Xun Gong

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Department of Electrical Engineering and Computer Science (EECS)
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Academic Interests:

I. Microwave filters and passive components
II. Wireless passive sensors for harsh environment applications
III. Antennas, phased arrays, and reflectarrays
IV. Flexible electronics
V. Micromachining
VI. Advanced packaging
VII. Ceramic materials, polymer materials, ferroelectric materials, metamaterials
VIII. Material characterization

Education:

Ph.D., Electrical Engineering, University of Michigan, Ann Arbor, 2005
- *Ph.D. Thesis, "Reduced-size high-Q resonators and filters for integrated tiled array systems"*
- *Advisors: Linda P. B. Katehi and William J. Chappell*

M.S., Electrical Engineering, FuDan University, Shanghai, China, 2000
- *Focus: Microwave passive component modeling and material characterization*

B.S., Electrical Engineering, FuDan University, Shanghai, China, 1997

Research Experience:

08/2011 – present Associate Professor**, University of Central Florida**
08/2005 – 07/2011 Assistant Professor**, University of Central Florida**

Microwave filters and passive components, advanced packaging
- *Filter and antenna integration for tiled array systems*
- *MEMS-based widely tunable high-Q filters with controllable bandwidth*

Micromachining and sensors
- *Wireless passive ceramic temperature sensors*
- *Wireless passive ceramic pressure sensors*

Flexible electronics
- *Low-loss tunable BST devices on flexible substrates*

Antennas, phased arrays, and reflectarrays
- *Phased arrays using parasitic coupling mechanism*
- *Deployable reflectarrays*
- *Quad-band antenna array for hurricane imaging radiometers*

Created Antenna, RF and Microwave Integrated Systems (ARMI) Laboratory at UCF in 2005. Measurement equipment includes Agilent 110-GHz Performance Network Analyzer (PNA), Agilent 40-GHz PNA-L, Agilent 50-GHz Performance Signal Generator (PSG), Agilent 50-GHz Performance Spectrum Analyzer (PSA), Agilent 26.5-GHz noise figure analyzer, Tektronix 50GS/s high-speed digital oscilloscope, Cascade Microtech M150 probe station, and a fully automatic anechoic chamber (700 MHz and above) built by TDK. Greatly enhanced the fabrication capability of the Advanced Microfabrication Facility (AMF) at UCF by purchasing and maintaining a

double-sided mask aligner (EVG620), a wafer bonder (EVG501), a nano-imprinter (NX2500), an AJA 3-gun sputtering system (ATC-1800), an AJA UHV thermal/E-beam evaporator (ATC 2200-V), an electroplating system, a Westbond wire bonder, a critical point dryer (CPD), an LPKF milling machine, and an LPKF substrate laminator.

01/2005 – 07/2005 Post-Doctoral Research Associate, **Purdue University**
Prof. Linda P. B. Katehi and William J. Chappell
Microwave filters and passive components, advanced packaging

- *High-Q resonators and filters using effective medium inside LTCC*
- *Embedded passives using high-K LTCC tapes for satellite radio systems*
- *Anisotropic conductive adhesives for high-frequency packaging*

Managed the Advanced Microwave Research Laboratory in Birck Nanotechnology Center. Responsible for the purchase and maintenance of near $1.2M microwave test and fabrication equipment, including Agilent 8510XF network analyzer, signal generators, spectrum analyzers, high-speed digital oscilloscopes, a noise figure analyzer, a probe station, and a laser-based stereolithography system.

06/2001 – 12/2004 Research Assistant, **University of Michigan, Ann Arbor**
Prof. Linda P. B. Katehi and William J. Chappell
Microwave filters and passive components, advanced packaging

- *High-resolution stereolithography for 3-D microwave circuits and packaging*
- *Vertically integrated filters using stereolithography*
- *High-Q reduced-size evanescent-mode resonators and filters*
- *High-Q resonators and filters in composite ceramic/polymer EBG substrates*
- *Develop high-frequency metamaterials, in collaboration with the Materials Science Department at University of Michigan*

08/2000 – 05/2001 Research Assistant, **University of Maryland, College Park**
Prof. Kawthar A. Zaki
Develop ridge waveguide filters and diplexers using mode matching method

09/1997 – 07/2000 Research Assistant, **FuDan University**
Prof. Shuzhen Cai
Analysis of microshield transmission line using spectral domain method
Non-destructive measurement of ceramic substrate permittivity

Honors and Awards:

UCF CECS Distinguished Researcher Award (2013)
UCF CECS CAE Link Faculty Fellow (2010-2012)
UCF Research Incentive Award (RIA) (2011)
UCF Teaching Incentive Program (TIP) Award (2010)
UCF EECS Department Outstanding Graduate Teaching Award (2010)
IEEE Transactions on Microwave Theory and Techniques Outstanding Reviewer (2006-2010)
National Science Foundation (NSF) Faculty Early CAREER Award (2009)
Special Congressional Recognition from Alan Grayson on High-Temperature Sensor (9/7/2009)
Air Force Office of Scientific Research (AFOSR) Summer Faculty Fellowship Program (2009)
UCF EECS Department Outstanding Undergraduate Teaching Award (2009)
IEEE Florida Council Outstanding Engineer Award (2009)
IEEE Orlando Section Outstanding Engineer Award (2009)

