

CURRICULUM VITAE



Abu Sahmah was born in Johor Bahru, Malaysia, on July 1963. He received his PhD degree from Universiti Teknologi Malaysia (UTM) in 2004. He joined Faculty of Electrical Engineering, UTM in 1986 as an Assistant Lecturer. He has taught various subjects and worked on a variety of research projects in the field of Optical Fibers, Free Space Optic, Visible Free Space Optic and PLC, and Photonic Devices. With the expertise gained in Photonics Switching Devices, he has been working as a visiting researcher in Mesa Research Institute, University of Twente the Netherland, ZenPhotonics Inc. and ChemOptics Inc. both are in Korea and a visiting professor in Pusan National University of Korea and City University of Hong Kong. To date he has written more than 100 papers, which has been published in National and International Journals as well as in the conferences. He is presently an Associate Professor and the Head Department of Telematics and Optics Engineering (TOP) in the Faculty of Electrical Engineering, UTM.

1. PERSONAL INFORMATION

Name	:	IR. DR. ABU SAHMAH BIN MOHD SUPA'AT
Designation	:	Associate Professor (since 16 January 1999)
I.C. No.	:	7072897 / 630727016107
Citizenship	:	Malaysian
Date of birth	:	27 July 1963
Place of birth	:	Pontian, Johor
Marital status	:	Married (Dr. Zaleha binti Nassir), Five children
Home address	:	1 Belibis 1/3, Taman Perling, 81200 Johor Bahru, Johor
Office	:	Fakulti Kejuruteraan Elektrik, Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor, Malaysia
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2. FIELD OF SPECIALIZATION

Photonics Communications: Photonics Waveguides Devices, Photonics Switching, Photonics Sensors, Photonics System, Integrated Optics and Free Space Optics.

3. ADMINISTRATION

1. Head of Telematics and Optics Communication Engineering Department (2007-present)
2. Jawatankuasa Pentadbiran FKE (2007 – present)
3. Jawatankuasa Pengajian Siswazah FKE (2007 - present)
4. Academic Advisor for SEM Students (2008 – present)
5. Academic Advisor for International Student (2009 - present)
6. Academic Advisor for Exchange Student (2011 – present)

