



## Associate Professor Ir. Dr.

School of Electrical Engineering  
College of Engineering  
Universiti Teknologi MARA  
40450 Shah Alam, Selangor  
Email: zuhai629@uitm.edu.my



### EDUCATION

Year	Qualification	Major	Institute	City	Country
2015	PhD	PhD in RF and Microwave Circuits (Pseudo Elliptic Dual-band Filters based on Ring Structures)	Faculty of Electrical Engineering, UiTM	Selangor	Malaysia
2008	MSc	Computer and Information Engineering	Kulliyah of Engineering, IIUM	Selangor	Malaysia
1998	BEng	Electrical and Electronic Engineering	University of Bradford, UK	Bradford	United Kingdom
1995	Diploma	Diploma Sains	Institut Teknologi MARA	Perlis	Malaysia

### LANGUAGE PROFICIENCY

Malay, English

### CURRENT POSITION

Director  
Microwave Research Institute,  
Universiti Teknologi MARA (UiTM) Shah Alam  
Selangor, Malaysia

### PROFESSIONAL EXPERIENCE AND SPECIALIZATION

**Scientific Experience:** 21 Years      **Teaching Experience:** 23 Years

## Employment

Company Name	Start Date	End Date	Department	Designation
Universiti Teknologi MARA (UiTM), Shah Alam, Malaysia	2000	Current	Faculty of Electrical Engineering (FKE), UiTM	Lecturer
	2017	2019		Head of Department
	2015	2017		Head of Quality
	2014	2015		Head of Internal Audit
	2013	2015		Postgraduate Training Unit Coordinator
	2007	2009		Head of Department
	2006	2008		Head of Internal Audit

## Fields of Research / Expertise /Specialization

RF & Microwave Design, Microwave Planar Technology, Microwave filter synthesis, Microwave Passive Device, Microwave Non-Destructive Testing (MNDT)

## Subjects Taught

- Electromagnetics Theory
- Microwave Engineering
- Communication Theory
- Microwave Communication
- RF System Design
- Engineer in Society
- Communication engineering  
Fundamentals
- Entrepreneurship
- Linear System 1

## Professional Body

- IEEE AP/MTT/EMC Joint Chapter of  
Malaysia Committee (2009-2015)
- IEEE (The Institute of Electrical and  
Electronics Engineers) Member since 2009
- BEM Member since 2002

- Professional Engineer Member since 2020

## PATENT/COPYRIGHT

- My UiTM Engineer Intellectual Property Corporation of Malaysia Penyelidik dan Pencipta Kebangsaan Rekacipta, 31/5/2016,
- Be Professional Intellectual Property Corporation of Malaysia Penyelidik dan Pencipta Kebangsaan Rekacipta, 31/5/2016
- Standard Operating Procedure for Microwave Non-Destructing Test at X-Band Frequency UK Copyright (Registration Number: 284748259), 2022
- Standard Operating Procedure for Microwave Non-Destructing Test at K-Band Frequency UK Copyright (Registration Number: 284748268), 2022
- Orthodontic Mini Implant Smartpeg (OMIS): A Revolution in Mini Implant Stability Verification IP/PT/00201, PATENT Filed.

## POST-GRADUATE SUPERVISION

Student Name	Level	Title	Role	Status
1. Nor Najwa Ismail	PhD	Ground Clutter Model for Forward Scatter Radar with Very High Frequency (VHF) and Ultra High Frequency (UHF) Bands in Tropical Region	Co-Supervisor	Completed (2017)
2. Siti Aminah Nordin	PhD	Circular Substrate Wireless Electromagnetic Low Power Transfer at Microwave Frequency	Main-Supervisor	Completed (2022)

3. Muhammad Al-Hadi Zable	MSc	Investigation of dielectric properties sludge water waste from water treatment using MNMT	Main-Supervisor	Completed (2023)
4. Muhammad Faris Sapuri	MSc	Design Of Microwave Sensor for Ammoniacal Nitrogen (Nh3-N) Detection In Water Quality Testing	Co-Supervisor	Completed (2023)
5. Muhammad Fikri Ikhwan Saifuddin	MSc	Classification Of Halal Animal Fat Processed Through Microwave Non-Destructive Testing Using Deep Learning	Main-Supervisor	On-Going (2021)
6. Mohd Khairil Adzhar Mahmood	PhD	Intelligent Method in Characterizing Quality	Main-Supervisor	On-Going (2022)
7. Muhammad Ammar Hafiz Md Arfan	MSc	Comparison Of Dielectric Permittivity and Morphological Characteristics Of Pre-Carbonized Water Treatment Plant Residuals And Existing Activated Carbon: NRW Method Versus Sem Imaging	Main-Supervisor	On-Going (2024)
8. Nur Farzana Syahirah Saiful Anar	MSc	Advancing Dengue Detection: Characterizing The Sensitivity Of Microwave Sensor-Based Detection Via Dielectric Properties Analysis For Dengue Virus (Denv-1) Protein Using Aptamer-Based Method	Co-Supervisor	On-Going (2024)
9. Mohd Faiq Mohamad Azhari	MSc	Development Of A Microwave Sensor For Hydrocarbon Detection In Water Quality Monitoring	Co-Supervisor	On-Going (2024)

