

Khair Al Shamaileh

Current Occupation : Assistant Professor of Electrical Engineering
Purdue University Northwest
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EDUCATION

Ph.D. Engineering	Univ. of Toledo, USA	2012–2015
M.Sc. Wireless Communications	Jordan Univ. Science and Technol., Jordan	2009–2011
B.Sc. Communications/Electronics	Jordan Univ. Science and Technol., Jordan	2004–2009

WORK EXPERIENCE

Purdue University Northwest	: Assist. Professor; Elect. Engineering	2016–current
Purdue University Calumet	: Visiting Assist. Professor; Elect. Engineering	2015–2016
The University of Toledo	: Graduate Teaching Assistant	2012–2015
Waseela Commun. Solutions	: Senior System Engineer–broadband Wireless	2011–2012

HONORS AND AWARDS

- Purdue Research Foundation Award (\$8,000), 2019.
- Purdue Northwest Interdisciplinary Research Award (\$20,000), 2018.
- Purdue Northwest College of Engineering and Sciences Research Award (\$8,000), 2018.
- Ph.D. Dissertation of the Year 2015, University of Toledo, 2016.
- Outstanding Teaching Assistant of the Year 2014, University of Toledo, 2014.
- M.Sc. Thesis of the Year 2011, Jordanian Research Support Fund, 2013.

COURSES TAUGHT

ECE201: Linear Circuit Analysis I	ECE448: Intr. Communications Theory
ECE207: Electric Circuits Measurement Techn.	ECE529: Intr. Microwave Engineering
ECE275: Analog and Digital Electronics	ECE530: Wireless Communication Systems
ECE301: Signals and Systems	ECE544: Digital Communications

SUPERVISED SENIOR DESIGN GROUPS

1. “Design and Implementation of Antenna Arrays Supporting Wireless Charging for Unmanned Aerial Vehicles,” Sara Toepper and Mohammad Ahmad, 2019.
2. “Microstrip Filters,” Zephaniah Hill, Jack McShane, and Roman Zapata, 2018.
3. “Design and Simulation of Wideband Microstrip Components,” Michael Knizek, Christopher Nicholl, and Craig Popovich, 2017.
4. “RF Energy Harvesting,” Mojtaba Hudibi, Josh Richter, Mohammed Jubara, 2017.
5. “Tri-band Mobile Jammer for 2-, 3-, and 4-G Cellular Communications,” Jarvas Wilderness, Ian McNicholas, and Oscar Lopez, 2016.

SUPERVISED GRADUATE STUDENTS

1. “Microwave Front-end Designs with Multifunctional Electrical Characteristics,” Dayana Paredes, in Progress.
2. “SAR Evaluations with Adult/Child Head Models,” Xintong Liu, in progress.
3. “Design and Simulations of Microwave Filters Using Non-uniform Transmission Lines and superformula Equation,” Zhaoyang Li, 2019.
4. “Coplanar Waveguide-based Lowpass Filter Design with Non-Uniform Signal Trace and Ground Planes Using Different Optimization Algorithms,” Qizhen Li, 2018.

