

Dr. Badar Muneer

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PROFESSIONAL SUMMARY

I am an experienced researcher in wireless communication technologies. From 2008 to 2015, I was with a satellite broadcasting company (Samaa TV) as a satellite engineer where I worked on VSAT, CATV and several modern broadcast equipment. Since 2015, I have been working as Assistant Professor with Telecommunication Engineering Department, Mehran University of Engineering & Technology, Jamshoro. Presently, I am serving as Associate Professor in the same department. During 2019, I was also engaged in University of Malaga, Spain as a visiting Faculty under ERASMUS+ program. I was awarded CAS President's prestigious Postdoctoral Fellowship in 2016. I am a reviewer for several renowned journals including IEEE MICROWAVE AND WIRELESS COMPONENT LETTERS, IEEE TRANS. I am active IEEE Senior Member and advisor of IEEE MTT society SBC at MUET. I also served as Chief Editor for APETC 2016, China and TPC member for APCAP 2015, Indonesia. My current research interest are in the area of microwave and millimeter-wave technology, SIW based power dividers, phase shifters and SIW metamaterials and liquid alloy based reconfigurable microwave devices.

EDUCATION

2012 - 2015

DOCTOR OF PHILOSOPHY (PhD) – University of Science & Technology of China (USTC) --- Anhui, Hefei, P.R China.

- ❖ Specialization: Electromagnetic Fields & Microwave Technology
- ❖ Dissertation: Substrate integrated waveguide based power dividers and controllable phase shifters

2009 - 2011

MASTER OF ENGINEERING – NED University of Engineering & Technology (NEDUET) --- Karachi, Pakistan.

- ❖ Specialization: Telecommunication Engineering
- ❖ Dissertation: design and simulation of 16 elements, 4x4 substrate integrated waveguide antenna array

2004 - 2008

BACHELOR OF ENGINEERING – Institute of Space Technology, Islamabad (IST) --- Islamabad, Pakistan.

- ❖ Specialization: Communication Systems Engineering
- ❖ Dissertation: Design and implementation of 8-element micro strip patch antenna array

2011 – 2012

DIPLOMA IN CHINESE LANGUAGE – Anhui Normal University (ANU) --- Anhui, Wuhu, P.R China.

- ❖ Degree: HSK level 4

10.2019 – Present

ASSOCIATE PROFESSOR (BPS-20)

MEHRAN UET, JAMHSORO.

Courses taught (Undergraduate & Graduate Level)

- Microwave Engineering
- Wave Propagation & Antennas
- Satellite Communication

Thesis Supervised

- Undergraduate : 20+
- Masters: 5+
- PhD: 2 ongoing

2019.08 – 2019.9

VISITING FACULTY (ERASMUS PLUS PROGRAM)

UNIVERSITY OF MALAGA, E.T.S.I. DE TELECOMUNICACIÓN, MALAGA, SPAIN

2016.06 – 2018.5

POSTDOCTORAL FELLOW/PROJECT LEAD

KEY LABORATORY OF ELECTROMAGNETIC SPACE INFORMATION,
CHINESE ACADEMY OF SCIENCE, ANHUI, CHINA.

2016 – 10.2019

ASSISTANT PROFESSOR (BPS-19)

DEPARTMENT OF TELECOMMUNICATION ENGINEERING,
MEHRAN UNIVERSITY OF ENGINEERING AND TECHNOLOGY,



Courses taught (Undergraduate & Graduate Level)

- Microwave Engineering
- Wave Propagation & Antennas
- Signals & Systems

Thesis Supervised

- Substrate Integrated Waveguide based PIFA antenna.
- Wearable antennas: Textile and Liquid metal based body worn antennas

2011 – 2015

RESEARCH FELLOW

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA
FREDRICH ALEXANDER UNIVERSITÄT ERLANGEN-NURNBERG GERMANY



Research Activities

Worked with Prof. Dr. Zhu Qi (USTC) and Prof. Dr. Martin Vossiek (FAU) on projects supported by National Natural Science Foundation of China and Chinese Academy of Science (CAS) to design novel microwave and millimeter-wave devices. The emphasis of research was towards developing compact substrate integrated waveguide (SIW) with low loss and low cost, such as power dividers, phase shifters and antennas for phased array applications as well as microwave absorbers and meta-materials (Negative indexed materials). As a result, we were successful in developing some novel power dividers and phase shifters with unique performances, which are also published and available online. On the other hand, we also worked towards studying the properties of Carbon Nano Tubes (CNTs) and their applications. The details of our work can be found in research and publication section.

