

CURRICULUM VITAE

Khalid Muzzafar

Assistant Professor (Selection Grade)
Department of Electronics & Communication Engineering,
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EDUCATION:

B. Tech: Electronics & Communication Engineering, NIT Srinagar (2004).

M. Tech: Communication & Information Technology, NIT Srinagar (2006).

Ph.D.: Characterization of Microwave Antennas, IIT Delhi (2017).

Dissertation Title: Applications of Thermal Imaging for Power Density Measurement of Microwave Fields over Plane Surfaces.

TEACHING EXPERIENCE:

- **Assistant Professor**, Department of Electronics and Communication Engineering, IUST Awantipora (13-08- 2007 to 12-08-2012)
- **Assistant Professor (Senior Scale)**, Department of Electronics and Communication Engineering, IUST Awantipora (13-08-2012 to 12-08-2017)
- **Assistant Professor (Selection Grade)**, Department of Electronics and Communication Engineering, IUST Awantipora (13-08-2017 to Till date)

RESEARCH INTERESTS:

Planar Antenna design for 5G and Future Generations, MIMO Antenna Design.

Design of mm-Wave antennas for Mobile terminals and Base Stations

Thermal Imaging of Microwave Fields, Fault Detection of Planar antennas.

Ph.D Guidance:

S.No.	Name of Scholar	Title of Thesis	Status	Date of Award
1	Insha Ishteyaq	Design and Development of 5G Antennas for Hand-held Mobile Applications	Awarded	10-10-2022
2	Issmat Shah Masoodi	Printed MIMO Antennas for 4G and 5G Communication	Awarded	25-10-2022
3	Nazia Farooq	Millimeter Wave Antenna Design for 5G and Future Generations	Ongoing	
4	Farah	Carrying Course Work	Ongoing	
5	Aarizoo Reyaz	Carrying Course Work	Ongoing	

Recent Research Publications in Journals:

1. Alsaedi, D., Melnikov, A., Muzaffar, K., Mandelis, A., & Ramahi, O. M. (2021). A microwave-thermography hybrid technique for breast cancer detection. *IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology*, 6(1), 153-163.
2. Ishteyaq, I., Masoodi, I. S., & Muzaffar, K. (2021). Eight-port double band printed MIMO antenna investigated for mutual-coupling and SAR effects for sub-6 GHz 5G mobile applications. *Progress In Electromagnetics Research C*, 113, 111-122.
3. Masoodi, I. S., Ishteyaq, I., Muzaffar, K., & Magray, M. I. (2021). A compact band-notched antenna with high isolation for UWB MIMO applications. *International journal of microwave and wireless technologies*, 13(6), 634-640.
4. Ishteyaq, I., Masoodi, I. S., & Muzaffar, K. (2022). Orthogonally polarized meandered fed multiple input multiple output antenna array for C-band sub-6GHz 5G and unlicensed Wi-Fi smart-phone applications. *International Journal of RF and Microwave Computer-Aided Engineering*, 32(4), e23041.
5. Masoodi, I. S., Ishteyaq, I., & Muzaffar, K. (2022). Extra compact two element sub 6 GHz MIMO antenna for future 5G wireless applications. *Progress In Electromagnetics Research Letters*, 102, 37-45.
6. Ishteyaq, I., & Muzaffar, K. (2022). Multiple input multiple output (MIMO) and fifth generation (5G): An indispensable technology for sub-6 GHz and millimeter wave future generation mobile terminal applications. *International Journal of Microwave and Wireless Technologies*, 14(7), 932-948.
7. Malik, S. A., Muzaffar, K., Mir, A. H., & Moon, A. H. (2021). Extremely close integration of dual band sub-6 GHz 4G antenna with unidirectional mm-wave 5G antenna. *Progress In Electromagnetics Research Letters*, 96, 73-80.
8. Ishteyaq, I., Masoodi, I. S., & Muzaffar, K. (2021). A compact double-band planar printed slot antenna for sub-6 GHz 5G wireless applications. *International Journal of Microwave and Wireless Technologies*, 13(5), 469-477.
9. Magray, M. I., Karthikeya, G. S., Muzaffar, K., & Koul, S. K. (2019). Electrically small ACS-fed flipped MIMO antenna for USB portable applications. *Progress In Electromagnetics Research C*, 95, 141-152.