## RESEARCH ACTIVITIES

### Research Grants/Project

Title	Role	Sponsor/Grant Scheme	Start & End	Amount
1. CHARACTERISATION OF MICROWAVE HEATED WASTEWATER RESIDUALS: ELUCIDATION VIA DIELECTRIC PROPERTIES ANALYSIS USING MICROWAVE NON-DESTRUCTIVE TESTING	PROJECT HEAD	Fundamental Research Grant Scheme REF: 600-RMC/FRGS 5/3 (117/2023)	Oct 2023- Sept 2025	RM 80,250
2. ROBUST SIMULATION-GUIDED FRAMEWORK OF ENHANCING PARAMETERIZED TUNING ON WAVEGUIDE COUPLED CAVITY FOR ENERGY-EFFICIENT MICROWAVE-FILTER PERFORMANCES	MEMBER	Fundamental Research Grant Scheme REF: 600-RMC/FRGS 5/3 (081/2024)	Aug 2024– Jul 2026	RM 89,900
3. A FORMULATION OF HUMAN ENERGY EXPENDITURE DURING VARIOUS ACTIVITIES BASED ON MICRO DOPPLER SIGNALS USING DEEP LEARNING ALGORITHM	MEMBER	Fundamental Research Grant Scheme REF: 600-RMC/FRGS 5/3 (004/2022)	Sept 2022 – Aug 2024	RM88,100
4. AUTOMATIC ELDERLY FALL DETECTION ALERT SYSTEM	MEMBER	MOSTI: TED1 REF: 600-RMC/MOSTI-TeD1/5/3 (009/2021)	Oct 2021 – Sept 2023	RM391,000
5. RADAR ENTOMOLOGY FOR INSECT MIGRATION IMPACT IN AGRICULTURAL INDUSTRY	MEMBER	GERAN PENYELIDIKAN MYRA 2021	Sep 2021 – March 2024	RM 20 000
6. FLEXIBLE EGFET-BASED INTEGRATED ALL-SOLID ELECTRODES (IASE) FOR ELECTROCHEMICAL ION SENSOR	MEMBER	GERAN KOLABORASI ENTITI PENYELIDIKAN (KEPU) REF: 600-RMC/KEPU 5/3 (007/2021)	Jul 2021 – Jul 2023	RM 40,000

7. ESTIMATION ON DIELECTRIC PROPERTIES OF SLUDGE WASTEWATER TREATMENT AT MICROWAVE FREQUENCIES	PROJECT HEAD	GERAN INSENTIF PENYELIAAN REF: 600-RMC/GIP 5/3 (034/2021)	Apr 2021 – June 2022	RM 20,000
8. TUNEABLE MICROWAVE ABSORBERS BASED ON MONOVALENT-DOPED MANGANITES/CARBON FIBRE COMPOSITES	PROJECT HEAD	GERAN PENYELIDIKAN MYRA 2020 REF: 600-RMC/GPK 5/3 (025/2020)	Dec 2020 – Sept 2023	RM 20,000
9. CHARACTERIZATION AND DETECTION OF DRONES USING MIMO RADAR IN COMMERCIAL TRANSPORTATION AND LOGISTICS ENVIRONMENT	MEMBER	SDG TRIANGLE LESTARI (LESTARI SDG-T) REF: 600-RMC/MyRA 5/3/LESTARI (009/2020)	Dec 2020 – Dec 2023	RM20,000
10. CHARACTERISATION OF VEHICLE TRAFFIC SIGNATURES USING MULTI MODAL RADAR AND ACOUSTIC SENSORS	MEMBER	SDG TRIANGLE LESTARI (LESTARI SDG-T) REF: 600-RMC/MyRA 5/3/LESTARI (017/2020)	Dec 2020 – Sept 2023	RM20,000
11. PARAMETRIC STUDY ON THE SENSITIVITY OF CSRR-BASED MICROWAVE SENSOR IN AMMONIACAL NITROGEN DETECTION FOR WATER QUALITY MONITORING APPLICATIONS.	MEMBER	GERAN PENYELIDIKAN MYRA 2020 REF: 600-RMC/GPK 5/3 (257/2020)	Dec 2020– Dec 2023	RM20,000
12. REMOTE DATA COLLECTION FOR WATER QUALITY MONITORING USING LORAWAN BASED SENSOR NODE TERMINAL	MEMBER	IEEE Grant REF: 600-TNCPI/PBT 5/3 (053/2020)	Nov 2019 – May 2020	RM 14,046
13. FLEXIBLE METAMATERIAL MICROWAVE ANTENNAS FOR INTERNET OF THING (IOT) APPLICATIONS BASED ON A SUSTAINABLE MATERIALS	MEMBER	BESTARI Grant REF: 600-IRMI/DANA 5/3/BESTARI (117/2018)	Jul 2018 – Dec 2020	RM 30,000

14. MICRO-DOPPLER CHARACTERIZATION FROM VARYING HUMAN BEHAVIORS IN FORWARD SCATTERING RADAR GEOMETRY	MEMBER	Fundamental Research Grant Scheme. REF: 600-RMI/FRGS 5/3 (0104/2016)	Aug 2016 – Jan 2019	RM 91,500
15. DEVELOPMENT OF DISASTER MANAGEMENT SYSTEM USING ARTIFICIAL NEURAL NETWORK	MEMBER	REF: 600-IRMI/MyRA 5/3/LESTARI (0003/2016)	Apr 2016- March 2018	RM 20,000
16. A COMPACT DUAL-BAND BANDPASS FILTER ON CMOS	PROJECT HEAD	REF: 600-RMI/DANA 5/3/LESTARI (110/2015)	Dec 2015- May 2018	RM 20,000
17. CHARACTERIZATION OF ULTRA WIDEBAND (UWB) ELECTROMAGNETIC SIGNATURES REFLECTED FROM PEDESTRIANS BASED ON POLARIMETRIC WAVEFORMS OVER AN ORTHOGONAL MULTIPLE-INPUT MULTIPLE-OUTPUT (MIMO) SCHEME	MEMBER	Research Acculturation Grant Scheme. REF: 600-RMI/RAGS 5/3 (17/2015) (MOHE)	Dec 2015 – May 2018	RM 53,000
18. MODELLING A THROUGH-DIELECTRIC UNDERWATER ELECTROMAGNETIC SENSING BASED ON LOW FREQUENCY ULTRA WIDEBAND (UWB) ORTHOGONAL MULTIPLE-INPUT MULTIPLE-OUTPUT (MIMO) WAVEFORM	MEMBER	Fundamental Research Grant Scheme. REF: 600-RMI/FRGS 5/3 (39/2015) (MOHE)	Nov 2015- May 2018	RM 91,000
19. CHARACTERIZATION OF METAMATERIAL RADOME LENS ANTENNA THROUGH ANALYTICAL RAY TRACING TECHNIQUE	PROJECT HEAD	Research Acculturation Grant Scheme (RAGS). REF: 600-RMI/RAGS 5/3 (56/2015) (MOHE)	Dec 2015- Nov 2017	RM 53,000