2011 – 2012

RESEARCH ANALYST (CONSULTANT)

6B GLOBAL BROADCAST SOLUTIONS

❖ Key Resopnsibilites

- Working on ground communication equipment, antennas and IPTV network at satellite earth station (LNA, BPF, Demod, HPA, Network analyzer, Spectrum analyzer etc)
- Developing new ideas for up gradations and project extension



2008 – 2015

SATELLITE ENGINEER

SAMAA TELEVISION NETWORK/CNBC PAKISTAN



- Satellite link optimization, frequency coordination and Frequency reuse planning etc.
- Installation, maintenance and troubleshooting of all Uplink/Downlink equipments. For two satellite channels, Samaa TV and CNBC Pakistan (as a Consultant)

HONORS, AWARDS AWARDS & ACHIEVEMENTS

2017

BEST PAPER AWARD 2017 IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting July 9–14, 2017, San Diego, California, USA

2016

EDITOR/TPC Asia-Pacific Engineering & Technology Conference (APETC 2016), Shanghai, China (24 – 25 Sep 2016)

INNOVATION AWARD awarded to project "Liquid metal shape reconfigurable antennas" at Invention to Innovation Summit, Quetta 2016 organized by ORIC of University of Balochistan in collaboration with IRP, PASTIC, PSF, SATHA and other Universities of Balochistan.

APPROVED PHD SUPERVISOR Approved by higher education commission of Pakistan to supervise PhD level students (From Apr. 2016 – Present)

2015

HEC SCHOLARSHIP Awarded partial support scholarship for PhD studies abroad Higher Education Commission of Pakistan

TPC MEMBER IEEE 4th Asia-Pacific Conference on Antennas and Propagation, Bali, Indonesia (30 June – 3 July 2015).

GEMIC 2015 TRAVEL GRANT Awarded fully funded grant to present distinguished paper at German Microwave Conference, Nurnberg, Germany (16 – 19 March 2015)

2014

RESEARCH FELLOWSHIP Awarded research fellowship co-sponsored by Key Laboratory of Electromagnetic Space Information, Chinese Academy of Science (USTC) and LHFT Germany to undertake PhD research.

2012

PHD RESEARCH SCHOLARSHIP Awarded Scholarship to PhD degree at University of Science and Technology of China(USTC) funded by Chinese Scholarship council (CSC) under Chinese Government Scholarship Scheme for international students.

2011

PROFESSIONAL
ASSOCIATION &
ACTIVITIES

FOREIGN EMBASSADOR Nominated by International school of USTC to host and coordinate the event organized by government of China in Hefei. The events focused on international collaboration of Chinese universities.

3-DAYS WORKSHOP ON VECTOR NETWORK ANALYZER Successfully organized hands-on training on microwave measurements using Vector Network Analyzer, at Department of Telecommunication Engineering, MUET, Jamshoro.

SEMINAR ON PCB FABRICATION LASER PROTOTYPING Successfully organized a seminar on "In-House PCB Prototyping on LPKF Protomat" under the umbrella of IEEE Microwave Theory and Techniques Society (MTT-S) SB Chapter at MUET.

PROJECT EXHIBITION AND POSTER SESSION Project Exhibition for the students of 13 TL/12 TL Batch was organized at Department of Telecommunication, Mehran University of Engineering & Technology Under the umbrella of IEEE (MTT-S and COMSOC) Societies

RF & MICROWAVE SYMPOSIUM (NATIONAL INSTRUMENTS, KARACHI) Attended symposium on rf & microwave measurements and software defined radios by national instruments at movenpick hotel, karachi.
faculty advisor/organizer

FACULTY ADVISOR/ORGANIZER

- ❖ IEEE Microwave Theory and Techniques Society (MTT-S) Student Branch Chapter at MUET, Jamshoro

MEMBERSHIPS AND ASSOCIATIONS

- ❖ Professional Member IEEE (Membership#: 93784647)
- ❖ Member IEEE Microwave Theory and Techniques Society
- ❖ Faculty Advisor: IEEE MTTs Student Branch Chapter at MUET, Jamshoro.
- ❖ Member Pakistan Engineering Council (Membership#: TELE/921)
- ❖ Member Board of Studies, Thesis Committee at MUET Jamshoro and IBA Sukkur.

