Hasan Tahir Abbas

CONTACT INFORMATION

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Qatar Foundation,
Education City, Doha,
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EDUCATION

Texas A& M University, College Station, TX, USA.

Ph.D., Electrical Engineering, Aug. 2017

Dissertation: *Plasmonic Devices in the Terahertz and Optical Frequency domains*
Adviser: Professor Robert D. Nevels
GPA 4.0
Area of Study: Electromagnetic Theory and Numerical Analysis

University of Engineering & Technology, Lahore, Pakistan.

B.Sc., Electrical Engineering, Jul. 2009

With Honors
Specialization in Telecommunication and Computer Science

RESEARCH INTERESTS

Electromagnetic wave propagation, Plasmonics, Numerical Electromagnetics, Miniaturized on-chip Antennas, Two-dimensional Physics and Materials

OBJECTIVE

Placement in an academic position that allows for advanced research in lower dimensional physics with an emphasis on nanoscale electromagnetic wave phenomena in plasmonic media, and an opportunity to share knowledge with others through teaching.

CURRENT ACADEMIC APPOINTMENTS

Postdoctoral Research Associate, Texas A& M University at Qatar — April 2018 to present
Department of Electrical & Computer Engineering
- Affiliations:
  Center for Remote Health & Technologies at Qatar

Instructor, Texas A& M University at Qatar — August 2018 to present
- Courses:
  ECEN 314 - Signals & Systems
  ECEN 403 - Electrical Design Laboratory 1

PREVIOUS ACADEMIC APPOINTMENTS

Lecturer, UET Lahore, Pakistan — August 2017 to February 2018
Department of Electrical Engineering & Technology

Fulbright Scholar, Texas A& M University — August 2012 to August 2017
Department of Electrical & Computer Engineering
- Affiliations:
  Electromagnetics & Microwave Laboratory
  Institute of Quantum Science & Engineering

Instructor, Texas A& M University — August 2014 to December 2016
- Courses:
  ECEN 322 - Electric & Magnetic Fields
  ECEN 445 - Applied Electromagnetic Theory

Lecturer, UET Lahore, Pakistan — August 2009 to August 2012
Department of Electrical Engineering & Technology
- Courses:
  - Electromagnetic Theory
  - Antennas and Wave Propagation
  - Applied Electromagnetics
- Laboratories:

- Microwave and Antennas Laboratory
- Communication Systems

JOURNAL PUBLICATIONS

2018 H. T. , Abbas, X. , Zeng, R. D. , Nevels, M. S. , Zubairy, "Deep subwavelength imaging via tunable terahertz plasmons", Applied Physics Letters 113 (5), 051106.

2018 H. T. , Abbas, R. D. , Nevels, K. A. , Michalski, "An Integral Equation Scheme for Two-dimensional Electromagnetic Systems", *to appear in IEEE Transactions of Antennas & Propagation*.

BOOK CHAPTERS

2015 R. D. Nevels, H. T. Abbas, "Optical Nanoantennas", In Chapter in Handbook of Antenna Technologies, Springer Singapore, pp. 1-33, 2015.

CONFERENCE PUBLICATIONS

2018 H. T. , Abbas, R. D. , Nevels, "Electromagnetic Field Scattering from a Thin Sheet", In Antennas and Propagation & USNC/URSI National Radio Science Meeting, 2018 IEEE International Symposium on.

2018 H. , Abbas, K. , Zahed, L. , Alic, F. , Sasangohar, R. , Mehta, M. , Lawley, Q. , Abbasi, K. , Qaraqe, "A Wearable, Low-cost Hand Tremor Sensor for Detecting Hypoglycemic Events in Diabetic Patients" In RF & Microwave, 2018 IEEE International Conference on.