PUBLICATIONS

– REFEREED JOURNAL ARTICLES –

1. A. Albehadili, K. Shamaileh, A Javaid, and V. Devabhaktuni, “Link-signature-based Discriminatory Channel Estimation (LS-DCE) for Physical Layer Security in Stationary and Mobile OFDM Transceivers,” *IEEE Transactions Vehicular Technology*, submitted.
2. K. Shamaileh, O. Hussein, N. Dib, A. Nosrati, and V. Devabhaktuni, “Multi-section branch-line crossover/coupler optimisation for wideband applications with higher-order harmonics suppression,” *IET Microwaves, Antennas and Propagation*, submitted.
3. H. Jaradat, N. Dib, and K. Shamaileh, “Miniaturized dual-band CPW Wilkinson power divider using T-network adopting series stubs with a high frequency ratio,” *International Journal of Electronics and Communications*, vol. 107, pp. 32–38, 2019.
4. O. Jibreel, N. Dib, and K. Shamaileh, “General design equations for 3-way unequal-split Bagley power dividers,” *IET Microwaves, Antennas and Propagation*, vol. 13, no. 13, pp. 2264–2271, 2019.
5. H. Jaradat, N. Dib, and K. Shamaileh, “Miniaturized multi-frequency Wilkinson power dividers based on non-uniform coplanar waveguide,” *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 25, no. 5, pp. 1–9, 2018.
6. O. Jibreel, N. Dib, and K. Shamaileh, “Systematic detailed design of unequal-split 3-way Bagley power dividers using uniform transmission lines,” *Progress in Electromagnetics Research M*, vol. 79, pp. 137–145, 2019.
7. O. Jibreel, N. Dib, and K. Shamaileh, “Miniaturized high split ratio Bailey power divider based on multi-ring split ring resonators,” *Applied Computational Electromagnetics Society*, vol. 34, no. 9, pp. 1379–1384, 2019.
8. K. Shamaileh, N. Dib and S. Abushamleh, “Width-varying conductor-backed coplanar waveguide-based lowpass filter with a constant signal trace to adjacent grounds separation,” *IET Microwaves, Antennas, Propagation*, vol. 13, no. 3, pp. 386–390, 2019.
9. K. Shamaileh, N. Dib, and S. Abushamleh, “A compact coplanar waveguide Wilkinson power divider based on signal traces and adjacent grounds width modulation,” *Microwave and Optical Technology Letters*, vol. 60, no. 9, pp. 2224–2227, 2018.
10. A. Albehadili, K. Shamaileh, A Javaid, J. Oluoch, and V. Devabhaktuni, “Upper bound on PHY-layer key generation for secure communications over a Nakagami-m fading channel with asymmetric additive noise,” *IEEE Access*, vol. 6, pp. 28137–28149, 2018.

11. K. Shamaileh, N. Dib, and S. Abushamleh, "A dual-band 1:10 Wilkinson power divider based on multi T-section characterization of high-impedance transmission lines," *IEEE Microwave and Wireless Components Letters*, vol. 27, no. 10, pp. 897–899, 2017.
12. O. Hussein, K. Shamaileh, and V. Devabhaktuni, "General design of impedance-varying multi-way Wilkinson power divider with bandwidth redefinition characteristics," *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 27, no. 5, pp. 1–9, 2017
13. D. Hawatmeh, N. Dib, and K. Shamaileh, "Microstrip non-uniform transmission lines triple band 3-way unequal split Wilkinson power divider," *Revue Roumaine Des Science Techniques*, vol. 62, no. 3, pp. 288–293, 2017.
14. R. Kumarasiri, K. Shamaileh, N. Tran, and V. Devabhaktuni, "An improved hybrid RSS/TDOA wireless sensors localization technique utilizing Wi-Fi networks," *Mobile Networks and Applications*, vol. 21, no. 2, pp 286–295, 2016.
15. K. Shamaileh, V. Devabhaktuni, and N. Dib, "Impedance-varying broadband 90° branch-line coupler with arbitrary coupling levels and higher-order harmonics suppression," *IEEE Transactions on Components, Packaging and Manufacturing Technology*, vol. 5, no. 10, pp. 1507–1515, 2015.
16. K. Shamaileh, V. Devabhaktuni, and A. Madanayake, "Multi-way impedance-varying power dividers," *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 25, no. 8, pp. 730–738, 2015.
17. K. Shamaileh, M. Almalkawi, R. Junuthula, V. Devabhaktuni, and P. Aaen, "ANN-based modeling of compact impedance-varying transmission lines with applications to ultra-wideband Wilkinson power divider," *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 25, no. 7, pp. 563–572, 2015.
18. M. Almalkawi, K. Shamaileh, S. Abushamleh, and H. Al-Rizzo, "A new class of compact linear printed antennas," *Progress in Electromagnetics Research C*, vol. 57, pp. 61–69, 2015.
19. K. Shamaileh, M. Almalkawi, and V. Devabhaktuni, "Dual band-notched microstrip-fed vivaldi antenna utilizing compact EBG structures," *International Journal of Antennas and Propagation*, vol. 2015, pp. 1–7, 2015.
20. O. A.-Alnadi, N. Dib, K. Shamaileh, and A. Sheta, "Design and analysis of unequal split Bagley power dividers," *International Journal of Electronics*, vol. 102, no. 3, pp. 500–513, 2014.
21. K. Shamaileh, M. Almalkawi, V. Devabhaktuni, N. Dib, and S. Abushamleh, "Realization of multi-band 3-dB branch-line couplers using Fourier-based transmission line profiles," *Electromagnetics*, vol. 34, no. 2, pp. 128–140, 2014.
22. M. Almalkawi, K. Shamaileh, and S. Abushamleh, "Non-uniform PCB traces with prescribed frequency bands for improved crosstalk immunity," *Journal of Electromagn. Waves and Applications*, vol. 28, no. 3, pp. 295–305, 2013.