20. STUDY ON MICRO-DOPPLER SIGNALS FOR FORWARD SCATTERING RADAR MICRO SENSOR NETWORK	MEMBER	D600-RMI/DANA 5/3/LESTARI (31/2015)	Dec 2015- Mei 2018	RM20,000
21. OPTIMUM MULTILAYER STRUCTURE INDUCTANCE WITH DIFFERENT SUBSTRATE PERMITTIVITIES	PROJECT HEAD	600-RMI/DANA 5/3/RIF (127/2012)	Jun 2012- Mei 2014	RM 32,000
22. MINIATURIZED BANDPASS FILTER FOR DIGITAL BROADCASTING	MEMBER	Sciencefund 100-RMI/SF 16/6/2 (25/2008)	Oct 2008- Sept 2010	RM 170,500

### Awards

- **Diamond Award**, OMIS: ISQ-Compatible Verifier for Orthodontic Mini Implant Stability, , IIDenTex UiTM, 2024.
- **Gold Award**, OMIS: ISQ-Compatible Verifier for Orthodontic Mini Implant Stability, , IIDenTex UiTM, 2024.
- **Gold Award**, OMIS Orthodontic Mini Implant (MI) Smartpeg: Revolutionizing in MI Stability Verification, IIDenTex UiTM, 2023.
- **Gold Award**, Orthodontic Mini Implant Smartpeg: A novel MI Stability Verifier, IIDenTex UiTM, 2022.
- **Silver Award**, Characterization of Complimentary Split-Ring Resonator in detecting low concentration of Ammoniacal Nitrogen for water quality applications, Universiti Sultan Zainal Abidin (Unisza), 2022.
- **Gold Award**, Bandpass Filter using Closed-loop Resonator for RF Applications, Innovation and Design Exposition 2017 (iidex2017). UiTM 2017
- **Bronze Award**, Statistical Analysis for Terengganu Forward Scatter Radar Seaside Clutter, Invention, Innovation and Design Exposition 2016 (iidex2016) UiTM 2016
- **Gold Award**, Statistical Analysis Using Forward Scatter Radar for Seaside Clutter, Invention, Innovation and Design (IID), FKE 2015
- **Silver Award**, Printed Monopole Antenna Through Fractal Geometry and Partial Cutting Methods for UHF Application, Invention, Innovation and Design (IID) FKE 2015, FKE 2015
- **Silver Award**, Single Ring Dual-Band Bandpass Filter with Meander for WLAN Application, Invention, Innovation and Design (IID), FKE 2015
- **Bronze Award**, Easily Deployable, Multi-Functional Low Frequency FS Radar Network, Invention, Innovation and Design Exposition 2014 (iidex2014) & Innovator Wannabe 2014, UiTM 2014
- **Gold Award**, Automatic Vehicle Classification in a Low Frequency Forward Scatter Micro-Radar, Invention, Innovation and Design (IID) FKE 2013.



## Publications

Total Publication: 86 (scopus), 113 (Google Scholar)

H-index: 9 (scopus), 11 (Google Scholar)

Citation: 291 (scopus), 391 (Google Scholar)

## Other Activities Editorial/Reviewer:

- **Journal Reviewer**  
Analog Integrated Circuits and Signal Processing, Springer Nature  
Exact equation of scattering parameters of dual- narrowband bandpass filter, November 2024
- **Journal Reviewer**  
Plasmonic, Springer Nature  
A Ultra-Compact Surface Plasmon Transmission Line Based on Partial Grounded Coplanar Waveguide, January 2024
- **Journal Reviewer**  
International Journal of Computing and Digital Systems (IJCDS)  
Bread Classification System using Faster R-CNN Object Detection, September 2022
- **Journal Reviewer**  
International Journal of Computing and Digital Systems (IJCDS)  
Extremism Content in social media: A Model of Young Followers Extremism Behaviour, September 2022
- **Reviewer**  
2021 IEEE Asia-Pacific Conference on Applied Electromagnetics (APACE2021)
- **Journal Reviewer**  
International Journal of Computing and Digital Systems (IJCDS)  
A Review of Machine Learning Approaches for Human Detection through Feature Based Classification, November 2021
- **Reviewer**  
Melaka International Conference on Social Sciences, Science and Technology (MIC3ST), An Experimental Study Of The Effect Of Cooling Methods In Parabolic Solar Dish Concentrator For Power Generation Using, 7-8 August 2019.
- **Reviewer**  
1st International Conference on Space Weather and Satellite Application (ICeSSAT 2018), Near Real Time Ionospheric Monitoring System over Malaysia using GPS Data: My-Iono Service, 7-9 Ogos 2018
- **Journal Reviewer**  
International Journal of Electrical, Electronics and Computer Systems (IJEECS 2018), Multibeam RF Antenna Solution for Indoor Coverage in Stadiums, 2018

