

Melad M. Olaimat

Department of Renewable Energy Engineering, University of Al Albayt
Mafraq, 25113 – Jordan

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Education

Ph.D., Electrical and Computer Engineering

2017–2021

University of Waterloo

Waterloo, ON, Canada

Thesis title: Electromagnetic energy harvesting

Major contributions:

- Developed a novel method that can be used in EM wave energy harvesting
- Developed a method that accurately simulates a complete rectenna system
- This method was utilized to fabricate high efficient rectenna systems for energy harvesting
- Design of Metasurface antennas
- Cumulative GPA: 93 %

M.Sc., Electrical Engineering/Wireless Communication Engineering

2008–2010

Jordan University of Science and Technology

Irbid, Jordan

Thesis title: Design and analysis of triangular microstrip patch antennas for wireless communication systems

Major contributions::

- Derived several empirical formulae that predict resonant frequency of microstrip patch antennas
- Designed and fabricated several patch antennas that fit wireless communication systems

B.Sc., Electrical Engineering/Communication and software engineering

2003–2007

Balqa Applied University

Irbid, Jordan

Project title: FM radio tranceiver design

Research Interests

Antenna design for RF and mmWave applications and electromagnetic energy harvesting, Electromagnetic energy harvesting

Teaching Experience

Assistant professor

2021–2022

Department of Renewable Energy Engineering, University of Al Albayt

Almafraq, Jordan

Teaching assistant

2017–2021

Department of Electrical and Computer Engineering, University of Waterloo

Waterloo, ON, Canada

Served as a Teaching Assistant (TA) for the following courses and their corresponding labs:

- Electrical circuits (ECE 140)
- Signal and system (ECE 207)
- Communication system (ECE 318)
- Electromagnetism (ECE 106)
- Classical mechanics (ECE 105)

Full-Time Instructor (Lecturer)

2011–2017

Department of Electrical and Electronic Engineering, AL-Balqa Applied University

Amman, Jordan

-Responsibilities included all aspects of teaching and supervising such as participating in updating courses' curriculum, courses development, preparing and delivering lectures and labs, and grading exams for the following courses:

- Electrical circuits (ECE 140)
- Electromagnetic fields and wave (ECE 375)
- Communication system (ECE 318)
- Electronic circuit1 (ECE 240)
- Electromagnetism (ECE 106)

-Mentoring and supervising graduation projects for undergraduate electrical engineering students, selected projects:

- Design a prototype of a remote controlled crane
- Comparison between several types of patch antennas

-Administration duties:

- Communication with industry committee member
- Scheduling courses committee member
- Student advising and guidance
- Curriculum revision committee member

Publications

Journal Articles.....

1. **Melad M. Olaimat**, and Omar M. Ramahi, Simulation of Rectenna, (Under review with *IEEE Transactions on Microwave Theory and Techniques*).
2. **Melad M. Olaimat**, Leila Yousefi and Omar M., Using Plasmonics and Nanoparticles to Enhance the Efficiency of Solar Cells: Review of Latest Technologies, *The Journal of the Optical Society of America*, December 2020.
Melad Olaimat,
3. Youcef Braham Chaouche, Mourad Nedil, **Melad M. Olaimat**, Mohamed El Badawe, Omar M Ramahi, Wearable Metasurface Antenna based on Electrically-small Ring Resonators for WBAN Applications, *IET ELECTRONICS LETTERS*, November 2021.
4. Tao Tang, **Melad M. Olaimat**, Maged Aldhaeabi, Guangjun Wen, Li Xiao, Circular multi-usage RFID tag antenna with coding ability for chipless application, *International Journal of RF and Microwave Computer-Aided Engineering*, September 2020.
5. Nael Doghmosh, Sofyan A. Taya, Anurag Upadhyay, **Melad M. Olaimat**, Ilhami Colak, Enhancement of optical visible wavelength region selective reflector for photovoltaic cell applications using a ternary photonic crystal, *International Journal for Light and Electron Optics*, June 2021.
6. T Tang, AM Abuhmaid, **Melad M. Olaimat**, DM Oudat, M Aldhaeabi, E Bamanger, Efficiency of flipped classroom with online-based teaching under COVID-19, *Interactive Learning Environments*, pp.1-12, September 2020.
7. Yuanzhi Liu, Tao Tang, Guo Liu, **Melad M. Olaimat**, Error Analysis of the Numerical Method for Correcting the Propagation of EM waves in the Troposphere, *Journal of Microwaves, Optoelectronics and Electromagnetic Applications*, pp. 407-414, September 2020.
8. T Tang, MA Aldhaeabi, **Melad M. Olaimat**, GJ Wen, L Xiao, Radio frequency thawing chamber for rapidly thawing applications, *Microwave and Optical Technology Letters*, pp.1-6, August 2020.
9. **Melad M. Olaimat**, Comparison Between Rectangular and Circular Patch Antennas Array, *International Journal of Computational Engineering Research (IJCER)*, Vol. 06, September 2016.
10. **Melad M. Olaimat** and Aws Al-Qaisi, Novel Designs of Broadband Patch Antenna for Wireless Communication Application (1800 MHz and 2400 MHz), *International Journal of Computer Network and Communications (IJCNC)*, Vol.7, No.3, pp.161-169, May 2015.

