th November 2007. "Silicon Nanowires".

43. **Silver Medal** at International Exposition and Inventions of Institutions of Higher Learning 2007 (PECIPTA 2007), Kuala Lumpur, 10th - 12th August 2007. "Semiconductor Nanowire".
44. **Genius Prize** (Hungary – International Awards) at 18th International Invention Innovation Industrial Design & Technology Exhibition 2007 (ITEX 2007), Kuala Lumpur, 18th -20th May 2007. "Silicon Nanowire".

45. **Gold Medal** at 18th International Invention Innovation Industrial Design & Technology Exhibition 2007 (ITEX 2007), Kuala Lumpur, 18th -20th May 2007. "Silicon Nanowire".

46. **Silver Medal** at Ekspo Penyelidikan KUKUM 2006, Kangar. 9th Nov 2006. "Silicon Nanowires".

47. **Bronze Medal** at 17th International Invention Innovation Industrial Design & Technology Exhibition 2006 (ITEX 2006), Kuala Lumpur, 19th -21st May 2006. “Nanowires (using SEM based EBL Technique)”.

48. **Silver Medal** at 17th International Invention Innovation Industrial Design & Technology Exhibition 2006 (ITEX 2006), Kuala Lumpur, 19th -21st May 2006. “Mos Transistor (Fabricated using in – house low cost facility)”.

49. **Silver Medal** at 17th International Invention Innovation Industrial Design & Technology Exhibition 2006 (ITEX 2006), Kuala Lumpur, 19th -21st May 2006. “Mos Transistor Mask Design using E-Beam Lithography”.

50. **Gold Medal** at Pameran Penyelidikan KUKUM 2006 semperna Sambutan Hari Keputeraan DYMM Tuanku Raja Perlis ke- 63, Kangar. 15th May 2006. “Nanowires (using SEM based EBL Technique)”.

51. **Silver Medal** at Pameran Penyelidikan KUKUM 2006 semperna Sambutan Hari Keputeraan DYMM Tuanku Raja Perlis ke 63, Kangar. 15th May 2006.“MOS Transistor (Fabricated using in – house low cost facility)”.

52. **Bronze Medal** at Pameran Penyelidikan KUKUM 2006 semperna Sambutan Hari Keputeraan DYMM Tuanku Raja Perlis ke 63, Kangar. 15th May 2006. “MOS Transistor Mask Design using E-Beam Lithography”.

53. **Silver Medal** at 34th International Exhibition of Inventions New Techniques and Products Geneva, 5th – 9th April 2006, Geneva, Switzerland. “Affordable and Effective Microelectronic Engineering Teaching Package for Undergraduate Programme”.

54. **Gold Medal** at IPTA R&D Expo 2005, Kuala Lumpur, 30th September – 2nd October 2005. “Cost Effective Negative Plenum Cleanroom for Microelectronic Engineering Undergraduate Programme”.

55. **Bronze Medal** at IPTA R&D Expo 2005, Kuala Lumpur, 30th September – 2nd October 2005. “Mosfet Process Technology for Microelectronic Engineering Undergraduate Programme”.

56. **2nd Prize - Best Poster** Presentation at Annual Fundamental Science Seminar 2005, AFSS 2005, Skudai, Johor, 4-5 July 2005. “Pattern Design for Nanowires Formation Using Raith Elphy Quantum GDSII Editor”.

57. **Gold Medal** at 16th International Invention Innovation Industrial Design & Technology Exhibition 2005 (ITEX 2005), Kuala Lumpur, 19th -21st May 2005. “A Cost Effective and Consummate Fabrication Teaching Set Up For Microelectronic Engineering”.

INTELECTUAL PROPERTY

1. A Method of Producing Nanowires and A product Derives Thereof – FILED P120091646.

2. A Method to Manufacture A Nanowire Biosensor – FILED P12011003054/MY-176496-A

REFEREES

1. Prof Dr. Uda Hashim
   Universiti Malaysia Perlis (UniMAP).
   Tel: +60194008844
   Email: uda@unimap.edu.my

2. Prof. Ir. Dr. Mohd Khairuddin Md Arshad
   Universiti Malaysia Perlis (UniMAP).
   Tel: +60195541402
   Email: mohd.khairuddin@unimap.edu.my