SCHOLARLY PEER REVIEWER

- ❖ **Journal of Applied Physics (JAP)**
 - July 2014 – Present *AIP advances*, USA.
- ❖ **IEEE Microwave and Wireless Component Letters**
 - Jan 2015 – Present *IEEE MTTs*, USA.
- ❖
 - May 2014 – Present IOS Press, STM Publishing house, Japan.
- ❖ **Wireless Engineering and Technology (WET)**

- May 2014 – Present Scientific Research Publishing, NY, U.S.A.

❖ **Open Journal of Antennas and Propagation (oJAPr)**

- May 2014 – Present Scientific Research Publishing, NY, U.S.A.

❖ **Engineering,**

- May 2014 – Present (1 month) Scientific Research Publishing, NY, U.S.A.

❖ **Journal of Electronics (China)**

- May 2014 – Present Institute of Electronics, Chinese Academy of Sciences, China.

❖ **Journal of Electromagnetic Analysis and Applications (JEAA)**

- May 2014 – Present Scientific Research Publishing, NY, U.S.A.

❖ **International Journal of Electromagnetics and Applications (IJEa)**

- May 2014 – Present Scientific & Academic Publishing, USA.

RESEARCH
PUBLICATIONS

TOTAL PUBLICATIONS : 30

2021

- [1] P Soothar, H Wang, C Xu, Y Quan, ZA Dayo, M Aamir, B Muneer, " A Miniaturized Broadband and High Gain Planar Vivaldi Antenna for Future Wireless Communication Applications," International Journal of Antennas and Propagation 2021.
- [2] B Muneer, BS Chowdhry, H Zafar, Z Ali, FK Shaikh, "Polarization Agile Antenna for Underwater Communication Using Integrated Power Divider and Phase Shifter," Wireless Personal Communications 116 (2), 1137-1149, 2021.
- [3] P Soothar, H Wang, B Muneer, ZA Dayo, BS Chowdhry, "A broadband high gain tapered slot antenna for underwater communication in microwave band," Wireless Personal Communications 116 (2), 1025-1042, 2021.

2020

- [4] Yi, Zixuan; Li, Meiling; Muneer, Badar; Zhu, Qi, " High-efficiency mid-range inductive power transfer employing alternative-winding coils," IEEE Transactions on Power Electronics, Vol. 11 (1), 107, 2018. (IF: 6.565)
- [5] Yi, Zixuan; Li, Meiling; Muneer, Badar; He, Guoqiang; Yang, Xue-Xia;," Impedance Matching and Fast Calculation of Efficiency for an Inductive Power Transfer System Using an Array of Magnetically Coupled Resonators Self-Resonant Antisymmetric Planar Coil for Compact Inductive Power Transfer System Avoiding Compensation Circuits" IEEE Transactions on Power Electronics, 2020. [Early Access] [IF: 7.1]

2018

- [6] Deng Ruixiang, Li Meiling, **Badar Muneer**, Zhu Qi, Shi Zaiying, Song Lixin and Zhang Tao " The theoretical analysis of ultrathin broadband optically transparent metamaterial absorbers," Materials, Vol. 11 (1), 107, 2018. (IF: 2.654)
- [7] Zixuan Yi, Meiling Li, **Badar Muneer** and Zhu Qi," Impedance Matching and Fast Calculation of Efficiency for an Inductive Power Transfer System Using an Array of Magnetically Coupled Resonators" IEEE Transactions on Power Electronics, 2017. [Early Access] [IF: 7.1]
- [8] Meiling Li, **Badar Muneer**, Zixuan Yi and Zhu Qi," A Broadband Compatible Multispectral Metamaterial Absorber for Visible, Near-infrared and Microwave Bands" Advanced Optical Materials, Wiley, Vol. 6 (9), 1701238, 2018. [IF: 6.8]
- [9] Sun Guilin, **B. Muneer** and Qi Zhu, " Ultra-Compact Implantable Design with Integrated Wireless Power Transfer and RF Transmission Capabilities," IEEE