2018 Y. , Zhu, K. , Zahed, R. , Mehta, F. , Sasangohar, M. , Erraguntla, M. , Lawley, H. , Abbas, K. , Qaraqe, "Non-invasive Wearable System for Hypoglycemia Detection: A Proof of Concept User-Centered Design Process". In Human Factors and Ergonomics Society's 62nd Annual Meeting, Proceedings of.

2017 H. T. , Abbas, R. D. , Nevels, "An Integral Equation Scheme for Plasma based Thin Sheets", In Antennas and Propagation & USNC/URSI National Radio Science Meeting, 2017 IEEE International Symposium on.

2017 H. T. , Abbas, R. D. , Nevels, K. A. , Michalski , "Plasma based Terahertz devices", Wireless & Microwave Circuits & Systems, 2017 IEEE Texas Symposium on.

2016 H. T. , Abbas, R. D. , Nevels, "Plasma based integrated on-chip antenna", In Antennas and Propagation & USNC/URSI National Radio Science Meeting, 2016 IEEE International Symposium on, pp. 1645-1646, 2016.

2015 J. , Shin, H. T. , Abbas, R. D. , Nevels, "A numerical method for the electromagnetic field time domain propagator equations", In Antennas and Propagation & USNC/URSI National Radio Science Meeting, 2015 IEEE International Symposium on, pp. 1480-1481, 2015.

2015 J. , Shin, H. T. , Abbas, R. D. , Nevels, "A numerical method for the electromagnetic field time domain propagator equations", In Antennas and Propagation & USNC/URSI National Radio Science Meeting, 2015 IEEE International Symposium on, pp. 1480-1481, 2015.

2015 H. T. , Abbas, J. , Shin, R. D. , Nevels, "Numerical techniques for evaluating electromagnetic field propagators", In Computational Electromagnetics (ICCEM), 2015 IEEE International Conference on, pp. 22-23, 2015.

2014 R. D. , Nevels, K. A. , Michalski, H. T. , Abbas, "Plasmonic and surface wave propagation in boundary layers in the microwave, THz, and optical regimes", In Antenna Measurements & Applications (CAMA), 2014 IEEE Conference on, pp. 1-3, 2014.

TALKS

[1] Complex Plane Interpretation of Nano-Aperture Excited Plasmon Waves. In: *University of Electronic Science and Technology China (UESTC) National Summer School*, Chengdu, China, July, 2015.

[2] A decomposition and interpretation of plasma and plasmonic waves. In: *Institute for Quantum Science and Engineering Workshop*, College Station, TX, January 13–14, 2015.

[3] Twisted Waves: Concept and Limitations. In: *2013 IEEE AP-S/USNC-URSI Symposium*, Orlando, FL, July 7–13, 2013.

GRANT WRITING

QNRF NPRP 11-C **Fall 2018**

Title: Early Detection, Prediction and Development of New Therapies to Improve the Lives of Children with Diabetes Mellitus in the State of Qatar
Under review

TEES - RRSF 2018-2019 **Fall 2018**

Title: In-situ Monitoring of Novel Biodegradable Cardiovascular Stents - Design & Validation
Under review

Qatar University - IRCC 2018-2019 **Fall 2018**

Title: A Novel C-Reactive Protein Biosensor using CMOS-OFET for the Early Detection of Cardiovascular diseases
Under review

TEACHING EXPERIENCE

Texas A&M University at Qatar, Doha, Qatar

Instructor **Fall 2018**

- ECEN 314: Signals & Systems
  Undergraduate course
  -]] Main instructor: Khalid A. Qaraqe

Instructor **Fall 2018**

- ECEN 403: Electrical Design Laboratory 1
  Senior Design Project
  Main instructor: Khalid A. Qaraqe

Texas A&M University, College Station, TX

Instructor **Spring 2016**

- ECEN 322: Electric and Magnetic Fields
  Undergraduate course
  -]] Main instructor: Robert D. Nevels

Instructor **Fall 2015**

- ECEN 445: Applied Electromagnetic Theory
  Undergraduate course
  Main instructor: Robert D. Nevels