2004 IEEE MTT-S IMS Student Paper Competition 3rd Place Award (300+ participants)
2004 IEEE AP-S/URSI Int. Symp. Student Paper Competition Top 15 Finalist (200+ participants)
2003 IEEE AP-S/URSI Int. Symp. Student Paper Competition Top 15 Finalist (200+ participants)
FuDan University Motorola Scholarship (1993, 1994, 1998)
FuDan University Bachelor Degree with Honors (1997)
FuDan University HuaXin Scholarship (1994, 1995)
FuDan University HuaZang Scholarship (1993)
FuDan University People Scholarship (six times during 1993-1997)
10th American Invitational Mathematics Examination (AIME) 1st Class Award (1992)
43rd American High School Mathematics Examination (AHSME) 1st Class Award (1992)
Mathematics Olympiad 1st Class Award, Shanghai, China (1992)

News and Media:

UCF Report on High-Temperature Antenna Development (8/5/2013)
Orlando Sentinel News Report on High-Temperature Sensor Development (8/31/2009)

Honors and Awards of Advised Students:

Tianjiao Li, Student Paper Competition, Honorable Mention in 2013 IEEE AP-S/URSI Int. Symp.
Tianjiao Li, IEEE Orlando Section Outstanding Graduate Student Award (2013)
Kalyan Karnati, Student Paper Competition, Honorable Mention in 2013 IEEE AP-S/URSI Int. Symp.
Kalyan Karnati, IEEE Orlando Section Outstanding Graduate Student Award (2013)
Haitao Cheng, IEEE Orlando Section Graduate Student Scholarship (2011, 2012)
Justin Luther, Student Paper Competition 2nd Place Award, 2012 IEEE RWS
Justin Luther, Best Student Research Presentation Award in 2011 IEEE WAMICON
Justin Luther, Student Paper Competition, Honorable Mention in 2011 IEEE AP-S/URSI Int. Symp.
Justin Luther, Department of Defense (DoD) SMART Scholarship (2009-present)
Justin Luther, UCF Provost Fellowship (2008-2009)
Justin Luther, UCF B.S. Thesis Honors in the Major (2008)
Ya Shen, Student Paper Competition, Honorable Mention Award, 2012 IEEE MTT-S IMS
Ya Shen, Best Student Research Presentation Award in 2012 IEEE WAMICON
Ya Shen, IEEE Orlando Section Graduate Student Scholarship (2010, 2011)
Ya Shen, IEEE Orlando Section Outstanding Graduate Student Award (2010)
Paul Nelson, Department of Defense (DoD) SMART Scholarship (2008-2010)
Paul Nelson, IEEE MTT-S Undergraduate Scholarship and IMS Travel Grant (2008)
Paul Nelson, UCF B.S. Thesis Honors in the Major (2008)
Paul Nelson, UCF Honors in the Major Scholarship (2007)

Teaching Experience:

Faculty Member at UCF
EEL 3004 – Electrical Networks
EEL 3470 – Electromagnetic Fields
EEL 4436C/5437C – Microwave Engineering
EEL 5439C – RF and Microwave Communications
EEL 6425C – RF and Microwave Measurement Techniques (Developed by X. Gong)

Teaching Assistant
Fall 2004 ECE 441 – Distributed Parameter Systems (Purdue University)
Spr. 2003 ECE 595C – RF and Microwave Wireless Systems (Purdue University)
Spr. 2001 ENEE 322 – Signal and System Theory (University of Maryland, College Park)
Fall 2000 ENEE 241 – Numerical Techniques in Engineering (University of Maryland, College Park)

Fall 1997 Computational Methods in Engineering (FuDan University)

Primary Student/Postdoc Supervision:

Role	Name	Research Topic	Graduation	Employment
Chair, 10 Ph.D.	Mahmoud Shirazi	Antenna array	TBD	
	Michael Trampler	Reflectarray	TBD	
	Weijie Zhu	Phase shifter	TBD	
	Tianjiao Li	Filter/antenna integration	TBD	
	Kalyan Karnati	BST, reflectarray	TBD	
	Haitao Cheng	Integrated microwave resonator/antenna structures for sensor and filter applications	4/2014	Qualcomm
	Justin Luther	Microstrip patch electrically steerable parasitic array radiators	04/2013	U.S. Naval Air Station Point Mugu, CA
	Xinhua Ren	High temperature materials characterization and sensor application	12/2012	Motorola Mobility
	Ya Shen	BST-inspired smart flexible electronics	12/2012	TriQuint Semiconductor
	Yazid Yusuf	Integration of high-Q filters with highly-efficient antennas	12/2011	TriQuint Semiconductor
Chair, 4 M.S.	Jeffrey Lambert	A radar interrogator for wireless passive temperature sensing	04/2011	National Instruments
	Mathew Lukacs	Wireless sensing resonant frequencies of passive resonators with different Q factors	04/2011	U.S. Army Aberdeen Proving Ground, MD
	Paul Nelson	The relevance of time to digital converters to small platform direction finding systems	04/2010	U.S. Naval Air Station Point Mugu, CA
	Ajay Subramanian	A low phase noise *K*-band oscillator utilizing an embedded dielectric resonator on multilayer high-frequency laminates	12/2008	Raytheon
Chair, 2 B.S.	Justin Luther†	A study of mutual coupling as an alternate feed method in phased array antennas	04/2008	Shown Above
	Paul Nelson†	Varactor-based reactive network design for ESPAR phased array and antenna applications	04/2008	Shown Above
Postdoc Advisor	Siamak Ebadi	Reflectarray Antennas, Wireless High Temperature Sensors	09/2012	Intellectual Ventures

† Bachelor Thesis Honor in the Major

Publications: (*Advised Students or Postdocs)

Refereed Journal Articles – In Print

[1] Y. Yusuf*, and X. Gong, "Integration of 3-D High-Q Filters with Monopole Antennas," *Microwave and Optical Technology Letters*. In Press.