4. PUBLICATIONS (International and National Journals)

1. F.D. Mahad, A.S.M. Supa'at, S.M. Idrus, D. Forsyth Comparative Performance Testing of SOA Wavelength Conversion Techniques for Future All-Optical Systems accepted to be publish inInternational Journal for Light and Electron Optics (OPTIK), issue 2012. IF 0.454.
2. M.H. Ibrahim, N. M. kassim, A.B. Mohammad and A.S.M. Supa'at, "Facet Preparation of Polymer Based Optical Wavelength Filter Using Mechanical/Chemical Treatment Technique", Microwave and Optical Technology Letters, Vol. 54 (5) 2012. IF 0.745
3. I. Yulianti, A. S. M. Supa'at, S. M. Idrus, O. Kurdi, and M. R. S. Anwar, "Finite Element Stress Analysis of Optical Fiber due to Mechanical Expansion of Hydrogel Coating," *Applied Mechanics and Materials*, vol. 110-116, pp. 2432-2436, 2012.
4. A.Ramli, S.M Idrus, R.J.Green and A.S.M. Supa'at, "Gain Flattening for Optical Wireless Front-End Receiver Considering various large Window Photodetectors", International Journal for Light and Electron Optics (OPTIK), in press (2012). **IF 0.454**
5. I. Yulianti, A. S. M. Supa'at, S. M. Idrus, O. Kurdi, and M. R. S. Anwar, "Sensitivity Improvement of Fibre Bragg Grating pH Sensor with Elastomeric Coating," *Measurement Science and Technology*, vol. 23, 2012. (**IF 2010:1.353**)
6. F.D. Mahad, A.S.M. Supa'at, S.M. Idrus, D. Forsyth, "Simulation on Semiconductor Optical Amplifier Intensity Noise Reduction for Future Spectrum-Sliced Optical Networks", International Journal for Light and Electron Optics (OPTIK), Vol. 123 Issue 2 pp 95-99 2012. **IF 0.454**
7. Farah Diana Mahad, Abu Sahmah M. Supa'at, Sevia Mahdaliza Idrus, David Forsyth "Analyses of Semiconductor Optical Amplifier (SOA) Four-Wave Mixing (FWM) for future all-optical wavelength conversion", International Journal for Light and Electron Optics (OPTIK), Available online 15 February 2012. **IF 0.454**
8. I. Yulianti, A. S. M. Supa'at, S. M. Idrus, and O. Kurdi, "Modelling of Hydrogel Coated Fiber Bragg Grating pH Sensor," in *2011 International Conference on Information and Industrial Electronics (ICIIE 2011)*, Chengdu, China, 2011, pp. V1-224 to V1-228. (will be published in *Procedia Engineering Elsevier*).
9. Zulkifli, N., Idrus, S.M., Supa'at, A.S.M., Farabi, M.A. "Network Performance Improvement of All-Optical Networks Through an Algorithmic Based Dispersion Management Technique", *Journal of Network and Systems Management*, pp. 1-16 2011. IF=0.45.
10. Abdulaziz M. al-hetar, Abu Bakar Mohammad, Abu Sahmah M Supa'at, Zaid A Shamsan, Ian Yulianti, "Fabrication and Characterization of Polymer Thermo-optic Switch based on MMI Coupler". *Optics Communications* 284 Issue 5. pg. 1181-1185, 2011. IF=1.552
11. M.H. Ibrahim, M.Yaacob, N.M. Kassim, A.S.M. Supa'at and A.B. Mohammad "Heater Optimization for Polymer in Silica Optical Switch", International Journal of Microwave and Optical Technology, Vol.6, No.3, pp. 172-178, MAY 2011. IF 0.745
12. Abdulaziz Mohammed Al-Hetar, Abu Bakar Mohammad, Abu Sahmah M. Supa'at, and Zaid Ahmed Shamsan, "MMI-MZI polymer thermo-optic switch with a high refractive index Contrast, *Journal of Lightwave Technology*, VOL. 29, NO. 2, p. 171-178 JANUARY 15, 2011.(2010 IF 2.255)
13. Ian Yulianti, Abu Sahmah Mohd Supa'at, Sevia M. Idrus, Abdulaziz M. Al-hetar, "Cosine Bend Linear Waveguide Digital Optical Switch With Parabolic Heater", *Optics & Laser Technology* Vol .42, Issue 1, pp 180-185. Cited 2 times. doi: 10.1016/j.optlastec.2009.06.003 **2010. IF 1.616**
14. A. M. Al-Hetar, A. B. Mohammad, A. S. M. Supa'at and Z. A. Shamsan, "A New Structure of MMI Polymer Thermo-Optic Switch with a High Refractive Index Contrast", *Progress In Electromagnetics Research B*, Vol. 24, 103-120, 2010.
15. M.H. Ibrahim, N. Mohd Kassim, A.B. Mohammada, A.S.M. Supa'at, Mee-Koy Chin and Shuh-Ying Lee, "Optical cross couplers based on wet-etch processing of benzocyclobutene polymer," *Journal of Optical Materials*, 32 pp.703-706, 2010. **IF 1.678**
16. Abdulaziz M. Al-hetar, Abu Sahmah M. Supa'at, A. B. Mohammad, and Ian Yulianti "Optimize a waveguide for thermo-optic application". *Optoelectronics and Advanced Materials – Rapid Communications*, Vol. 4, No. (2), pp. 125-127, Feb 2010. **IF 0.477**
17. A. M. Al-Hetar, A. S. M. Supa'at, and A. B. Mohammad, "A Ridge waveguide for Thermo-optic Application", *Progress In Electromagnetics Research Letters*, Vol. 6, pp. 1-9, 2009.