10. Magray, M. I., Karthikeya, G. S., Muzaffar, K., & Koul, S. K. (2019). Corner bent integrated design of 4G LTE and mmWave 5G antennas for mobile terminals. *Progress In Electromagnetics Research M*, 84, 167-175.
11. Magray, M. I., Karthikeya, G. S., Muzaffar, K., & Koul, S. K. (2022). Compact co-design of conformal 4G LTE and mmWave 5G antennas for mobile terminals. *IETE Journal of Research*, 68(3), 2137-2148.
12. Magray, M. I., Muzaffar, K., Wani, Z., Singh, R. K., Karthikeya, G. S., & Koul, S. K. (2019). Compact frequency reconfigurable triple band notched monopole antenna for ultrawideband applications. *International Journal of RF and Microwave Computer-Aided Engineering*, 29(11), e21942.
13. Muzaffar, K., Chatterjee, K., Giri, L. I., Koul, S., & Tuli, S. (2017). Modelling and analysis of power distribution of electromagnetic waves on plane surfaces using lock-in IR thermography. *Journal of Nondestructive Evaluation*, 36, 1-8.
14. Muzaffar, K., Roy, D., Tuli, S., & Koul, S. (2019). Frequency modulated thermal wave imaging for visualizing power density of electromagnetic waves on plane surfaces. *Research in Nondestructive Evaluation*, 30(2), 65-79.
15. Muzaffar, K., Giri, L. I., Chatterjee, K., Tuli, S., & Koul, S. (2015). Fault detection of antenna arrays using infrared thermography. *Infrared Physics & Technology*, 71, 464-468.
16. Muzaffar, K., Tuli, S., & Koul, S. (2015). Beam width estimation of microwave antennas using lock-in infrared thermography. *Infrared Physics & Technology*, 72, 244-248.
17. Muzaffar, K., Tuli, S., & Koul, S. K. (2016). Determination of polarisation of microwave signals by lock-in infrared thermography. *IETE Journal of Research*, 62(1), 81-90.
18. Masoodi, I. S., Ishteyaq, I., Muzaffar, K., & Magray, M. I. (2020). Low cost substrate based compact antennas for 4g/5g side-edge panel smartphone applications. *Progress In Electromagnetics Research Letters*, 91, 145-152.
19. Ishteyaq, I., & Muzaffar, K. (2020). Performance characterization of (Pt, Au, Pd)/ZnO/n-Si/Al Schottky structures for varied temperature and UV illumination conditions. *Superlattices and Microstructures*, 145, 106604.
20. Magray, M. I., Karthikeya, G. S., Muzaffar, K., Koul, S. K., & Moon, A. H. (2020). Wideband asymmetric coplanar strip fed antennas with pattern diversity for mmWave 5G base stations. *IEEE Access*, 8, 77482-77489.
21. Muzaffar, K., Magray, M. I., Karthikeya, G. S., & Koul, S. K. (2020). Wideband high aperture efficiency antennas with beam switching for mmWave 5G base stations. *International Journal of RF and Microwave Computer-Aided Engineering*, 30(8), e22254.