[2] Y. Yusuf*, H. Cheng*, and X. Gong, "Co-designed substrate-integrated-waveguide filters with patch antennas," *IET Microwaves, Antennas and Propagation*, vol. 7, no. 7, pp. 493-501, May 2013. DOI: 10.1049/iet-map.2012.0431.

[3] Y. Yusuf*, and X. Gong, "Integration of 3-D high-Q filters with aperture antennas and bandwidth enhancement utilizing surface waves," *IET Microwaves, Antennas and Propagation*, vol. 7, no. 7, pp. 468-475, May 2013. DOI: 10.1049/iet-map.2012.0432.

[4] X. Ren*, S. Ebadi*, Y. Chen, L. An, and X. Gong, "Characterization of SiCN ceramic materials dielectric properties at high temperatures for harsh environment sensing applications," *IEEE Transactions on Microwave Theory and Techniques*, vol. 61, no. 2, pp. 960-971, Feb. 2013. DOI: 10.1109/TMTT.2012.2234476.

[5] K. Karnati*, Y. Yusuf*, S. Ebadi*, and X. Gong, "Theoretical analysis on reflection properties of reflectarray unit cells using quality factors," *IEEE Transactions on Antennas and Propagation*, vol. 61, no. 1, pp. 201-210, Jan. 2013. DOI: 10.1109/TAP.2012.2214753.

[6] J. Luther*, S. Ebadi*, and X. Gong, "A microstrip patch electronically steerable parasitic array radiator (ESPAR) antenna with reactance-tuned coupling and maintained resonance," *IEEE Transactions on Antennas and Propagation*, vol. 60, no. 4, pp. 1803-1813, Apr. 2012. DOI: 10.1109/TAP.2012.2186265.

[7] H. Cheng*, S. Ebadi*, and X. Gong, "A low-profile wireless passive temperature sensor using resonator/antenna integration up to 1000ºC," *IEEE Antennas and Wireless Propagation Letters*, vol. 11, pp. 369-372, 2012. DOI: 10.1109/LAWP.2012.2192249.

[8] D. Oloumi, S. Ebadi*, A. Kordzadeh, A. Semnani, P. Mousavi, and X. Gong, "Miniaturized reflectarray unit cell using fractal-shaped patch-slot configurations," *IEEE Antennas and Wireless Propagation Letters*, vol. 11, pp. 10-13, 2012. DOI: 10.1109/LAWP.2011.2181478.

[9] Y. Yusuf*, H. Cheng*, and X. Gong, "A seamless integration of 3-D vertical filters with highly efficient slot antennas," *IEEE Transactions on Antennas and Propagation*, vol. 59, no. 11, pp. 4016-4022, Nov. 2011. DOI: 10.1109/TAP.2011.2164186.

[10] H. Cheng*, Y. Yusuf*, and X. Gong, "Vertically integrated three-pole filter/antenna for array applications," *IEEE Antennas and Wireless Propagation Letters*, vol. 10, pp. 278-281, Apr. 2011. DOI: 10.1109/LAWP.2011.2135833.

[11] Y. Yusuf*, and X. Gong, "Compact low-loss integration of high-Q 3-D filters with highly efficient antennas," *IEEE Transactions on Microwave Theory and Techniques*, vol. 59, no. 4, pp. 857-865, Apr. 2011. DOI: 10.1109/TMTT.2010.2100407.

[12] M. C. Bailey, R. A. Amarin, J. W. Johnson, P. Nelson*, M. W. James, D. E. Simmons, C. S. Ruf, W. L. Jones, and X. Gong, "Multi-frequency synthetic thinned array antenna for the hurricane imaging radiometer," *IEEE Transactions on Antennas and Propagation*, vol. 58, no. 8, pp. 2562-2570, Aug. 2010. DOI: 10.1109/TAP.2010.2050453.

[13] Y. Yusuf*, and X. Gong, "A low-cost patch antenna phased array with analog beam steering using mutual coupling and reactive loading," *IEEE Antennas and Wireless Propagation Letters*, vol. 7, pp. 81-84, Apr. 2008. DOI: 10.1109/LAWP.2008.916689.

[14] J. Shen, J. Lu*, H. Jia, A. Arias and X. Gong, "On-chip bondwire magnetics with ferrite-epoxy glob coating for power systems on chip (SOC)," *International Journal of Power Management Electronics*, vol. 2008, Article ID 678415, 9 pages, DOI:10.1155/2008/678415.

[15] X. Gong, T. Smyth, E. Ghaneie*, and W. J. Chappell, "High-Q resonators and filters inside advanced low temperature cofired ceramic substrates using fine-scale periodicity," *IEEE Transactions on Microwave Theory and Techniques*, vol. 56, no. 4, pp. 922-930, Apr. 2008. DOI: 10.1109/TMTT.2008.919375.