- **Journal Reviewer**  
Journal of Fundamental and Applied Sciences Antarabangsa Development of Sixteen Elements of Microstrip Triangular Array Antena for Circularly Polarized Synthetic Aperture Radar Sensor Application, 2018
- **Reviewer**  
International Conference on Creative and Innovative Technology in Education (i-CITE 2018), The Basic of Haudralic and Pneumatic Teaching Innovation Kit for Application in Fluid Power Technology Course, 24-25 Jul 2018
- **Reviewer**  
International Conference on Creative and Innovative Technology in Education (iCITE 2018), Application of Make a Match Model to Improve Geography Learning Outcomes, 7-9 Ogos 2018.
- **Journal Reviewer**  
International Journal of Electronics and Electrical Engineering (IJEEE) Enhancing the FIR Filter Design using Neural Network, 1 Sept 2016.
- **Journal Reviewer**  
Jurnal Teknologi (UTM), Simulation Study of a Small UHF Printed Monopole Antenna for Forward Scatter Radar, 2017.
- **Reviewer**  
4th International Conference on Science & Social Research (CSSR 2017), Cashless Payment Transaction (CPaT) Based on Low Frequency (LF) RFID Technology, 6-7 Dis 2017.

#### Panel for Thesis & VIVA Presentation:

- |          |  |
|----------|--|
| • Master | UiTM, October 2018,<br>UPNM, February 2023             |
| • PhD    | UiTM, April 2019,<br>UiTM, Jun 2020,<br>UiTM, Jan 2023 |

#### Invited Speakers / Technical Talks/ External Advisor:

- **Sub-Working Committee**  
Ministry of Health Malaysia Medical Radiation Regulatory Authority, 2022-2024
- **Kemeterian Pendidikan Malaysia**  
Matriculation Curriculum Structure Development Committee, 2022-2024
- **Invited speaker**  
Malaysia- Japan Workshop on Radio Technology, Impact of Microwave and Oven Heating on Dielectric Permittivity and Morphological Changes of Water Treatment Residuals: A Comparative Study, Penang Malaysia, 26th to 28th August 2024.
- **External Advisor**  
Diploma in Sound and Lighting Technology, Kolej Komuniti Kuala Langat, Banting Selangor
- **Invited speaker**

Fakulti Kejuruteraan Elektrik, GOEE, Thesis Boot Camp: Literature Review, 22 June 2019

- **Invited speaker**

Fakulti Kejuruteraan Elektrik, FKEPT UiTM, Avoiding Plagiarism, 17 October 2018

- **Invited speaker**

Fakulti Sains Gunaan Uitm Cawangan Perak Kampus Tapah Universiti, A Day with Alumni - "Graduates to Industries", 6 March 2016

- Invited speaker.

Fakulti Kejuruteraan Elektrik, UiTM, Kursus Lanjutan Audit dalam Fakulti Kejuruteraan Elektrik, 26 August 2014

## INDEXED PUBLICATIONS FOR 2024

NAZ Zakaria, FNSM Rozaimi, SAE Ab Rahim, **ZI Khan**, "Signal analysis for drone detection and characterization using acoustic radar", *Journal of Physics: Conference Series* 2922 (1), 012003 2024.

NH Mahzan, SB Hashim, RI Alip, **ZI Khan**, SH Herman, "Low temperature Deposited Highly Sensitive Integrated All-Solid Electrodes for Electrochemical pH Detection", *Pertanika Journal of Science & Technology* 32 (6), 2024.

MAHM Arfan, **ZI Khan**, MSAM Ali, NAZ Zakaria, MKA Mahmood, Z Suboh, "Experimental Design for Optimization Preparation Condition of Microwave and Oven-Heated Water Treatment Plant Residuals", 2024 IEEE Symposium on Wireless Technology & Applications (ISWTA), 39-46, 2024

H Razali, NE Abd Rashid, AB Azman, MNF Nasarudin, **ZI Khan**, "Threshold-Based Fall Detection System Utilizing Passive Wi-Fi Radar Technology", 2024 IEEE Symposium on Wireless Technology & Applications (ISWTA), 157-161, 2024.

NFSS Anar, MF Sapuri, SAE Ab Rahim, **ZI Khan**, NAZ Zakaria, "Enhancing Ammoniacal Nitrogen Detection in Water Quality Applications Using Complementary Split-Ring Resonators: A Comparison Between Rectangular and Circular Configurations" 2024 IEEE Symposium on Wireless Technology & Applications (ISWTA), 121-125, 2024.

KD Saharuddin, W Mansor, SA Jaafar, **ZI Khan**, AR Mahmud, "Classification of SERS-Based Fish and Beef Gelatin Using Support Vector Machine", 2024 IEEE Symposium on Wireless Technology & Applications (ISWTA), 241-245, 2024.

H Razali, NE Abd Rashid, MN Farhan Nasarudin, NN Ismail, **ZI Khan**, "Human movement detection and classification capabilities using passive Wi-Fi based radar", *International Journal of Electrical & Computer Engineering* (2088-8708) 14 (3), 2024.

MF Ikhwan, W Mansor, **ZI Khan**, MKA Mahmood, A Bujang, K Haddadi, "Pearson Correlation and Multiple Correlation Analyses of the Animal Fat S-Parameter", *TEM Journal* 13 (1), 1554, 2024.