18. Abu Sahmah M. Supa'at, Sevia M. Idrus, A. B. Mohammad, Ian Yulianti and Abdulaziz M. Al-Hetar. "Parabolic heater for low crosstalk digital optical switch", *Optoelectronics and Advanced Materials – Rapid Communications*, Vol. 3, No. (5), PP. 418-423, May 2009. IF 0.477
19. M.H. Ibrahim. N.M. Kassim, A.B. Mohammad and A.S.M. Supa'at, "Facet Polishing Technique for Polymer on Glass Optical Waveguide", *Journal of Optoelectronics and Advanced Materials-Rapid Communications*, 3(3), 223-225, March 2009. IF 0.477
20. M. Yaacob, M.H. Ibrahim, N.M. Kassim, A.B. Mohammad and A.S.M. Supa'at, "Switching Power Improvement of Hybrid Polymer-Silica Based MMI Thermo-Optic Switch", *Journal of Optoelectronics and Advanced Materials*, 11(5), pp. 559-564, 2009. **IF 0.412**
21. M.H. Ibrahim, N.M. Kassim, A.B. Mohammad, A.S.M. Supa'at. "Modelling of Rib Sidewall Scattering Loss for Optical Waveguide with Trapezoidal Cross Section". *Journal of Optoelectronics and Advanced Materials - Rapid Communications*, 3(9): 917-920, 2009. **IF 0.477.**
22. A.S Mohd Supa'at, M.H. Ibrahim, A.B. Mohammad, N.M. Kassim and N.E. Ghazali, "A Novel Thermo-optic Polymer Switch Based on Directional Coupler Structure", *American Journal of Applied Sciences*, 5(11): 1552-1557, 2008.
23. Abdulaziz M. Al-Hetar, I. Yulianti, Abu Sahmah M. Supa'at, A.B. Mohammad, "Thermo-optic multimode interference switches with air and silicon trenches", *Optics Communications* 281, pp. 4653–4657, 2008. | Cited By in Scopus (9). IF=1.552
24. Abdulaziz M. Al-Hetar, Abu Sahmah M. Supa'at, A.B. Mohammad, I. Yulianti, "Crosstalk improvement of a thermo-optic polymer waveguide MZI–MMI switch", *Optics Communications*, 281, pp. 5764-5767, 2008. | Cited By in Scopus (4). IF=1.552.
25. Abdulaziz M. Al-Hetar, Abu Sahmah M. Supa'at, A.B. Mohammad, I. Yulianti, "Multimode Interference Photonic Switches", *Optical Engineering*, 47(11), pp. 1-6, 2008. IF 0.815
26. Wan Rizal Hazman Wan Ruslan, Sevia Mahdaliza Idrus, Arnidza Ramli, Norhafizah Ramli, Abu Sahmah Mohd Supa'at & Farizal Mohd Nor, *Terrestrial Free Space Optic Propagation Analysis Considering Malaysia Weather Condition*, *Jurnal Teknologi*, 54 Januari 2011: 217–229.
27. F.D. Mahad, A.S.M. Supa'at, S.M. Idrus, D. Forsyth, "Review Of Semiconductor Optical Amplifier (SOA) Functionalities", *Jurnal Teknologi Special Edition (Optoelectronics & Optical Communication) No.55*, May 2011.
28. Fatin Hamimi Hamat @ Mustafa, Abu Sahmah M. Supa'at and Farah Diana Mahad, "Simulation of FSO Transmission at Petaling Jaya due to Attenuations Effect", *Elektrika VOL. 12, NO. 1, 2010*, 30-34
29. Farah Diana Mahad and Abu Sahmah M. Supa'at, "EDFA gain Optimization for WDM System", *Jurnal Elektrika VOL. 11, NO. 1, 2009*, 34-37
30. Ismahayati Adam, Mohd Haniff Ibrahim, Norazan Mohd Kassim, Abu Bakar Mohammad, and Abu Sahmah Mohd Supa'at, "Design of Arrayed Waveguide Grating (AWG) for DWDM/CWDM Applications Based on BCB Polymer" *Jurnal Elektrika*, 10(2), pp. 18-21, 2008.
31. Abu Sahmah Mohd Supa'at, Abu Bakar Mohammad and Norazan Mohd Kassim, "Low Power Consumption Thermo-optic Switch Using Polymers," *Journal of Industrial Technology*, vol.14, no.1, pp. 59-68, 2005.
32. Abu Sahmah, Abu Bakar and Norazan, "The Development of 2x2 Thermo-optic Switch," *Journal of Electrical Engineering - Elektrika*, vol.7, no.1, pp.1-8, June 2005.
33. Abu Sahmah Mohd Supa'at, Abu Bakar Mohammad and Norazan Mohd Kassim, "Polymer based directional coupler thermo-optic optical switch." *Jurnal Teknologi*, No. 40(D), pp. 1-8, Jun 2004.
34. Abu Sahmah Mohd Supa'at, Abu Bakar Mohammad and Norazan Mohd Kassim, "Design of parallel waveguide using electro-optic effect in controlling the coupling of light." *Journal Institution of Engineers, Malaysia, Special Issue ELECTRICAL*, Vol. 63, No. 1, pp. 33-36, March 2002.
35. Abu Sahmah Mohd Supa'at, Abu Bakar Mohammad and Norazan Mohd Kassim, "Modelling techniques for rectangular dielectric waveguides-ribs waveguides." *Jurnal Teknologi*, No. 36(D), pp. 129-143, Jun 2002.