[16] X. Gong, W. H. She, and W. J. Chappell, "Aperiodic artificial substrates for multipole bandpass filters," *IET Microwaves, Antennas and Propagation*, vol. 1, no. 1, pp. 240-247, Feb. 2007. DOI: 10.1049/iet-map:20050337. (**Invited, Special Issue on Metamaterials**)

[17] Z. N. Wing, J. Halloran, X. Gong, W. H. She, E. Hoppenjans, and W. J. Chappell, "Fabrication and properties of an anisotropic TiO_2 dielectric composite," *Journal of the American Ceramic Society*, vol. 89, no. 9, pp. 2812-2815, Sept. 2006. DOI: 10.1111/j.1551-2916.2006.01134.x.

[18] X. Gong, W. H. She, E. Hoppenjans, Z. N. Wing, R. G. Geyer, J. W. Halloran, and W. J. Chappell, "Tailored and anisotropic dielectric constants through porosity in ceramic components," *IEEE Transactions on Microwave Theory and Techniques*, vol. 53, no. 11, pp. 3638-3647, Nov. 2005. DOI: 10.1109/TMTT.2005.859039.

[19] X. Gong, A. Margomenos, B. Liu, S. Hajela, W. J. Chappell, and L. P. B. Katehi, "Precision fabrication techniques and analysis on high-Q evanescent-mode resonators and filters of different

geometries," *IEEE Transactions on Microwave Theory and Techniques*, vol. 52, no. 11, pp. 2557-2566, Nov. 2004. DOI: 10.1109/TMTT.2004.837162.

[20] B. Liu, X. Gong, and W. J. Chappell, "Applications of layer-by-layer polymer stereolithography for three-dimensional high-frequency components," *IEEE Transactions on Microwave Theory and Techniques*, vol. 52, no. 11, pp. 2567-2575, Nov. 2004. DOI: 10.1109/TMTT.2004.837165.

[21] X. Gong, W. J. Chappell, and L. P. B. Katehi, "Multifunctional substrates for high-frequency applications," *IEEE Microwave and Wireless Components Letters*, vol. 13, no. 10, pp. 428-430, Oct. 2003. DOI: 10.1109/LMWC.2003.818525.

[22] W. J. Chappell, and X. Gong, "Wide bandgap composite EBG substrates," *IEEE Transactions on Antennas and Propagation*, vol. 51, no. 10, pp. 2744-2750, Oct. 2003. DOI: 10.1109/TAP.2003.817569. (**Invited, Special Issue on Metamaterials**)

[23] J. Li, X. Gong, and S. Cai, "Nondestructive measurement of complex permittivity of substrates by using open-ended waveguide method," *Journal of Microwaves*, vol. 15, no. 4, pp. 317-322, Dec. 1999.

[24] J. Li, X. Gong, and S. Cai, "Mixed spectral domain approach analysis of the coupling characteristics of Microshield Line," *Journal of Applied Science*, vol. 17, no. 3, pp. 302-308, Sept. 1999.

[25] X. Gong, J. Li, and S. Cai, "Full wave analysis of frequency dependence of microshield line characteristic impedance by mixed spectral domain approach," *Journal of FuDan University*, vol. 38, no. 3, pp. 307-311, Jun. 1999.

Refereed Journal Articles – To Appear

Refereed Journal Articles - Under Review

[26] E. Ghaneie*, S. Ebadi*, X. Ren*, T. Li*, and X. Gong, "Response reconstruction of two-port filters using one-port measurement results," *IEEE Transactions on Microwave Theory and Techniques*.

[27] J. Luther*, S. Ebadi*, and X. Gong, "Full Array Integration of the Microstrip Patch Electrically-Steerable Parasitic Array Radiator," *IEEE Transactions on Microwave Theory and Techniques.*

Refereed Conference Papers – In Print

[1] W. J. D. Johnson, T. Weller, and X. Gong, "Pactive sensors for security applications," in *14th IEEE Wireless and Microwave Technology Conference*, Orlando, FL, Apr. 7-9, 2013. DOI: 10.1109/WAMICON.2013.6572781. (**Invited**)

[2] T. Li*, and X. Gong, "Integration of slot antenna with evanescent-mode filter for tunable front-end applications," in *2013 IEEE AP-S Int. Symp.*, Orlando, FL, July 7-12, 2013. (**Student Paper Competition Honorable Mention Award out of 141 participants**)

[3] K. Karnati*, Y. Yusuf*, S. Ebadi*, and X. Gong, "A comparison between TEM- & TE_{10}-excited reflectarray element," in *2013 IEEE AP-S Int. Symp.*, Orlando, FL, July 7-12, 2013. (**Student Paper Competition Honorable Mention Award out of 141 participants**)

[4] H. Cheng*, X. Ren*, S. Ebadi*, and X. Gong, "A wide-band square slot antenna for high-temperature applications," in *2013 IEEE AP-S Int. Symp.*, Orlando, FL, July 7-12, 2013.

[5] J. Luther*, S. Ebadi*, and X. Gong, "Extraction of equivalent circuit model parameters of the feedless rectangular microstrip patch," in *2013 IEEE AP-S Int. Symp.*, Orlando, FL, July 7-12, 2013.

[6] K. Karnati*, S. Ebadi*, and X. Gong, "Dependency of K_a-band reflectarray unit cell reflection properties on the spacing between antenna elements," in 2013 *IEEE Radio and Wireless Symposium*, Austin, TX, Jan. 20-23, 2013. DOI: 10.1109/RWS.2013.6486660.

[7] H. Cheng*, S. Ebadi*, and X. Gong, "A wireless pressure sensor design using a microwave cavity resonator," in *2012 IEEE AP-S Int. Symp.*, Chicago, IL, July 8-14, 2012. DOI: 10.1109/APS.2012.6349060.