H Razali, MNF Nasarudin, NN Ismail, **Z Ismail Khan**, SA Enche Ab Rahim, "A review: radar-based fall detection sensor", **Journal of Electrical and Electronic Systems Research (JEESR)** 24 (1), 1-11, 2024.

#### INDEXED PUBLICATIONS FOR 2023

Muhammad Al-Hadi Zable, **Zuhani Ismail Khan\***, Nur Emileen Abdul Rashid, Nor Ayu Zalina Zakaria, Idnin Pasya Ibrahim, Siti Amalina Enche Ab Rahim, and Mohd Khairil Adzhar Mahmood, "Dielectric Material Measurement Method: A Review", **Journal of Electrical and Electronic Systems Research**, vol. 22, April 2023

**Z. I. Khan**, M. F. M. Zain, N. A. Z. Zakaria, N. E. A. Rashid, M. K. A. Mahmood and Z. Suboh, "Enhancing Water Treatment Residuals Characterization Through MNDT-Assisted Dielectric Properties Investigation via Oven Heating," 2023 International Conference on Manipulation, Automation and Robotics at Small Scales (MARSS), Abu Dhabi, United Arab Emirates, 2023, pp. 1-5.

Zable, M. A. H., **Ismail Khan, Z.**, Zakaria, N. A., Abd Rashid, N. E. N., Mahmood, M. K. A., & Ghodgaonkar, D. K. "Investigation on Dielectric Properties of Sludge Waste from Water Treatment Using Microwave Non-Destructive Testing (MNDT)", **International Journal of Integrated Engineering**, 15(3), 163–169. 2023.

Nur Ain Athirah Apendi, Norazila Binti Ibrahim, **Zuhani Ismail Khan**, Rabaah Syahidah Azis, "Microwave absorption properties of  $(1 - x)\text{La}_{0.85}\text{Ag}_{0.15}\text{MnO}_3/x$  graphene ( $x = 0, 3, \text{ and } 5 \text{ wt.}\%$ ) composites ,2023/9, **Journal International Journal of Applied Ceramic Technology**, Vol. 20, Issue 5, pg. 3148-3162.

N. N. Ismail, N. E. A. Rashid, M. N. F. Nasarudin, W. W. Mohamed, S. Zainuddin, and **Z. I. Khan**, "Vehicle Detection and Classification Using Forward Scatter Radar (FSR) For Traffic Management Using Convolutional Neural Network", **Planning Malaysia Journal**, vol. 21, no. 28, Aug. 2023.

A. L. W. Awang, **Z. I. Khan** et al., "Intelligent Method for Classifying the Freshness of Coffee," 2023 IEEE Symposium on Wireless Technology & Applications (ISWTA), Kuala Lumpur, Malaysia, 2023, pp. 115-122.

W. N. W. M. Samsuri, M. F. Sapuri, S. A. Enche Ab Rahim, F. A. M. Kasran, N. Yusof and **Z. I. Khan**, "High Q Double-Ring Complementary Split Ring Resonator to Detect Ammoniacal Nitrogen for Water Quality Applications," 2023 IEEE Symposium on Wireless Technology & Applications (ISWTA), Kuala Lumpur, Malaysia, 2023, pp. 174-178.

Muhammad Faris Sapuri, Mohd Khairil Adzhar Mahmood, Nur Emileen Abd Rashid, Nor Ayu Zakaria, Siti Amalina Enche Ab Rahim, **Zuhani Ismail Khan**, "Liquid Characterization of 2 GHz Complimentary Split Ring Resonator (CSRR) for Water Quality Applications", TEM Journal, Issue 3, pg. 1397-1406, 2023.

Zable, Muhammad Al-Hadi, **Ismail Khan, Zuhani** , Abdul Rashid, Nur Emileen, Zakaria, Nor Ayu Zalina, Ibrahim, Idnin Pasya, Ab Rahim, Siti Amalina and Mahmood, Mohd Khairil Adzhar "Dielectric material measurement method: a review" **Journal of Electrical and Electronic Systems Research (JEESR)**, 22: 3. pp. 19-28. ISSN 1985-5389, 2023.

## INDEXED PUBLICATIONS FOR 2022

Rashidah Funke Olanrewaju, Khairul Azami Bin Sidek, Burhan Ul Islam Khan, Khang Wen Goh, Aisha Hassan Abdalla Hashim, **Zuhani Ismail Khan** and Hamdan Daniyal, "A Holistic Architecture for a Sales Enablement Sensing-as-a-Service Model in the IoT Environment", **MDPI Information**, October 2022

Nur Emileen Abd Rashid, Nor Ayu Zalina Zakaria, **Zuhani Ismail Khan**, Siti Amalina Enche Ab Rahim, Nur Luqman Saleh, "Clutter reduction technique based on clutter model for automatic target classification in forward scatter radar", **TELKOMNIKA Telecommunication Computing Electronics and Control** Vol. 20, No. 5, October 2022, pp. 955-962

**Zuhani Ismail Khan**, Nur Emileen Abd Rashid, S. A. Enche Ab Rahim, Khairul Khaizi Mohd Shariff, Nor Ayu Zalina Zakaria, "Dual-Path Coupled-Line Dual-Band Bandpass Filter with Synthesis", **International Journal of Emerging Technology and Advanced Engineering**, Volume 12, Issue 11, November 2022

Nor Ayu Zalina Zakaria, Muhammad Khairani Abdul Rahman, Nur Emileen Abdul Rashid, Nor Najwa Ismail, **Zuhani Ismail Khan**, Siti Amalina Enche Ab Rahim, Farah Nadia Mohd Isa, "Hand Gesture Recognition Based on Continuous Wave (CW) Radar Using Principal Component Analysis (PCA) and K-Nearest Neighbor (KNN) Methods", **JOIV: Int. J. Inform. Visualization**, 6(1-2): Data Visualization, Modeling, and Representation - May 2022 188-194