36. Abu Bakar Mohammad, Abu Sahmah Mohd Supa'at and Liew Yew Loung, "Experimental study of the influence of various atmospheric conditions on unguided optical communication," *Jurnal Teknologi*, no. 33(D), pp. 105-110, 2001.
37. Abu Bakar Mohammad, Abu Sahmah Mohd Supa'at and Mohd Jaya Abdullah, "A high gain erbium doped fiber amplifier," *Jurnal Teknologi*, no. 30(D), pp. 105-110, 1999.
38. Norazan Kassim and Abu Sahmah Mohd Supa'at. "Assessment of SIMOX material by Optical Waveguide Losses." *Jurnal Elektrika*, pp. 22-27/Jld. 7 Bil. 1/94, 1994.
39. Abu Sahmah Mohd Supa'at, "Transmission characterization on optical fiber link", *Jurnal Optik*, pp. 19-22/Jld. 7/Bil1/93, 1993.
40. Abu Sahmah Mohd Supaat and Ishak Ismail, "Kod pembetulan ralat jenis berkitar (cyclic)." *Jurnal Elektrika*, pp. 75-78/Jld. 1 Bil. 3/Isu Khas, 1988.

5. RESEARCH

4.1 Research Grant (Project Leader)

1. Fiber Bragg Grating pH Sensor for Remote Sensing Environmental Monitoring. RM 129,000.00. GUP (2011-2013)
2. A Study of Visible Free Space Optic VFSO & Broadband Power Line Communication (BPLC) RM 44,000.00 FRGS Project No. 78573 (2010-2012).
3. Development of Multimode Interference (MMI) coupler for variable-ratio power splitter and optimized switching. 01-01-06-SF0488. Vot. No. 79289, RM246,400.00 (2008-2009).
4. Development of Digital Optical Switch for All Optical Cross-Connect. Project number : 01-01-06-SF0162. RM226,997.00, (Dec 2006- Nov 2008).
5. Wavelength and Polarization Insensitive Couplers for Optical Cross-Connect. Project number : 01-01-06-SF0683. RM239,800.00 (June 2009-2010).
6. Implementation and Evaluation of Broadband Unguided Optical Link in Malaysian Weather. Vot Number: 71008. RM 14,000.00/UPP (2000-2001).
7. Design of a Climate Chamber to Simulate Various Atmospheric Conditions. Vot Number: 71472. RM 19,000.00/UPP. (1999-2000).
8. Experimental Study of Data Communication Using Infrared Wireless Optical Communication. UPP Vot. Number 71364. RM 15,000.00.(1997-1999).
9. Investigation of zero dispersion optical fiber for single mode and multimode (1994 –1996).
10. Lightwave communication system link (1994 – 1996).
11. Transceiver Design for the Application of Future Optical Communication (UTM-MIMOS; 1991 – 1992).

4.2 Research Grant (Co-Researcher)

1. Radio Frequency (RF) Front-End Design of Radio Access Point for Radio Over Fiber (ROF) Technology. E-science Project number: 01-01-06-SF0038. RM 222,196.00, (2006-2008).
2. Photonics Frequency Conversion For Millimeterwave Radio Over Fiber System (MMWRoF). E-science Project number: 01-01-06-SF0064. RM221,395.00. (2006- 2008).
3. RF Front-End Design Of Radio Access Point For Radio Over Fiber. MOSTI-EScience, Vot Number: 79022. RM 222,196.00. (2006-2008).
4. Optical Free Space Feed Forward Linearization System. E-science Project number: 01-01-06-SF0360. RM 276,660.00.(2007-2009).
5. Bandwidth Enhancement Using Bootstrap Transimpedance Amplification Technique for Free-Space Optical Front-End Receiver. MOHE-FRGS, Vot Number: 78203. RM130,000.00. (2007-2009).
6. Development of Photonic Switch for High Speed Communication Network. IRPA. Vot Number: 72285. RM 173,850.00. (2000-2001).
7. Photonic Switch Development for All-Optical Network. Vot Number: 72317. RM 2,151,040.00 (Top-Down National Project–IRPA). (2000-2002).
8. Photonic Switch Development for All-Optical Network RM 1,200,000.00 (Top-Down National Project–IRPA). (2005-2007).

9. Polymer Based Optical Waveguide. Vot Number: 74211. RM 1,000,000.00 (Top-Down National Project–IRPA).(2000-2004).
10. MEMS Based Optical Devices. IRPA Vot Number: 74211. RM 600,000.00. (2004-2006).
11. Performance of DC transmission insulation under the adverse environmental condition primarily due to sea air borne contaminants (IRPA Vot Number: 72026. RM 163,400.00. (1996 – 1999).
12. Development and Applications of Low Bit Rate Fiber Optic Video System for Multimedia Applications. British Council/CICHE. (1998-2000).
13. Optical Time Division Multiplexing for Optical Communication System, FRGS, Vot Number: 78025, RM 15,000.00. (2006-2009).
14. Multimode Interference Based Variable Optical Attenuator Using Sol-Gel Processing Technique Project Number: 01-01-06-SF0656, RM 206,800.00. (April 2009-Sept 2010).
15. Design and evaluation of low bit rate fiber optic video system for multimedia application. Vot Number: 71010. RM 15,000.00/UPP. (1996-1998).
16. Development of a Traditional Food Packaging Machine, Vot Number: RM 14,300, UPP/UTM (1996 - 1997).