[8] J. Luther*, S. Ebadi*, and X. Gong, "A comparison of microstrip patch ESPAR array and uniformly-illuminated array performance," in *2012 IEEE AP-S Int. Symp.*, Chicago, IL, July 8-14, 2012. DOI: 10.1109/APS.2012.6348575.

[9] K. Karnati*, Y. Yusuf*, S. Ebadi*, and X. Gong, "Reflection coefficient analysis of a TEM-excited reflectarray unit cell using quality factors," in *2012 IEEE AP-S Int. Symp.*, Chicago, IL, July 8-14, 2012. DOI: 10.1109/APS.2012.6348733.

[10] X. Ren*, S. Ebadi*, and X. Gong, "A single-antenna wireless passive temperature sensing mechanism using a dielectrically-loaded resonator," in *2012 IEEE AP-S Int. Symp.*, Chicago, IL, July 8-14, 2012. DOI: 10.1109/APS.2012.6349062.

[11] Y. Shen*, S. Ebadi*, P. Wahid, and X. Gong, "K_a-band tunable reflectarray unit cell element using BST technology," in *2012 IEEE AP-S Int. Symp.*, Chicago, IL, July 8-14, 2012. DOI: 10.1109/APS.2012.6348729.

[12] Y. Shen*, S. Ebadi*, P. Wahid, and X. Gong, "Tunable and flexible Barium Stronium Titante (BST) varactors on Liquid Crystal Polymer (LCP) substrates," in *2012 IEEE MTT-S Int. Microwave Symp. Dig.*, Montréal, Canada, June 17-22, 2012. DOI: 10.1109/MWSYM.2012.6259668. (**Student Paper Competition Honorable Mention Award out of 351 participants**)

[13] J. Luther*, S. Ebadi*, and X. Gong, "Single-layer design of microstrip patch electrically-steerable parasitic array radiator (ESPAR) with integrated DC isolation," in *2012 IEEE MTT-S Int. Microwave Symp. Dig.*, Montréal, Canada, June 17-22, 2012. DOI: 10.1109/MWSYM.2012.6259682.

[14] T. Price, T. Weller, Y. Shen*, and X. Gong, "Temperature and voltage impact on intermodulation distortion of planar Barium Strontium Titanate varactors," in *13th IEEE Wireless and Microwave Technology Conference*, Cocoa Beach, FL, Apr. 16-17, 2012. DOI: 10.1109/WAMICON.2012.6208466. (**Best Student Paper Award**)

[15] X. Gong, L. An, and C. Xu, "Wireless passive sensor development for harsh environment applications," in *2012 IEEE International Workshop on Antenna Technology*, Tucson, AZ, Mar. 5-7, 2012, pp. 140-143. DOI: 10.1109/IWAT.2012.6178418. (**Invited**)

[16] K. Karnati*, S. Ebadi*, and X. Gong, "Effects of inter-element spacing on mutual coupling and resonant properties in reflectarray unit cell design," in *2012 IEEE Radio and Wireless Symposium*, Santa Clara, CA, Jan. 15-19, 2012, pp. 83-86. DOI: 10.1109/RWS.2012.6175299.

[17] Y. Shen*, S. Ebadi*, P. Wahid, and X. Gong, "Tunable reflectarray unit cell element using BST technology," in *2012 IEEE Radio and Wireless Symposium*, Santa Clara, CA, Jan. 15-19, 2012, pp. 43-46. DOI: 10.1109/RWS.2012.6175302.

[18] J. Luther*, S. Ebadi*, and X. Gong, "Electrically-steerable parasitic array radiator (ESPAR) antenna design for arrays with two and three parasitically-coupled elements," in *2012 IEEE Radio and Wireless Symposium*, Santa Clara, CA, Jan. 15-19, 2012, pp. 79-82. DOI: 10.1109/RWS.2012.6175310. (**Student Paper Competition 2nd Place Award**)

[19] H. Cheng*, S. Ebadi*, X. Ren*, Y. Yusuf*, and X. Gong, "A compact wireless passive sensing mechanism based on a seamlessly integrated resonator/antenna," in *2011 IEEE AP-S Int. Symp*., Spokane, WA, July 3-8, 2011, pp. 1350-1353. DOI: 10.1109/APS.2011.5996540.

[20] X. Ren*, S. Ebadi*, H. Cheng*, Y. Chen, L. An, and X. Gong, "Wireless resonant frequency detection of SiCN ceramic resonator for sensor applications," in *2011 IEEE AP-S Int. Symp*., Spokane, WA, July 3-8, 2011, pp. 1856-1859. DOI: 10.1109/APS.2011.5996859.

[21] M. Lukacs*, X. Ren*, and X. Gong, "Wirelessly sensing resonant frequency of passive resonators with different Q factors," in *2011 IEEE AP-S Int. Symp*., Spokane, WA, July 3-8, 2011, pp. 1143-1146. DOI: 10.1109/APS.2011.5996485.

[22] J. Luther*, and X. Gong, "A microstrip patch phased array antenna with parasitic elements and reactance-tuned coupling," in *2011 IEEE AP-S Int. Symp*., Spokane, WA, July 3-8, 2011, pp. 3291-3294. DOI: 10.1109/APS.2011.5997238. (**Student Paper Competition Honorable Mention Award out of 150+ participants**)

[23] K. Karnati*, S. Ebadi*, and X. Gong, "Effect of dielectric thickness on phase swing of a K_a-band microstrip reflectarray unit cell," in *2011 IEEE AP-S Int. Symp*., Spokane, WA, July 3-8, 2011, pp. 948-951. DOI: 10.1109/APS.2011.5996434.