## INDEXED PUBLICATIONS FOR 2021

SA Nordin, MA Hairuddin, ND Khirul Ashar, **ZI Khan**, "Synthesis design of dual-path coupled line circular ring resonator filter with tunable characteristic impedances and transmission zeros, **IET Microwaves, Antennas & Propagation**

SA Nordin, **ZI Khan**, AH Muhammad, N Ab Wahab, KAN Dalila, "Double-Layer Tm<sub>110</sub> Mode of Substrate Integrated Waveguide Circular Cavity (Siwcc) for Wireless Communication Applications", **Progress In Electromagnetics Research Letters** 95, 17-24

Khairilmizal Samsudin, Nur Hannani Abdul Ghani, Mohamad Fahmi Hussin, Nur Fatin Najihah Ghazali, Ainul Husna Kamarudin, Nurulilyana Sansuddin, **Zuhani Ismail Khan** and Kamariah Hussein, "Association Between Workload and Psychological Well-Being In Malaysia Elite Firefighter", **Malaysian Journal of Public Health Medicine** 2021, Vol. 21 (2): 374-381.

Nur Emileen Abd Rashid\*, **Zuhani Ismail Khan**, Khairul Khaizi Mohd Shariff Nor Ayu Zalina Zakaria, Mohamad Fahmi Hussin, Siti Amalina Enche Ab Rahim, "Illegal Logging Vehicle Detection and Classification in Forward Scatter Radar", **Journal of Mechanical Engineering**, Vol. SI 10 (1), 171-182, 2021

## INDEXED PUBLICATIONS FOR 2020

- Norfishah Ab Wahab, W. Nor Syafizan W. Muhamad, **Zuhani Ismail Khan**, Suzi Seroja Sarnin, "Microstrip array antenna with inset-fed for WLAN application", **Indonesian Journal of Electrical Engineering and Computer Science** Vol. 17, No. 1, January 2020, pp. 340~346
- NA Razali, NA Zakaria, KKM Shariff, NE Abd Rashid, **ZI Khan**, "Design of H-shape Defected Ground Structure", 2020 IEEE International RF and Microwave Conference (RFM), 1-4
- MF Alahidin, NA Zakaria, **ZI Khan**, NE Abd Rashid, KKM Shariff, "Electromagnetic Wave Exposure Level from Mobile Base Station Around Residential Area", 2020 IEEE International RF and Microwave Conference (RFM), 1-4
- MF Sapuri, NA Zakaria, NE Abd Rashid, KKM Shariff, **ZI Khan**, "Characterization of Liquid Sample Using Complementary Split Ring Resonator Sensor", 2020 IEEE International RF and Microwave Conference (RFM), 1-4
- NS Ismail, NE Abd Rashid, NA Zakaria, **ZI Khan**, AR Mahmud, "Low Cost Extended Wireless Network Using Raspberry Pi 3B+", 2020 IEEE Symposium on Industrial Electronics & Applications (ISIEA), 1-4
- WAF Wan Azhar, M Md Kamal, **Z Ismail Khan**, KA Othman, "Realtime control and monitoring aquaponic system via Blynk", **Journal of Electrical & Electronic Systems Research (JEESR)** 16, 73-80
- KKM Shariff, S Rahim, MF Hussin, NAZ Zakaria, NEA Rashid, **ZI Khan**, "Opportunities and challenges for radar sensing for pandemics: COVID-19", **International Journal of Emerging Trends in Engineering Research**

## INDEXED PUBLICATIONS FOR 2019

- NMKK bin Yahya, NE Abd Rashid, NA Zakaria, **ZI Khan**, KKM Shariff, "Drone's Radar Cross Section Computation for Various Reflected Angles using LTE frequency", 2019 IEEE Asia-Pacific Conference on Applied Electromagnetics (APACE), 1-4.

## INDEXED PUBLICATIONS FOR 2018

- NA Zulkifli, NEA Rashid, **ZI Khan**, NN Ismail, RSAR Abdullah, KA Othman, "Clutter Distribution Analysis of A Tropical Foliage Clutter for Different Profiles Based on FSR Micro-Sensor Network", **International Journal of Engineering & Technology**, 7 (3.7), 72-75.
- MHAM Bardiri, NEA Rashid, **ZI Khan**, KA Othman, IP Ibrahim, "Development of FSR MicroSensor Network", International Conference on Radar, Antenna, Microwave, Electronics, and Telecommunications (ICRAMET), 2018.

**ZI Khan**, AWA Razak, NA Zakaria, NEA Rashid, KA Othman, "Electromagnetic field (EMF) Measurement for Public Safety Exposure Level", International Conference on Radar, Antenna, Microwave, Electronics, and Telecommunications (ICRAMET), 2018.

KA Othman, MAHM Isa, MA Baharuddin, MA Ghazali, **ZI Khan**, NA Zakaria, "Forest Monitoring System Implementation using Visual Basic and Android Application", 18th International Symposium on Communications and Information Technologies (ISCIT), 2018.

NA Zakaria, KA Othman, **ZI Khan**, "Statistical Ground Clutter Analysis for Forward Scatter Micro Radar", 18th International Symposium on Communications and Information Technologies (ISCIT), 2018.

#### INDEXED PUBLICATIONS FOR 2017

NN Ismail, NEA Rashid, **ZI Khan**, N Ripin, "Empirical Model For Terengganu Forward Scatter Radar Seaside Clutter With UHF Band", **Journal of Fundamental and Applied Sciences** 9 (3S), 189-198, 2017.