23. K. Shamaileh, M. Almalkawi, V. Devabhaktuni, N. Dib, B. Henin, and A. Abbosh, "Non-uniform transmission line ultra-wideband Wilkinson power divider," *Progress in Electromagnetics Research C*, vol. 44, pp. 1–11, 2013.
24. K. Shamaileh, M. Almalkawi, V. Devabhaktuni, and N. Dib, "Compact tunable 3 dB hybrid and rat-race couplers with harmonics suppression," *International Journal of Microwave and Optical Technology*, vol. 7, no. 6, pp. 372–379, 2012.
25. D. Hawatmeh, K. Shamaileh, N. Dib, and A. Sheta, "Design and analysis of a 3-Way unequal split ultra-wideband Wilkinson power divider," *International Journal of Electronics*, vol. 100, no. 8, pp. 1062–1071, 2012.
26. K. Shamaileh, N. Dib, and A. Abbosh, "Analysis and design of ultra-wideband unequal split Wilkinson power divider using tapered lines transformers," *Electromagnetics*, vol. 32, no. 7, pp. 426–437, 2012.
27. K. Shamaileh, A. Qaroot, N. Dib, A. Sheta, and M. Alkanhal, "Analysis and design of ultra-wideband 3-way Bagley power divider using tapered lines transformers," *International Journal of Microwave Science and Technology*, vol. 2012, pp. 1–6, 2012.
28. D. Hawatmeh, K. Shamaileh, and N. Dib, "Design and analysis of multi-frequency unequal-split Wilkinson power divider using non-uniform transmission lines," *Applied Computational Electromagnetics Society*, vol. 27, no. 3, pp. 248–255, 2012.
29. K. Shamaileh, A. Qaroot, N. Dib, and A. Sheta, "Design and analysis of multi-frequency Wilkinson power dividers using non-uniform transmission lines," *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 21, no. 5, pp. 526–533, 2011.
30. K. Shamaileh, A. Qaroot, N. Dib, and Abdelfattah Sheta, "Design of miniaturized unequal split Wilkinson divider with harmonics suppression using non-uniform transmission lines," *Applied Computational Electromagnetics Society*, vol. 26, no. 6, pp. 530–538, 2011.
31. K. Shamaileh, A. Qaroot, and N. Dib, "Design of N-way power divider similar to the Bagley polygon divider with an even number of output ports," *Progress in Electromagnetics Research C*, vol. 20, pp. 83–93, 2011.
32. A. Qaroot, K. Shamaileh, and N. Dib, "Design and analysis of dual-frequency modified 3-way Bagley power dividers," *Progress in Electromagnetics Research C*, vol. 20, pp. 67–81, 2011.
33. K. Shamaileh, A. Qaroot, and N. Dib, "Non-uniform transmission line transformers and their application in the design of compact multi-band Bagley power dividers with harmonics suppression," *Progress in Electromagnetic Research*, vol. 113, pp. 269–284, 2011.
34. K. Shamaileh and N. Dib, "Design of compact dual-frequency Wilkinson power divider using non-uniform transmission lines," *Progress in Electromagnetics Research C*, vol. 19, pp. 37–46, 2010.