[24] Y. Yusuf*, and X. Gong, "A vertical integration of high-Q filters with patch antennas with enhanced bandwidth and high efficiency," in *2011 IEEE MTT-S Int. Microwave Symp. Dig.,* Baltimore, MD, June 5-10, 2011. DOI: 10.1109/MWSYM.2011.5972721.

[25] Y. Yusuf*, and X. Gong, "Integrated filter/antennas with high efficiency and increased bandwidth," in *12th IEEE Wireless and Microwave Technology Conference*, Clear Water, FL, Apr. 18-19, 2011. DOI: 10.1109/WAMICON.2011.5872870. (**Invited**)

[26] X. Ren*, S. Ebadi*, Y. Chen, L. An, and X. Gong, "High-temperature characterization of SiCN ceramics for wireless passive sensing applications up to 500°C," *12th IEEE Wireless and Microwave Technology Conference*, Clear Water, FL, Apr. 18-19, 2011. DOI: 10.1109/WAMICON.2011.5872863.

[27] T. Price, T. Weller, Y. Shen*, and X. Gong, "Comparison of barium Stronium Titanate varactors on magnesium oxide and alumina substrates," in *12th IEEE Wireless and Microwave Technology Conference*, Clear Water, FL, Apr. 18-19, 2011. DOI: 10.1109/WAMICON.2011.5872902.

[28] Y. Yusuf*, and X. Gong, "A new class of 3-D filter/antenna integration with high quality factor and high efficiency," in *2010 IEEE MTT-S Int. Microwave Symp*. *Dig.*, Anaheim, CA, May 23-28, 2010, pp. 892-895. DOI: 10.1109/MWSYM.2010.5516915.

[29] F. Liang, J. Zhuge, L. Algozzini, Y. Tang, X. Ren*, K. Lin, J. Gou, X. Gong, and D. Firsich, "Electromagnetic interference shielding and lightning strike protection of carbon nanofiber paper," *Proceedings of 54th International Society for Advancement of Material and Process Engineering (SAMPE) Symposium and Exhibition*, Baltimore, MD, May 18-21, 2009.

[30] X. Ren*, T. Jiang, Y. Wang, L. An, and X. Gong, "Characterization of high-temperature ceramic materials at microwave frequencies for MEMS applications," in *10th IEEE Wireless and Microwave Technology Conference*, Clear Water, FL, Apr. 20-21, 2009. DOI: 10.1109/WAMICON.2009.5207277.

[31] X. Gong, "Microwave measurement techniques - train professionals with hands-on experience and promote understanding of theory," in *10th IEEE Wireless and Microwave Technology Conference*, Clear Water, FL, Apr. 20-21, 2009, DOI: 10.1109/WAMICON.2009.5207232. (**Invited**)

[32] E. Ghaneie*, and X. Gong, "A time-domain/frequency-domain simulation tool for microwave component analysis in microwave engineering courses," in *2008 IEEE AP-S Int. Symp.*, San Diego, CA, July 5-11, 2008, DOI: 10.1109/APS.2008.4619278.

[33] X. Ren*, and X. Gong, "A wireless sensing technique using passive microwave resonators," in *2008 IEEE AP-S Int. Symp.*, San Diego, CA, July 5-11, 2008, DOI: 10.1109/APS.2008.4619378.

[34] J. Lu*, H. Jia, A. Arias, X. Gong, and Z. J. Shen, "On-chip bondwire transformers for power SOC applications," in *23rd Annual IEEE on Applied Power Electronics Conference and Exposition (APEC '08)*, Austin, TX, Feb. 24-28, 2008, pp. 199-204, DOI: 10.1109/APEC.2008.4522722.

[35] Z. J. Shen, J. Lu*, X. Cheng, H. Jia, and X. Gong, "On-chip bondwire inductor with ferrite-epoxy beads: a cost-effective approach to realize power systems on chip," in *38th Annual IEEE Power Electronics Specialists Conference (PESC '07)*, Orlando, FL, June 17-21, 2007, pp. 1599-1604. DOI: 10.1109/PESC.2007.4342235.

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10.1109/MWSYM.2004.1336000. (**Student Paper Competition 3rd Place Award out of 300+ participants**)

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Refereed Conference Papers – to Appear

Refereed Conference Papers - under Review

[50] T. Li*, K. Karnati*, and X. Gong, "Approach to realize wide-scan-angle phased array with enhanced bandwidth and filtering function by using integrated filter/patch," in *2014 IEEE AP-S Int. Symp.*, Memphis, TN, July 6-12, 2014.

[51] T. Li*, H. Cheng*, and X. Gong, "Integrated single-fed circularly-polarized patch antennas with high-Q cavity filters," in *2014 IEEE AP-S Int. Symp.*, Memphis, TN, July 6-12, 2014.

[52] K. Karnati*, and X. Gong, "Effects from angle of incidence on reflection properties of reflectarray elements," in *2014 IEEE AP-S Int. Symp.*, Memphis, TN, July 6-12, 2014.

[53] W. Zhu*, Y. Shen*, and X. Gong, "Ka-Band loaded-line phase shifter design on flexible substrate," in *2014 IEEE AP-S Int. Symp.*, Memphis, TN, July 6-12, 2014.