**ZI Khan**, MKM Salleh, MS Mohamad, NA Wahab, NEA Rashid, "Dual-Band Bandpass Filter with Reduce Center Isolation Using Stub Loaded-Stepped Impedance Resonator", **Advanced Science Letters** 23 (6), 5187-5190, 2017

NF Abdullah, NEA Rashid, KA Othman, **ZI Khan**, I Musirin, "Ground Vehicles Classification using Multi Perspective Features in FSR Micro-Sensor Network", **Journal of Telecommunication, Electronic and Computer Engineering (JTEC)** 9, 2017.

MF Abdul Khalid, **Z Ismail Khan**, Z Awang, N Ab Wahab, "Dual-Band Bandpass Filter with Dumbbell Shaped Defective Ground Structure", **International Journal on Advanced Science, Engineering and Information**, 2017.

#### INDEXED PUBLICATIONS FOR 2016

NN Ismail, NEA Rashid, **ZI Khan**, N Ripin, MF Rashid, "The analysis of two-profile environment ground clutter statistics measured using forward scatter radar with VHF and UHF bands", **Jurnal Teknologi** 78 (7), 43-50, 2016.

N Ab Wahab, NM Hidayat, **ZI Khan**, ZM Yasin, NA Salim, N Othman, "Two Parallel-coupled Rings for Narrow Bandpass Filter Application", **Journal of Telecommunication, Electronic and Computer Engineering (JTEC)** 8, 2016.

NN Ismail, NEA Rashid, **ZI Khan**, "Statistical analysis for Terengganu forward scatter radar seaside clutter", **Jurnal Teknologi** 78 (5-7), 7-14, 2016.

SA Nordin, MKM Salleh, **ZI Khan**, N Abd, LN Wahab, ZM Yusoff, "SIW Circular Cavity Single Mode Filter With Triangle Probe", **Indonesian Journal of Electrical Engineering and Computer Science** 2 (3), 401-408

#### INDEXED PUBLICATIONS FOR 2015

MMA Sani, **ZI Khan**, NEA Rashid, MKM Salleh, "Single ring dual-band bandpass filter with meander for 2.5 GHz and 5.2 GHz", RF and Microwave Conference (RFM), 2015 IEEE International, 22-26, 2015.

MZM Sail, **ZI Khan**, KA Othman, MKM Salleh, "Multilayer broadside-coupled dual-band bandpass ring filter for WLAN applications", RF and Microwave Conference (RFM), 2015 IEEE International, 18-21, 2015.

NA Wahab, ZM Yasin, N Hamzah, **ZI Khan**, MKM Salleh, "Investigation on magnetic resonant coupling for low voltage application", RF and Microwave Conference (RFM), 2015 IEEE International, 49-53, 2015.

SKM Khanfar, MK MohdSalleh, N Ab Wahab, **ZI Khan**, SA Nordin, "Series-cascaded single-sidecoupled ring resonators", RF and Microwave Conference (RFM), 2015 IEEE International, 6164, 2015.

NF Abdullah, NEA Rashid, I Musirin, **ZI Khan**, "Vehicles Classification Based On Different Combination of Feature Extraction Algorithm with Neural Network (Nn) Using Fsr", **Journal of Theoretical & Applied Information Technology** 77, 2015.

NF Abdullah, NEA Rashid, **ZI Khan**, I Musirin, "Analysis of different Z-score data to the neural network for automatic FSR vehicle classification", IET Digital Library, 2015.

MFA Khalid, **ZI Khan**, MKM Salleh, MRM Ruslan, NA Wahab, "Dual-band bandpass filter with rectangular shaped defective ground structure", RF and Microwave Conference (RFM), 2015 IEEE International, 35-39, 2015.

NN Ismail, NEA Rashid, **ZI Khan**, MFA Rashid, "Measurement, processing and modeling of a tropical foliage clutter using Forward Scatter Radar micro-sensor network with VHF and UHF bands", Radar, Antenna, Microwave, Electronics, and Telecommunications (ICRAMET), 2015

NN Ismail, NEA Rashid, NA Zakaria, **ZI Khan**, "FSR ground clutter distribution model analysis for VHF band", IET Digital Library, 2015.

NN Ismail, NEA Rashid, NA Zakaria, **ZI Khan**, V Sizov, "Clutter modeling for forward scatter radar (FSR) micro-sensor network with ultra-high frequency (UHF) band", Signal Processing & Its Applications (CSPA), 2015 IEEE 11th International, 2015.



#### INDEXED PUBLICATIONS FOR 2014

NA Wahab, **ZI Khan**, MKM Salleh, MN Bakhtiar, NEA Rashid, KA Othman, "Multilayer dualmode dual-band bandpass filter", Antennas and Propagation Conference (LAPC), Loughborough, 549-552, 2014.

N Ab Wahab, MK Mohd Salleh, **Z Ismail Khan**, NE Abd Rashid, "Reconfigurable ring filter with controllable frequency response", **The Scientific World Journal** 2014.

NA Wahab, MKM Salleh, **ZI Khan**, NEA Rashid, KA Othman, "Single mode ring resonator with harmonic suppression", Communications and Information Technologies (ISCIT), 2014 14th International, 2014.

#### INDEXED PUBLICATIONS FOR 2013

MK Khalid, MKM Salleh, MIM Saleh, SKM Khanfar, **ZI Khan**, N Ab Wahab, "A dual-band microstrip filter topology based on quarter-wavelength coupled-lines inter-connections", RF and Microwave Conference (RFM), 2013 IEEE International, 176-179, 2013.