Transaction on Biomedical Circuits and Systems, Vol. 12 (2), 281-291 2018.
(IF: 2.93)

2017

[10] Yulong Xia, **B. Muneer** and Qi Zhu, "Design of a Full Solid Angle Scanning Cylindrical-and-Conical Phased Array Antennas," *IEEE Transactions on Antenna & Propagation*, Vol 56(9), pp, 4645-4655, 2017. (IF: 2.95)

[11] Korai, U. A., Shaikh, F. K., Kalwar, S., Soothar, K. K., **Muneer, B.**, & Solangi, A. "Analyzing the Quality of Free Space Optical Signal in Fog: A Case Study of Pakistan." *Wireless Personal Communications* 95.2 (2017): 569-579.

[12] **Badar Muneer**, Waseem Shabir, Faisal K. Shaikh and Zhu Qi, "Plate-Laminated waveguide transverse slot fed 2x3 PIFA array," 2017 IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, San Diego, CA, 2017.

[13] **Muneer, B.**, Shabir, W., & ShaiNh, F. K. (2017). Plate-Laminated Slotted-Waveguide Fed 2x 3 Planar Inverted F Antenna Array. *World Academy of Science, Engineering and Technology, International Journal of Electrical, Computer, Energetic, Electronic and Communication Engineering*, 11(1), 129-132.

2016

[14] Meiling Li, Zixuan Yi, **B. Muneer** and Qi Zhu, "A Novel Integrated Switchable Absorber and Radiator," *IEEE Transactions on Antenna & Propagation*, Vol 64 (3), pp. 944-952, 2016. <DOI: 10.1109/TAP.2016.2515121>

[15] **Badar Muneer**, Sensong An, A.W Umrani, F.K Shaikh, "A generalized approach to analyze broadband arrow-shaped loaded-stub phase shifters," *Advance Electromagnetics Symposium (AES), Malaga, Spain, Jun 2016*.

2015

[16] **B. Muneer**, Qi Zhu and Shanjia Xu Fellow, IEEE, "A Broadband Tunable Multilayer Substrate Integrated Waveguide Phase Shifter," *IEEE Microwave and Wireless Components Letters*, Vol 25 (4), pp. 220-222, 2015. (IF: 2.23)

[17] **Badar Muneer** and Qi Zhu, "A Novel Two-layer Electronically Controllable Substrate Integrated Waveguide Phase Shifter," *2015 German Microwave Conference (GeMic), Nurnberg, Germany, pp. 158-161 March 2015*.

[18] **B. Muneer**, Qi Zhu and Shanjia Xu Fellow, IEEE, "A Digital SIW Phase Shifter Implemented by Switching Transverse Slots via PIN Diodes," *FREQUENZ Journal of RF-Engineering and Telecommunications*, Vol 69 (9-10), pp. 383-387, Jan 2015. [DOI: 10.1515/freq-2015-0007] (IF: 0.39)

[19] **B. Muneer**, Yulong Xia, Qi Zhu and Shanjia Xu Fellow, IEEE, "Design of N-Way SIW Radial Power Divider Based on Equivalent Circuit Model," *FREQUENZ Journal of RF-Engineering and Telecommunications*, Jan 2015. (IF: 0.39)

[20] Sensong An, **B. Muneer**, Qi Zhu, "Generalized Analysis Method for a Class of Novel Wideband Loaded-Stub Phase Shifters," *RADIOENGINEERING*, 2015. (IF: 0.65)

[21] **Badar Muneer** and Qi Zhu, "A Novel Two-layer Electronically Controllable Substrate Integrated Waveguide Phase Shifter," *GeMiC2015 German Microwave Conference, Nurnberg, Germany, March 2015*.