– CONFERENCE PROCEEDINGS –

1. K. Greene, D. Rodgers, H. Dykhuizen, K. McNeil, Q. Niyaz, and K. Shamaileh, “Timestamp-based defense mechanism against replay attack in remote keyless entry systems,” *IEEE International Conference on Consumer Electronics (ICCE)*, accepted.
2. Z. Hill, J. McShane, R. Zapata, K. Shamaileh, and S. Abushamleh, “Superformula-inspired splitting resonators with applications to compact bandpass filters,” *Applied Computational Electromagnetics Symposium (ACES)*, Florida, USA, April 2019.
3. O. Jibreel, N. Dib, and K. Shamaileh, “Dual-band high split ratio Bagley power divider based on multi-T-section characterization of high impedance transmission lines,” *Applied Computational Electromagnetics Symposium (ACES)*, Florida, USA, April 2019.
4. H. Jaradat, N. Dib, and K. Shamaileh, “A compact coplanar waveguide quad-band Wilkinson power divider using non-uniform transmission lines,” *Applied Computational Electromagnetics Symposium (ACES)*, Florida, USA, April 2019.
5. O. Jibreel, N. Dib, and K. Shamaileh, “Miniaturized Bailey power divider using SRRs,” 2018 *IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Massachusetts, USA, July 2018.
6. Q. Li, K. Shamaileh, and V. Devabhaktuni, “Coplanar waveguide-based lowpass filters with non-uniform signal trace and ground planes,” *International Progress in Applied Computational Electromagnetics Symposium (ACES)*, Colorado, USA, March 2018.
7. O. Hussein, K. Shamaileh, A. Sahu, B. Keneni, and V. Devabhaktuni, “Optimization of miniaturized single- and multi-band CPW-based matching transformers for RF circuitry on LCP substrates,” *IEEE 30th Canadian Conference on Electrical and Computer Engineering*, Ontario, Canada, May 2017.
8. A. Sahu, O. Hussein, B. Keneni, K. Shamaileh, and V. Devabhaktuni, “A slow-wave substrate integrated waveguide dual-band filter,” *IEEE 30th Canadian Conference on Electrical and Computer Engineering*, Ontario, Canada, May 2017.
9. K. Shamaileh and N. Dib, “Impedance-ground modulated coplanar waveguide matching transformers with applications to miniaturized Wilkinson power dividers,” *IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, California, USA, July 2017.
10. M. Knizek, C. Nicholl, C. Popovich, and K. Shamaileh, “Quad-band multi-section multi-way power divider and its miniaturization using coupled lines,” *IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, California, USA, July 2017.
11. O. Hussein, K. Shamaileh, V. Devabhaktuni, and P. Aaen, “Wideband impedance-varying N-way Wilkinson power divider/combiner for RF power amplifiers,” 88th *ARFTG Microwave Measurement Conference*, Texas, USA, December 2016.
12. M. Almalkawi, X. Li, K. Shamaileh, and V. Devabhaktuni, “A new miniaturization approach for frequency dependent planar antennas: monopoles & dipoles,” *International Progress in Applied Computational Electromagnetics Symposium (ACES)*, USA, 2014.

13. M. Almalkawi, K. Shamaileh, S. Abushamleh, Y. Choukiker, and V. Devabhaktuni, "Effect of PCB traces with continuous impedance perturbation on crosstalk immunity," *IEEE International Microwave and RF Conference*, New Delhi, India, December 2013.
14. M. Almalkawi, K. Shamaileh, and L. Cross, "A Transmission line circuit-oriented approach for miniaturization of a log-periodic dipole array (LPDA) antenna," *IEEE Midwest Symposium on Circuits and Systems*, Texas, USA, August 2013.
15. K. Shamaileh, M. Almalkawi, V. Devabhaktuni, N. Dib, B. Henin, and A. Abbosh, "Fourier-based transmission line ultra-wideband Wilkinson power divider for EARS applications," *IEEE Midwest Symposium on Circuits and Systems*, Columbus, Ohio, USA, August 2013.
16. J. Kim, K. Shamaileh, S. Adusumilli, and V Rao, "Digital interference cancellation for multimedia transmission in full duplex communication link," *IEEE International Symposium on Broadband Multimedia Systems Broadcasting*, London, UK, June 2013.
17. D. Hawatmeh, N. Dib and K. Shamaileh, "Design and analysis of a 3-way unequal split ultra-wideband Wilkinson power divider," 2012 *IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Chicago, USA, July 2012.
18. D. Hawatmeh, K. Shamaileh, and N. Dib, "Design and analysis of compact unequal split Wilkinson power divider using non-uniform transmission lines," *IEEE International Conference on Applied Electrical Engineering Computing Technology*, Amman, Jordan, December 2011.
19. K. Shamaileh, A. Qaroot, and N. Dib, "Design of miniaturized 3-way Bagley polygon power divider using non-uniform transmission lines," 2011 *IEEE AP-S Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Washington, USA, July 2011.

REFERENCES

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