5. SUPERVISION

5.1 Ph. D supervision

1. Abdulaziz M. Al-Hetar, “Development of Thermo-Optic Switches Based on Multimode Interference (MMI) for Variable-Ratio Power Splitter and Optimized Switching” (2009 - Graduated)
2. Mohd Jaya Abdullah, ‘Atmospheric Propagation For Free Space Optical Transmission System’ (2012 – Graduated)
3. Ian Yulianti, “Fiber Bragg Grating Sensor for Remote Sensing Environmental Monitoring” (2009 - active)
4. Samura Ali, “Data Encryption and Security”, (2009 - active)
5. Ehsan Alavi, Integrated VFSO and BPLC (2009 - active)
6. Mohd Shahril Abdullah, “Bandwidth Management in WDM PON for Future Access Network” (PhD Industry, 2011 - active)
7. Hoda Rezaie, “Modelling of Wireless Body Area Network for Human Healthcare (2011 - active)

5.2 Master by research supervision

1. Ian Yulianti, “Digital Optical Switch for Optical Add/Drop Multiplexer” (2008 – Graduated)
2. Arnidza Ramli, “Bandwidth Enhancement Technique for Wireless Front-End Optical Receiver” (Co-supervisor, 2009 - Graduated)
3. Mohd Hanipah Muda, “Single-mode and Multimode Fiber with Multi-Core in LAN Environment”, (2009 – withdraw after 1 year)
4. Farah Diana binti Mahad, ‘Optical Packet Space Switch Array Based on SOA Gates’. (2011 – Graduated)
5. Romli Mohamad, ‘Carrier Generation Using Stimulated Brillouin Scattering (SBS) Technique for ROF application (Co-supervisor, 2011 – Graduated)

5.3 Master by course project supervision

1. Hoda Rezaie, “BPLC Optimization for Integrated System of VFSO”. 2010.
2. Fatin Hamimi Hamat @ Mustafa, ‘The Effect of Atmosphere Conditions on Performance of Free Space Optic’, 2010.
3. Irneza Ismail, ‘Modulation Format and Optimization Performance of Dispersion Compensated SMF Fiber Transmission System Using Dispersion Compensating Fibers’, 2010.
4. Norizah Md. Ishak, “The Effect of Atmospheric Conditions on performance of FSO in Malaysia”. 2010.
5. Nurzal Effiyana Ghazali, ‘Performance of IP Multimedia Subsystem (IMS) between Local Area Networks (LANs)’. 2010.
6. Zunaidi Md Dalan, “Mobile Technology Identification Based on Location of Tourist Mobile Guide for Tourism Industry”, 2009.

7. Norazlina binti Mohamed, 'Digital Optical Switch'. 2008.
8. Yasser Abdelrahim Mohamed Abdelaziz, 'Arrayed Waveguide Grating'. 2008.
9. Elmuiz Eltayeb Suliman, 'Optical Insensitive Couplers'. 2008.
10. Esmael H.M.Yahaya, 'Mach-Zehnder interferometers'. 2008.
11. Muhammad Yusof Mohd Nor, 'Wavelength and Polarization Insensitive Coupler'. 2007.
12. Aleeya Ashraf, 'Y-Junction Optical Switch', 2006.

6. BOOKS AND TEACHING MODULES

1. **Abu Sahmah Mohd Supa'at**, David Ian Forsyth, Nadiatulhuda Zulkifli, Norhafizah Ngajikin, Sevia Mahdaliza Idrus and Yusri Md. Yunos, "Principles of Communication" Pearson Malaysia Sdn Bhd. 2011.
2. Fatimah Mohamad, Siti Zaleha Abdul Hamid, Rozeha A. Rashid, **Abu Sahmah Mohd Supa'at**, "Teori Medan Elektromagnet".
3. **Abu Sahmah Mohd Supa'at**, Fatimah Mohamad, "Teori medan Elektromagnet – Contoh Penyelesaian Vol. 1".
4. **Abu Sahmah Mohd Supa'at**, Fatimah Mohamad, "Teori medan Elektromagnet – Contoh Penyelesaian Vol. 2".
5. **Abu Sahmah Mohd Supa'at**, Fatimah Mohamad, "Electromagnetic Theory – Solutions".