Recent Research Publications in Conferences:

1. Alsaedi, D., Melniko, A., Muzaffar, K., Mandelis, A., & Ramahi, O. M. (2021, December). A Microwave-Thermography-Convolution Neural Network Technique for Breast Cancer Detection. In 2021 IEEE Asia-Pacific Conference on Applied Electromagnetics (APACE) (pp. 1-2). IEEE.
2. Masoodi, I. S., Ishteyaq, I., Muzaffar, K., & Magray, M. I. (2020, December). Cup-Shaped Notch-Band Monopole Antenna Loaded with C-Type SRR for UWB Applications. In 2020 IEEE International Conference on Communication, Networks and Satellite (Comnetsat) (pp. 271-276). IEEE.
3. Masoodi, I. S., Ishteyaq, I., Muzaffar, K., & Malik, S. A. (2020, December). Enhanced Gain Compact Millimetre Wave Dipole Antenna for 5G Communication with Meta-Material Loading. In 2020 IEEE International Conference on Communication, Networks and Satellite (Comnetsat) (pp. 266-270). IEEE.
4. Ishteyaq, I., Masoodi, I. S., & Muzaffar, K. (2020, October). Six-element mimo antenna with slot ring radiators for future 5g hand-held mobile applications. In 2020 IEEE Bangalore Humanitarian Technology Conference (B-HTC) (pp. 1-4). IEEE.
5. Ishteyaq, I., Masoodi, I. S., & Muzaffar, K. (2020, October). Metamaterial loaded Dipole Antenna for mm-Wave Wireless 5G Applications. In 2020 IEEE Bangalore Humanitarian Technology Conference (B-HTC) (pp. 1-4). IEEE.
6. Magray, M. I., Karthikeya, G. S., Muzaffar, K., & Koul, S. K. (2019, December). ACS-Fed Antennas with Orthogonal Pattern Diversity for mmWave 5G Mobile Terminals. In 2019 IEEE Indian Conference on Antennas and Propagation (InCAP) (pp. 1-3). IEEE.
7. Magray, M. I., Muzaffar, K., Karthikeya, G. S., & Koul, S. K. (2019, December). Dielectric Loaded High Gain Vivaldi Antenna for mmWave 5G Smartphones. In 2019 IEEE Indian Conference on Antennas and Propagation (InCAP) (pp. 1-3). IEEE.
8. Ishteyaq, I., Masoodi, I. S., & Muzaffar, K. (2019, December). Wideband printed quasi-yagi mimo antenna for milli-meter wave applications. In 2019 IEEE Indian Conference on Antennas and Propagation (InCAP) (pp. 1-4). IEEE.
9. Muzaffar, K., Magray, M. I., Karthikeya, G. S., & Koul, S. K. (2019, September). High gain broadband Vivaldi antenna for 5G applications. In 2019 International Conference on Electromagnetics in Advanced Applications (ICEAA) (pp. 496-497). IEEE.
10. Magray, M. I., Muzaffar, K., Karthikeya, G. S., & Koul, S. K. (2019, September) Compact Dual Band F-Shaped ACS-Fed Monopole Antenna for WiMAX and WLAN Applications. In 2019 IEEE Indian Conference on Antennas and Propagation (InCAP) (pp. 1-4). IEEE.
11. Muzaffar, K., & Magray, M. I. (2019, September). Compact four element dual band notched orthogonally placed UWB antennas for wireless MIMO applications. In 2019 IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (APWC) (pp. 126-128). IEEE.
12. Sofi, M. A., Muzaffar, K., Shafi, M. A., & Dar, A. B. (2017, August). Defected ground structure based rectangular microstrip patch antenna with triple band operation. In 2017 International Conference on Innovations in Control, Communication and Information Systems (ICICCI) (pp. 1-4). IEEE.
13. Muzaffar, K., Tuli, S., & Koul, S. (2013, December). Infrared thermography for electromagnetic field pattern recognition. In IEEE MTT-S International Microwave and RF Conference (pp. 1-4). IEEE.
14. Muzaffar, K., Tuli, S., & Koul, S. (2015, February). Infrared thermography for determination of wavelength of microwave signals from interference pattern. In 2015 2nd International Conference on Signal Processing and Integrated Networks (SPIN) (pp. 774-778). IEEE.