[22] Hong Xu, Yulong Xia, **Badar Muneer** and Qi Zhu, "Design of Polarization-Agile Antenna by Using Integrated Structure of Phase Shifter and Power

Divider," *IEEE 4th Asia-Pacific Conference on Antennas and Propagation, Bali Island, Indonesia, 2015.*

2014

- [23] Guilin Sun, **Badar Muneer** and Qi Zhu, "A Study of Microstrip Antenna Made of Transparent ITO Films," *IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting*, Memphis, Tennessee, USA, July 2014.
- [24] Meiling Li, Zixuan Yi, **Badar Muneer** and Qi Zhu, "A Negative Inductance Circuit for Broadband Artificial Magnetic Conductors," *IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting*, Memphis, Tennessee, USA, July 2014.
- [25] Ru Meng, Heng Zhang, **Badar Muneer** and Qi Zhu, "The Design of a 48-way High Power Capacity Sectorial Waveguide Power Divider," *IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting*, Memphis, Tennessee, USA, July 2014.
- [26] Zixuan Yi, Meiling Li, **Badar Muneer** and Qi Zhu, "A Novel Compact Microstrip Resonant Antenna," *Asia Pacific Conference on Antenna and Propagation*, Harbin, China, July 2014.

2008

- [27] **B. Muneer**, A. H. Awan and Q. U. Islam, "Design, substrates comparison and fabrication of 8-element high gain microstrip patch antenna," in *2008 2nd International Conference on Advances in Space Technologies*, 2008, vol. 2, pp. 12–17.

RESEARCH PROJECTS AND FUNDING

2018
(Ongoing)

LOW INSERTION LOSS DIGITAL PHASE SHIFTER

Funding Agency

HUAWEI TECHNOLOGIES, CHINA

HIRP OPEN 2018 (NRPU 2016/17)

Grant#

Principal Investigator:

Prof. Dr. Zhu Qi, USTC China

Co-Principal Investigator:

Dr. Badar Muneer

Project Duration

8 months

Granted Amount

USD 70000

2017
(Ongoing)

LIQUID ALLOYS BASED RECONFIGURABLE ANTENNAS

Funding Agency

Higher Education Commission of Pakistan (HEC)

National Research Program for Universities (NRPU 2016/17)

Grant# 6876

Principal Investigator:

Dr. Badar Muneer, Assistant Professor, MUET

Co-Principal Investigator:

Prof. Dr. Bhawani Shankar Chowdhry

Project Duration

24 months

Granted Amount

PKR 11 Million

2016
(Completed)

SIW METAMATERIALO BASED POWER DIVIDERS AND PHASE SHIFTERS

Funding Agency

Chinese Academy of Science (Grant# 2016PM046)

Principal Investigator:

Dr. Badar Muneer, Assistant Professor, MUET

Co-Principal Investigator:

Prof. Dr. Zhu Qi, Prof. Dr. Yu Nenghai (USTC)

Project Duration

8 months

Granted Amount

PKR 6.5 Million

2016
(Completed)

SUBSTRATE INTEGRATED WAVEGUIDE METAMATERIAL BASED ANTENNAS FOR FUTURE ELECTRONICS

Funding Agency

Higher Education Commission of Pakistan, SRGP (Grant# SRGP-772)

Principal Investigator:

Dr. Badar Muneer, Assistant Professor, MUET

Co-Principal Investigator:

Dr. Faisal Karim Shaikh, Associate Professor/Chairman MUET.

Project Duration

8 months

Granted Amount

PKR 0.378 Million

2016
(Completed)

FFS BASED METAMATERIAL ABSORBERS AND RADIATORS

Funding Agency

National Natural Science Foundation of China (NSFC) (Grant# 61131002)

Principal Investigator:

Prof. Dr. Li-Xin Ran, Zhejiang University, Hangzhou

Researchers:

- 1) Prof. Dr. Zhu Qi, University of Science & Technology of China (USTC), Anhui, Hefei
- 2) Badar Muneer, PhD Scholar, University of Science & Technology of China (USTC), Anhui, Hefei

Granted Amount

Total funding: 467210 USD

Funding assigned to researchers: 112774.99 USD

- ❖ Electromagnetic Field and Microwave Technology
- ❖ RF and Millimeter wave devices
- ❖ SIW power dividers, phase shifters and absorbers
- ❖ Antennas design and wave propagation

Professor Dr. B.S. Chowdhry

Member BOG Higher Education Commission,
Distinguished National Professor,
Former Dean and Meritorious Professor (BPS 22),
Professor Emeritus,
Faculty of Electrical, Electronics and Computer Engineering
Mehran University of Engineering & Technology, Jamshoro - Pakistan

Email: c.bhawani@ieee.org

Website: bschowdhry.info

Prof. Dr. Mohammad Aslam Uqaili

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Vice Chancellor Mehran University of Engineering & Technology
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Shahid ur Rehman

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