NA Wahab, MK Mohd Salleh, SKM Khanfar, **ZI Khan**, Z Awang, "Synthesis of a single side access ring resonator for higher order bandpass filters", **Progress in Electromagnetics Research Letters** 38, 137-150, 2013.

#### INDEXED PUBLICATIONS FOR 2012

NA Wahab, MKM Salleh, **ZI Khan**, Z Awang, "Dual-band dual-mode bandpass filter using seriescoupled ring resonators", Applied Electromagnetics (APACE), 2012 IEEE Asia-Pacific Conference on, 191-194, 2012.

SKM Khanfar, MKM Salleh, **ZI Khan**, Z Awang, "Microwave ring resonator with a quarter wavelength coupled-line integration", Wireless Technology and Applications (ISWTA), 2012 IEEE Symposium on, 89-91, 2012.

NA Wahab, MKM Salleh, **ZI Khan**, SKM Khanfar, G Prigent, "Cascaded ring bandpass filters with high out-of-band rejection", Computer Applications and Industrial Electronics (ISCAIE), 2012.

#### INDEXED PUBLICATIONS FOR 2011

N Ab Wahab, MKM Salleh, **ZI Khan**, Z Awang, "Single-mode ring resonator for microwave bandpass filter applications", RF and Microwave Conference (RFM), IEEE International, 95-98, 2011.

**ZI Khan**, MKM Salleh, MAA Latip, "Microstrip dual-band dual-path bandpass filter", Microwave Conference Proceedings (APMC), 2011 Asia-Pacific, 916-918, 2011.

KA Othman, **ZI Khan**, SA Kadri, N Hamzah, "Q-factor evaluation of spiral inductors for 5.8 GHz MiMax application", Proceedings of the World congress on Engineering, London, 6-8, 2011.

#### INDEXED PUBLICATIONS FOR 2010

KA Othman, **ZI Khan**, HBM Nadzar, NHA Aziz, "Q-Factor Performance Analysis of Spiral Inductors Using Multilayer Structures", Computational Intelligence, Modelling and Simulation (CIMSIM), 2010.

NZ Zakaria, MKM Salleh, **ZI Khan**, "Miniaturization of microstrip ring filter using lumped capacitors", Electronic Devices, Systems and Applications (ICEDSA), 2010.

NZ Zakaria, MKM Salleh, **ZI Khan**, N Ab Wahab, Z Awang, "Frequency shifting of microstrip ring filter using open stubs", Research and Development (SCORed), 2010 IEEE Student Conference on, 25-28, 2010.

**ZI Khan**, SA Nordin, N Ab Wahab, NZ Zakaria, MKM Salleh, "Dual-band bandpass ring filter", Research and Development (SCORed), 2010 IEEE Student Conference on, 1-3, 2010.

**ZI Khan**, MKM Salleh, NZ Zakaria, "Series-cascaded rings dual-band filter", Microwave Conference Proceedings (APMC), 2010 Asia-Pacific, 1758-1760, 2010.

NZ Zakaria, MKM Salleh, **ZI Khan**, ARA Hassan, "Compact coplanar waveguide pseudo-elliptic filter at microwave frequencies", Industrial Electronics & Applications (ISIEA), 2010 IEEE Symposium on, 537-540, 2010.

#### INDEXED PUBLICATIONS FOR 2009

NZ Zakaria, **ZI Khan**, MKM Salleh, MK Hamzah, "Miniaturized microstrip ring filter", Research and Development (SCORed), 2009 IEEE Student Conference on, 509-512, 2009.

**ZI Khan**, MKM Salleh, G Prigent, "Achievable bandwidth of a quarter wavelength side-coupled ring resonator", Industrial Electronics & Applications, 2009. ISIEA 2009. IEEE Symposium, 2009.

#### INDEXED PUBLICATIONS FOR 2008

**ZI Khan**, RA Awang, AA Sulaiman, MH Jusoh, NH Baba, MMD Kamal, "Performance analysis for estimation of signal parameters via rotational invariance technique (ESPRIT) in estimating direction of arrival for linear array antenna", RF and Microwave Conference, IEEE International, 530-533, 2008.

**ZI Khan**, MMD Kamal, N Hamzah, K Othman, NI Khan, "Analysis of performance for multiple signal classification (MUSIC) in estimating direction of arrival", RF and Microwave Conference, 2008. RFM 2008. IEEE International, 524-529, 2008.

MH Jusoh, N Ya'Acob, H Saad, AA Sulaiman, NH Baba, **ZI Khan**, "Earthquake prediction technique based on GPS dual frequency system in equatorial region ", RF and Microwave Conference, 2008. RFM 2008. IEEE International, 372-376, 2008

MH Jusoh, FNA Bakar, AA Sulaiman, NH Baba, **ZI Khan**, "Determination of traveling ionospheric disturbances of geomagnetic storm by using dual frequency GPS data", RF and Microwave Conference, 2008. RFM 2008. IEEE International, 361-366, 2008.

RA Bakar, Z Awang, S Sulaiman, NFM Lazim, **ZI Khan**, "Via hole modeling of PZT thin films for MMIC applications", RF and Microwave Conference, 2008. RFM 2008. IEEE International, 222225, 2008.

#### INDEXED PUBLICATIONS FOR 2005

M Salleh, M Khairul, MS Suhaili, **Z Ismail**, Z Awang, "Effect of varied probe length on the resonant frequency of a circular cross-sectional cavity", **Scientific Research Journal** 2 (2), 7987, 2005.

MKM Salleh, **Z Ismail**, MS Suhaili, Z Awang, "Probe length effect on the resonant frequency of a circular cross-sectional cavity", Electromagnetic Compatibility, 2003. EMC'03. 2003 IEEE International, 2003.