Sponsored Projects:

S. No.	Title	Funding Agency	Amount	Year	Status
01	MIMO antenna design for wireless system	TEQIP-III	200000/=	2018-2019	Completed
02	Millimeter wave antenna design for 5G communication	TEQIP-III	1388000/=	2018-2019	Completed
03	Artificial Intelligence based Deep Learning Model to Predict Human Papiloma Virus Infection in Head and Neck Squamous Cell Carcinoma Patients using Histopathology Images	JKST&IC	1179000/=	2023-	Ongoing

Recent Participation in Workshops/Conferences/Symposia etc.:

S. No.	Workshop/ Conferences/Symposia	Year
01	Workshop on Innovation Frontier-II	2016
02	Two week ISTE STTP on Electric Power System	2017
	Technical paper writing, Patent Drafting and Filing	2017
03	Four-week general orientation course, Academic Staff College, University of Kashmir, Srinagar(2017)	2017
04	Four-week Refresher Course at Academic Staff College, University of Kashmir, Srinagar	2019
05	Workshop on Cyber Communication “Security and Laws”	2017
06	Workshop on Data Science and Information Security	2019
07	Outcome Based Education	2018
08	Workshop on FPGA programming in Power and Control Applications	2018
09	Workshop on 5G: An evolution to Revolution	2019
10	Workshop on A road map to growth of teaching, learning and research	2019
11	One week Summer School on Quantum Mechanics	2019
12	One-week course on 8051 microcontrollers and its applications, NITTTR Chandigarh (2020)	2020
13	One-week course on Technological Interventions using Wireless Communication, NITTTR Chandigarh (2020)	2020
14	2019 IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (APWC)	2019
15	2019 International Conference on Electromagnetics in Advanced Applications (ICEAA)	2019
16	2019 IEEE Indian Conference on Antennas and Propagation (InCAP)	2019
17	Technological Interventions using wireless communication	2020
18	8051 Microcontroller and its Applications	2020
19	UGC-SPONSORED REFRESHER COURSE IN SCIENCE	2019
20	Short Term Course on Antenna & Wireless Communication Technologies for IoT through ICT	2021
21	2023 International Conference on Innovative Research in Sciences, Technology, Agriculture Environment, Business Management and Humanities	2023

Teaching Interests

- **Graduate-level Courses and Labs**
 - Antennas and Radiating Systems, Transmission Lines CAD for RF and Microwave Systems
- **Undergraduate-level Courses and Labs**
 - Microwave Engineering, Transmission Lines, Antennas and Wave propagation, Circuit Analysis, Analog Electronics, Digital signal Processing.
 - Microwave Engineering Lab, Analog Electronics Lab, Electric Circuits lab, Antenna Design Lab.

Current Research Interests

- Planar Antenna design for 5G and Future Generations, MIMO Antenna Design.
- Design of mm-Wave antennas for Mobile terminals and Base Stations

References:

- Prof. Suneet Tuli , Professor, Electrical Engineering & Dean, Research & Partnerships, Shiv Nadar University, Delhi India, (Ex- Deputy D Research and Development , IIT Delhi) Phone: +91-9810925050 email: Suneet.tuli@snu.edu.in,
- Prof S.K Koul Professor, Centre for Applied Research (CARE), IIT Delhi, Delhi, India. Phone:+918588867801, (Ex- Deputy Director Strategy & Planning), Mob: 858886780, email: shiban_koul@hotmail.com, skkoul@care.iitd.ac.in
- Prof. Aijaz Hussain Mir, Dept. of Electronics & Communication Engineering, NIT Srinagar Srinagar, J and K, India Phone: +91-9419523894, email: ahmir@nitsri.net
- Dr. Sajad Ahmad Loan, Professor (Department of Electronics & Communication Engineering), Department of Electronics & Communication Engineering,, Jamia Millia Islamia (A Central University), email: sloan@jmi.ac.in , Phone: [+91-9958334287](tel:+91-9958334287)
- Dr. Omar M. Ramahi, Professor, Electrical and Computer Engineering, University of Waterloo, Email: oramahi@uwaterloo.ca Phone: 519-888-4567 x37460 Location: EIT 4154