[54] M. Trampler*, K. Karnati*, and X. Gong, "Tunable ring-loaded patch element for beam-steerable reflectarray applications," in *2014 IEEE AP-S Int. Symp.*, Memphis, TN, July 6-12, 2014.

Conference Abstracts/Presentations:

[1] H. Cheng*, X. Ren*, S. Ebadi*, Y. Chen, L. An, and X. Gong, "Self-packaged high-temperature sensors for harsh-environment applications," in *46th International Symposium on Microelectronics (IMAPS 2013)*, Sept. 29-Oct. 3, 2013 (**Invited**).

[2] X. Gong, W. J. Chappell, J. W. Halloran, L. P. B. Katehi, and L. An, "Low-loss ceramic materials and their applications in RF/microwave circuits and sensors," in *2011 ACerS Electronic Materials and Applications conference*, Special Session: Metamaterials and Microwave Ceramics, Orlando, FL, Jan. 19-21, 2011. (**Invited**)

[3] X. Gong, L. An, and C. Xu, "Recent advances on wireless passive high-temperature sensors for harsh environments," in *35th International Conference & Exposition on Advanced Ceramics and Composites*, Daytona Beach, FL, Jan. 23-28, 2011. (**Invited**)

[4] X. Gong, L. An, and Y. Wang, "High frequency characterization of ceramic materials for high-temperature sensor applications," in *34th International Conference & Exposition on Advanced Ceramics and Composites*, Daytona Beach, FL, Jan. 24-29, 2010. (**Invited**)

[5] X. Gong, and L. An, "Wireless passive ceramic MEMS sensors for in-situ monitoring combustion turbines," in *33rd International Conference & Exposition on Advanced Ceramics and Composites,* Daytona Beach, FL, Jan. 18-23, 2009. (**Invited**)

[6] Y. Yusuf*, J. Luther*, and X. Gong, "Low cost phased arrays using mutual coupling and reactive loading," in *2008 IEEE USNC/URSI National Radio Science Meeting*, San Diego, CA, July 5-11, 2008.

Magazine Articles:

[1] S. Ebadi*, X. Ren*, Y. Chen, L. An, and X. Gong, "High temperature material characterization: a step towards wireless microwave sensors for turbine applications," RF Technology International, May, 2012. (**Invited**)

[2] X. Gong, "Overview of 2011 and Welcome to 2012 IEEE WAMICON," *Microwave Magazine*, Oct. 2011. (**Invited**)

Invited Talks

[1] X. Gong, "BST-inspired smart flexible electronics," FuDan University, December 13, 2013.

[2] X. Gong, "Integration of high-Q filters with highly-efficient antennas," in *2013 IEEE MTT-S Int. Microwave Symp*., Seattle, WA, June 7, 2013.

[3] X. Gong, "BST-inspired smart flexible electronics," Intellectual Venture, Seattle, WA, June 2, 2013.

[4] X. Gong, "Recent advances in phased array and reflectarray antennas," Florida Space Institute, Apr. 3, 2013.

[5] X. Gong, "Recent advances in phased array and reflectarray antennas," Texas Tech. University, Oct. 19, 2012.

[6] X. Gong, "Recent advances in phased array and reflectarray antennas," Southeast University in China and IEEE Nanjing MTT/AP/EMC Chapter, July 24, 2012.

[7] X. Gong, "Recent advances in phased array and reflectarray antennas," Shanghai JiaoTong University, July 17, 2012.

[8] X. Gong, "Recent advances in phased array and reflectarray antennas," Carnegie Mellon University, Apr. 26, 2012.

[9] X. Gong, "Recent advances in phased array and reflectarray antennas," University of California, Davis, Jan. 18, 2012.

[10] X. Gong, "Laser-based polymer stereolithography of high-Q 3-D filters," Harris Corporation, June 21, 2011.

[11] X. Gong, "RF MEMS and its applications in tunable microwave filters," Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, April 26, 2010.

[12] X. Gong, "MEMS-based widely tunable high-Q microwave filters with controllable bandwidth, Air Force Research Laboratory, Hanscom, MA, Aug. 3rd, 2009.

[13] X. Gong, "Reduced-size high-Q resonators and filters for tiled array systems," Shanghai JiaoTong University, Nov. 11, 2008.

[14] X. Gong, "A time-domain technique for filter design, tolerance analysis, and measurement," University of South Florida, Mar. 31, 2008.

[15] E. E. Hoppenjans, P. Fisher, X. Gong, and W. J. Chappell, "Advances in LTCC technologies for RF applications," Workshop in *2008 IEEE RWS Symp*., Orlando, FL, Jan. 2008.

[16] X. Gong, "SPARSE array," Harris Corporation, Nov. 21, 2007.

[17] X. Gong, "3-D reduced-size integrated filters," University of South Florida, Feb. 20, 2007.

[18] X. Gong, L. Harle, L. P. B. Katehi, and W. J. Chappell, "Micromachined 3-D filters in silicon and ceramic substrates," in *2004 IEEE MTT-S Int. Microwave Symp*., Fort Worth, TX, June 2004.

[19] W. J. Chappell, B. Liu, and X. Gong, "Three-dimensional laser-based processing for high-Q embedded microwave components," in *2004 IEEE MTT-S Int. Microwave Symp*., Fort Worth, TX, June 2004.