Instructor **Spring 2015**

- ECEN 351: Applied Electromagnetics
  Undergraduate course
  Main instructor: Robert D. Nevels

UET Lahore, KSK Campus, Pakistan

Lecturer **August 2009 to August 2012**

Instructor for EE 480: Antennas and Propagation
Instructor for EE 380: Electromagnetic Theory
Instructor for EE 381: Applied Electromagnetic Theory

Lab In-charge **December 2009 to August 2012**

Set up Microwave and Antennas Laboratory
Authored Antennas lab manual

Lab Instructor **Spring 2012**

EE 360: Communication Systems

HONORS & AWARDS

Fulbright Foreign Student
Pursue Doctoral Degree at Texas A&M University, 2012–2017

Best Young Faculty
Department of Electrical Engineering & Technology, UET Lahore, Pakistan, 2010-2011

Government Merit Scholarship
Board of Intermediate & Secondary Education, Multan Pakistan, 2003 - 2007

National Physics Talent Contest
Shortlisted for 9th International Physics Olympiad, Pakistan 2004

Travel Award
Department of Electrical & Computer Engineering, Texas A& University, 2017

INTERNATIONAL COLLABORATIONS

1. Dr. Qammer H. Abbasi, University of Glasgow, UK.
2. Prof. Muhammad Abdul-Ghani, UT Health San Antonio, USA.
3. Dr. Ali Boyaci, Istanbul Commerce University, Turkey.
4. Prof. Amin Jayyousi, Weill-Cornell Medicine, Qatar.
5. Dr. Muhammad Al-Amri, King Abdullah City of Science & Technology, KSA.
6. Dr. Ebaa Al-Ozairi, Dasman Institute, Kuwait.
7. Prof. Lakshman Tamil, UT Dallas, USA.
8. Dr. Marwa Qaraqe, Hamad Bin Khalifa University, Qatar.

PROFESSIONAL SERVICE

Professional Memberships

- IEEE Antennas & Propagation Society
- IEEE Microwave Theory & Techniques Society
- American Physical Society

Referee Service

- *IEEE Antennas and Wireless Propagation Letters*
- *IEEE Transactions on Antennas and Propagation*
- *American Journal of Physics*
- *IEEE Access*
- *IEEE Journal of Electromagnetics, RF, and Microwaves in Medicine and Biology*

SOFTWARE AND HARDWARE SKILLS

Computer Programming:
- C, C++

Numerical Analysis:
- MATLAB, Python

Desktop Editing and Productivity Software:
- Atom, Git
- TEX (LATEX, BIBTEX, PSTricks),
- Microsoft Office, Google Docs
- TikZ, InkScape

Operating Systems:
- Microsoft Windows family, Linux (Ubuntu)

EXPERTISE

Mathematics:
- PDE, Stability Analysis, Linear Algebra, Fourier Transforms

Machine Learning:
- Support Vector Machines

Embedded and Real/time Systems:
- Software and hardware development with several MCU and DSP platforms (e.g., Atmel ATmega MCU's, Microchip PIC MCU's, Arduino and others)

STUDENT MENTORING

Basat Abohmra
PhD Student in Electrical & Nanoscale Engineering, University of Glasgow, UK. Graphene based Terahertz Antennas.

Muhammad Shafiqul Islam
PhD Student in College of Science & Engineering, Hamad Bin Khalifa University, Qatar. Ensemble based Classification Models for Diabetes Prediction.

Marelyn Rios
Senior year Student in Industrial & Systems Engineering, Texas A&M University, College Station Predicting Future Risk of Type-2 Diabetes using Machine Learning.

Usman Samad
Undergraduate student in Electrical and Computer Engineering, Texas A&M University. Modeling and Implementation of a Home Automation System 2015.

REFERENCES AVAILABLE TO CONTACT

Furnished upon request.