7. INTELLECTUAL PROPERTY

1. Patent Pending, "EDFA Gain Optimization for WDM System", Abu Sahmah bin Mohd Supa'at and Farah Diana Mahad.
2. PI 2011 001566, "Thermo-optic multimode interference switch", Abu Sahmah bin Mohd Supa'at and Abdulaziz M. Al-hetar. Principal Inventor.
3. PI 2009 0289 "Modified Cosine S-bend Optical Power Splitter". Abu Sahmah Mohd Supa'at, Sevia M Idrus, Abu Bakar Mohamad, and Norazan Mohd Kassim. Principal Inventor.
4. PI 2009 0288 "Cosine S-bend Linear Hybrid Junction Digital Optical Switch". Abu Sahmah Mohd Supa'at, Sevia M Idrus, Abu Bakar Mohamad, Mohd Haniff Ibrahim, Norazan Mohd Kassim and Ian Yulianti. Principal Inventor.
5. PI 2009 3806 "Polymeric Thermo-Optic Variable Optical Attenuator", Abu Sahmah Mohd Supa'at, Sevia M Idrus, Abu Bakar Mohamad, Mohd Haniff Ibrahim, Norazan Mohd Kassim and Ian Yulianti, Principal Inventor.
6. PI 2009 4281 "Cosine S-Bend Linear Hybrid Junction Digital Optical Switch With Variable Optical Attenuator", Abu Sahmah Mohd Supa'at, Sevia M Idrus, Abu Bakar Mohamad, Mohd Haniff Ibrahim, Norazan Mohd Kassim and Ian Yulianti, Principal Inventor.
7. PI 2008 3525: Multimode Interference Thermo-Optic Switch with Triple Heaters Configuration (2008). Co Inventor.
8. PI 20083 523: A Dual Band Optical Wavelength Filter Based on Triple Multimode Interference Cavities (2008). Co Inventor.
9. PI 2008 3524: Fabrication Method of Single Mode Optical Waveguide (2008). Co Inventor.
10. PI 2009 0086: A Multimode Interference Polymer Based Optical Cross Coupler and Method of Manufacturing The Same (2009). Co Inventor.
11. PI 2008 2361: "3.4 GHz Front end Optical Receiver for Radio over Fiber System", Sevia M Idrus, Abu Bakar Mohamad, Abu Sahmah Supaat, and Hilman Harun, Malaysian Patent Application. May 2008. Co Inventor.
12. PI 2008 3597: 'Optical Free Space Feed Forward Linearization System', Sevia M Idrus, Abu Bakar Mohamad, Abu Sahmah Supaat, and Norazan Mohd Kassim, Malaysian Patent Application. 22 Sept. 2008. Co Inventor.
13. PI 2006 4277: "2x2 Waveguide Based Thermo-optic Photonic Switch", Abu Bakar Mohamad, Abu Sahmah Mohd Supa'at and Norazan Mohd Kassim. Co Inventor.
14. Trapezoidal Optical Waveguide Modelling Using Combination of Effective Index Method and Beam Propagation Method.
15. Thermo-optical Switch Electrode Modelling Using Finite Difference Method.

16. Surface Roughness Modelling of Optical Waveguide Sidewall.
17. Error Correcting Codes: Cyclic Codes, B.E.E Thesis. (1986)
18. Optical Video Transceiver Design Using Pulse Frequency Modulation Technique, M.E.E Thesis. (1991)
19. Development of Thermo-optic Switch Based on Directional Couplers: PhD Thesis. (2004)