11. **Melad M. Olaimat**, and N. I. Dib, A Study of 15° - 75° - 90° Angles Triangular Patch Antenna," *Progress In Electromagnetics Research (PIER)*, Vol. 21, pp. 1-9, 2011.
12. **Melad M. Olaimat** and N. I. Dib, Improved Formulae for the Resonant Frequencies of Triangular Microstrip Patch Antennas, *International Journal of Electronics*, Vol. 98, No. 3, pp. 407–424, March 2011.
13. Yahya S. Khraisat, **Melad M. Olaimat**, and Sharief N. Abdel-Razeq, Comparison Between Rectangular and Triangular Patch Antennas Array, *Applied Physics Research*, Vol. 4, No. 2, May 2012.
14. Nedal A. M. Altawalbeh, Saed A. A. AL-Thuneibat, and **Melad M. Olaimat**, New Technique for Controlling Stress in Metals, *Applied Physics Research*, Vol. 4, No. 3, 2012.

Conference Proceedings.....

1. **Melad M. Olaimat**, and Omar M. Ramahi, Effect of Bending on Metasurface Antenna and Microstrip Patch Antenna Array, (Accepted in *2021 IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science*).
2. **Melad M. Olaimat**, and Omar M. Ramahi, Simulation of Rectenna, (Accepted in *2021 IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science*).
3. **Melad M. Olaimat**, and Omar M. Ramahi, Adjustable Input Impedance Dipole Antenna, (*2021 IEEE 19th International Symposium on Antenna Technology and Applied Electromagnetics (ANTEM)*).
4. Yahya S. Khraisat and **Melad M. Olaimat**, Comparison Between Rectangular and Triangular Patch Antennas Array, *2012 19th International Conference on Telecommunications (ICT)*, Vol. 4, No. 2, May 2012.

Skills and Competencies

- RF/microwave circuit design using ADS, HFSS, CST, COMSOL, EMpro and IE3D
- Familiar with radio related test equipment such as spectrum analyzers, vector signal analyzers, vector signal generator, network analyzers
- Co-simulation between EM and circuit design utilizing EMpro and ADS simulators
- Familiar with signal integrity and fixture removal techniques
- Experience characterizing radio performance at microwave frequencies
- Thorough understanding of RF components
- Proficient knowledge of EM theory
- Knowledge of digital communication systems, spread spectrum, single and multi-carrier techniques and modulation types such as QPSK, APSK and QAM
- Digital communication theory with emphasis on bit error rate and system noise figure
- Familiar with Matlab, C++, AutoCAD drafting and Latex

Honors and Awards

- Awarded the Faculty of Engineering Award for academic excellence (FOE) twice from the university of Waterloo

This is a merit driven scholarship and is based on comparing student's accomplishments to those of their peers. This award is granted for only 14 students from all the faculty of engineering students at University of Waterloo.

- Awarded full scholarships for all of academic degrees (B.Sc., M.Sc. and Ph.D.)
These are merit driven scholarships and are based on academic excellence
- Awarded the certificate of completion of fundamental of university teaching program from the University of Waterloo.
This certificate is issued by the Center of Teaching Excellence (CTE) at the University of Waterloo after attending 6 workshops and presenting 3 microsessions

Volunteering Services

Graduate students council representative
Jordan University of Science and Technology

2008–2009
Irbid, Jordan

Undergraduate students council representative
Balqa Applied University

2005–2006
Irbid, Jordan

References

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