8. RECOGNITION AWARD

1. Gold Medal "Gain Flattening Technique for Large Optical Front End Receiver Employing MEMS variable Feedback Capacitor", SIIF Seoul International Invention Fair 2011. Dec 1- 4, 2011.
2. Gold Medal: Thermo-optic Photonic Switch. 32nd. International Exhibition of Invention, New Techniques and Products of Geneva. 30 March – 4 April. 2004.
3. Gold Medal "Polymeric Thermo-optic Variable Optical Attenuator" 22nd International Invention, Innovation & Technology Exhibition, ITEX 2011, Kuala Lumpur Malaysia 20-22 May 2011.
4. Gold Medal "Cosine S-Bend Linear Hybrid Junction DOS with VOA", 22nd International Invention, Innovation & Technology Exhibition, ITEX 2011, Kuala Lumpur Malaysia 20-22 May 2011.
5. Gold Medal & Poland Foreign Award: "Heterojunction Bipolar Transistor (HBT) Optoelectronic Mixer (OEM) for Radio Over Fiber at 30.4 GHz" Malaysia Technology Expo (MTE) 2010, PWTC, Kuala Lumpur.
6. Silver Medal: "Large Window Optical Front-End Receiver for Free Space Optics Link" Malaysia Technology Expo (MTE) 2010, PWTC, Kuala Lumpur.
7. Bronze Medal: "Cosine S-bend –Linear Hybrid Junction Digital Optical Switch" Malaysia Technology Expo (MTE) 2010, PWTC, Kuala Lumpur.
8. Silver Medal: "Linear and Low Noise Optical Transmitter Design for the Optical Wireless Communication Systems" International Exposition of Research and Invention of Institutions of Higher Learning 2009 (PECIPTA 09), KLCC, Kuala Lumpur
9. Silver Medal: "Photonics Vibration Detection System" International Exposition of Research and Invention of Institutions of Higher Learning 2009 (PECIPTA 09), KLCC, Kuala Lumpur
10. Bronze Medal: "Radio Over Fiber Feedforward Transmitter (WRoF-FT)" International Exposition of Research and Invention of Institutions of Higher Learning 2009 (PECIPTA 09), KLCC, Kuala Lumpur
11. Bronze Medal: "3.4 GHz Optical Front-End Receiver Design for Radio over Fiber System" International Exposition of Research and Invention of Institutions of Higher Learning 2009 (PECIPTA 09), KLCC, Kuala Lumpur
12. Silver Medal: "Cosine S-bend –Linear Hybrid Junction Digital Optical Switch" 11th Industrial Art and Technology Exhibition (INATEX) 2009, DSI, UTM Skudai, Johor
13. Bronze Medal: "Heterojunction Bipolar Transistor (HBT) Optoelectronic Mixer (OEM) for Radio Over Fiber at 30.4 GHz" 11th Industrial Art and Technology Exhibition (INATEX) 2009, DSI, UTM Skudai, Johor
14. Bronze Medal: "Large Window Optical Front-End Receiver for Free Space Optics Link" 11th Industrial Art and Technology Exhibition (INATEX) 2009, DSI, UTM Skudai, Johor
15. Award: Silver Medal: "2x2 Thermo-optic Photonic Switch." Expo Science and Technology (Expo S&T) 2003 at Pusat Dagangan Dunia Putra (PWTC), Kuala Lumpur, 7 – 9 August, 2003.
16. Award: Jury's Award: "2x2 Thermo-optic Polymer based Optical Switch" Industrial Art and Technology Exhibition (INATEX), Universiti Teknologi Malaysia, Johor Bahru, 17-19 September, 2003.
17. Anugerah Jasa Bakti 20 Tahun Perkhidmatan, 2008
18. Anugerah Khidmat Cemerlang, 2005
19. Anugerah Khidmat Cemerlang, 2010.

13. RECOGNITION AND CO CURRICULAR ACTIVITIES

1. Professional Engineer
2. MIEM
3. Visiting Professor in City University Hong Kong (1 week, 2010)

4. Visiting Professor in Pusan National University of Korea (1 week, 2008).
5. Visiting Professor in ChemOptics Inc. of Korea, (3 days, 2008)
6. Visiting Researcher in Mesa Research Institute, University of Twente the Netherland, (2 months, 2002)
7. Visiting Researcher in Zen Photonics of Korea, (1 months, 2003)
8. Committee Member 2011 IEEE Regional Symposium on Micro and Nanoelectronics (RSM2011)
9. RSM Session Chair 2011
10. Technical Programme Co Chair 2010 IEEE Asia-Pacific Conference on Applied Electromagnetics (APACE 2010), 9 – 11 November 2010 Port Dickson, Malaysia.
11. Technical Programme Committee (Co-Chair) International Symposium on Antennas and Propagation, INAS 2009.
12. Deputy Chair 2008 Regional Student Conference on Research and Development (SCOREd 2008), 26-27 Nov, UTM Skudai, MALAYSIA
13. Panel Anugerah Kualiti Akademik 2011, Fakulti Pendidikan, UTM.
14. Jawatankuasa Kebangsaan IEC Malaysia – Ahli Ganti (Malaysian Electrotechnical National Committee – MYNEC) (2006 - present).
15. National Technical Committee on Nanotechnology Standardization for Electrical and Electronic Products and Systems (2010 – present)
16. Ahli Panel Temuduga Yayasan Sultan Iskandar Johor 2009 - 2011.
17. Advisor Telecommunication Exhibition and Colloquium 2008 - 2011.
18. Pensyarah jemputan ke UTHM Kepimpinan Universiti RU. 15 November 2010.
19. Hakim Pameran TMRnD 'Breakthrough' Kategori 'Material' 22 April 2009, Cyberjaya, Selangor, 2009.
20. Committee Member Expert Evaluation and Technical for Strategic Research (SR), MOSTI (2005).
21. Hakim Pameran Reka Cipta, Penyelidikan & Inovasi (PRPI 2006), Universiti Putra Malaysia, 22-24 Ogos 2006.
22. Hakim INATEX 2008 UTM.
23. Ahli panel penilai projek IRPA di bawah Kategori Strategic Research (SR) "Next Generation Photonics Access Network, NEXPAN", RM 7,000,000, Kementerian Sains Teknologi dan Inovasi, MOSTI, Jun 2005.
24. Penilai (Pakar Bidang) Kertas Kerja Jurnal Kebangsaan Anugerah Penerbitan Universiti 2006.
25. Panel Penilai Proposal Fundamental Research Grant Scheme (FRGS), IcRA UTM 2011.
26. Panel Penilai Bengkel Proposal E-SCIENCEFUND 2010 IcRA, UTM
27. Panel Penilai Bengkel Proposal E-SCIENCEFUND 2010 RMC, UTM
28. Panel Penilai Dokumen Laporan Kendiri EAC – FKA 2009
29. Panel Penilai Dokumen Laporan Kendiri EAC – SPACE 2009
30. Panel Penilai Dokumen Laporan Kendiri EAC – KST City Campus 2009
31. Panel Penilai Dokumen Laporan Kendiri EAC – FKKSA UTM 2011.
32. Training Consultant "Kursus Pemasangan dan Pengukuran Gentian Optik" untuk Kolej Komuniti Tanjung Piai, Pontian 4 April 2012.
33. Training Consultant for SIGNIFICANT TECHNOLOGIES SDN BHD (CO. NO. 510247-A) (2010-2011)
34. SIRIM Berhad - MS IEC 62621:2011- Test Methods for Measurement of Electrical Properties of Carbon Nanotubes (IEC62624:2009, IDT)
35. Technical Advisor for TIME NET TELECOMMUNICATION SDN BHD. (CO. NO. 500951-P) (2009-2010)
36. Member of Panel Auditors for Anugerah Kualiti Akademik, UTM 2011
37. Member of Panel Auditors for Anugerah Inovasi, UTM 2011
38. Auditor for EAC 'Self Assessment Report' document prior to EAC Visit to Fakulti Kejuruteraan Kimia, UTM 2011
39. Auditor for COPPA document prior to MQA/EAC Visit to Fakulti Kejuruteraan Kimia, UTM 2011
40. Fasilitator Bengkel Pemantapan Silibus Kejuruteraan Berdasarkan Konsep OBE di Universiti Malaysia Pahang, 29 Mei – 1 Jun 2008.

41. Facilitator, "Intellectual Property Protection Workshop" organized by INFOCOM RESEARCH ALLIANCE, UTM. 30-31st. March 2010.
42. Mock Auditor for EAC 'Self Assessment Report' document prior to EAC Visit to Fakulti Kejuruteraan Mekanikal, UTM 2008.
43. Evaluator for EAC 'Self Assessment Report' document FKKA, UTM 2008
44. Kursus Pendek Pembantu Teknik dan Jurutera CELCOM, "Basic Transmission System", 20 peserta. Tempoh: 4 hari.
45. Bengkel Studio TV Anjuran JURUTEK, "Pengenalan Peralatan Studio", 20 peserta. Tempoh: 2 hari.
46. Bengkel Elektronik anjuran JURUTEK, "Pengenalan Peralatan Elektronik dan Penyambungan Litar Elektrik", 50 peserta. Tempoh: 2 hari.
47. Kursus Intensif staf Valdor USA, "Introduction to Optical Fibers and Connectors", 15 peserta. Tempoh: 1 hari.
48. Penggubal dan Pemeriksa Soalan Peperiksaan Perkhidmatan Staf Sokongan Teknikal, UTM (2006-present)
49. YDP PIBG Sekolah Menengah Kebangsaan Seri Perling (SMKSP), (2005 – 2006)
50. AJK PIBG SMKSP (2004 – 2005)
51. Ketua Biro Akademik PIBG SMKSP (2004 – 2005)
52. Pengerusi Pungutan Dana Pembinaan Surau SMKSP (2005 – 2006)
53. AJK Teknikal Pembinaan Surau SMKSP (2005 – 2007)