Patents:

[1] X. Gong, L. An, and S. Ebadi, "Low-Profile Wireless Passive Resonators for Sensing," U.S. Provisional Patent Application 61/857,884, filed July 24, 2013.

[2] X. Gong, and Y. Yusuf, "Integrated Cavity Filter/Antenna Systems," U.S. Provisional Patent Application 13/112,389, filed May 20, 2011.

[3] X. Gong and L. An, "Ceramic Sensors for Wireless High-Temperature Sensing," U.S. Patent Application 12/821,993, filed June 23, 2010, patent #8,558,705.

Professional Memberships:

IEEE, Senior Member (2011), Member (2005), and Student Member (2002)
IEEE Microwave Theory and Techniques Society (MTT-S), Member
IEEE Antennas and Propagation Society (AP-S), Member
International Microelectronics and Packaging Society (IMAPS), Member

Service:

Conference Organization

IEEE MTT-S International Microwave Symposium (IMS)
IEEE Radio and Wireless Symposium (RWS)
IEEE Wireless and Microwave Technology Conference (WAMICON)
IEEE Silicon Monolithic Integrated Circuits in RF Systems (SiRF)
IEEE Topical Meeting on Wireless sensors and Sensor Networks (WiSNet)
IEEE European Microwave Week (EuMW)
IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting (AP-S/URSI International Symposium)
IEEE International Symposium on Antennas and Propagation (ISAP)
IEEE International Conference on Wireless Information Technology and Systems (ICWITS)
PIERS Progress In Electromagnetics Research Symposium (PIERS)

- **General Chair**

IEEE WAMICON, Chair, 2012
IEEE WAMICON, Co-Chair, 2009

- **Executive Committee**

IEEE MTT-S IMS, 2014, Operations Chair
IEEE SiRF, 2014-2015, Publications Chair
IEEE WAMICON, 2007-present

Chair of WAMICON Executive Committee, 2012-2013

- **Technical Program Committee Chair**

IEEE AP-S/URSI International Symposium, Chair, 2013
IEEE RWS, Chair for Passive Components and Packaging, 2011
IEEE RWS, Co-Chair for Antennas and Propagation, 2010
IEEE WAMICON, Chair, 2010
IEEE SiRF, Chair for Passives and MEMS, 2011, 2012, 2013
PIERS, Co-chair for Antennas and Microwave Technologies, 2013, 2014

- **Technical Program Committee Member**

IEEE AP-S/URSI International Symposium, 2013, 2014
IEEE MTT-S IMS, 2013-present
IEEE RWS, 2008-present
IEEE WAMICON, 2007-present
IEEE SiRF, 2007-present
IEEE WiSNet, 2012-present
IEEE ICWITS, 2012-present
IEEE ISAP, 2013

- **Session Chair**

IEEE MTT-S IMS, 2013
IEEE AP-S/URSI International Symposium, 2006-present
IEEE RWS, 2008-present
IEEE WAMICON, 2007-present
IEEE SiRF, 2007-present

- **Workshop Organizer**

2013 IMS Recent Advances on RF/Microwave Multi-Function Filtering Devices
2012 IMS Modern Techniques for Tunable and Reconfigurable RF/Microwave Filter Development

- **Student Paper/Design Competition**

IEEE MTT-S IMS, 2011-present (Judge)
IEEE WAMICON, 2011 (Chair)
IEEE SiRF, 2013(Judge), 2009 (Chair)

Journal Editor

IEEE MWCL, Associate Editor, 2013-
Microwave Magazine, Special Issue on Tunable Filters, Guest Editor, 2014
IET Microwaves, Antennas & Propagation Special Issue on Advanced Tunable/Reconfigurable and Multi-Function RF/Microwave Filtering Devices, Guest Editor, 2013

Paper Reviewer (Journal)

IEEE Transactions on Microwave Theory and Techniques
IEEE Microwave and Wireless Components Letters
IEEE Microwave Magazine
IEEE Transactions on Antennas and Propagation
IEEE Antennas and Wireless Propagation Letters
IEEE Antennas and Propagation Magazine
IET Microwaves, Antennas, and Propagation
IEEE/ASME Journal of Microelectromechanical Systems
IEEE Transactions on Components, Packaging and Manufacturing Technology

IEEE Transactions on Circuits and Systems I
International Journal of Numerical Modeling: Electronic Networks, Devices and Fields
Journal of Circuits, Systems, and Computers

Paper Reviewer (Conference)

IEEE EuMW, 2010-present
IEEE AP-S/URSI International Symposium, 2007-present
IEEE RWS, 2008-present
IEEE WAMICON, 2007-present
IEEE SiRF, 2007-present
IEEE ICWITS, 2012-present
IEEE WiSNet, 2012-present

Book Reviewer

Cambridge University Press
Pearson

Panel Reviewer

National Science Foundation (NSF)
Army Research Office (ARO)
American Society for Engineering Education (ASEE)

Community Service

University Level

UCF Major Equipment Funds Review Committee, 2013
UCF Photonics Science and Engineering Program Committee, 2011
UCF Postdoctoral Professional Development Program's Faculty Steering Committee, 2011

College Level

UCF CECS RIA Selection Committee, 2011-2012
UCF CECS TIP Selection Committee, 2010-2011
UCF CECS Budget and Planning Committee, 2009-2011

Department Level

UCF EECS Department Senior Engineer Search Committee, 2012-2013
UCF EECS Department Undergraduate/Lab Committee, 2011-2013
UCF EECS Department Faculty Search Committee, 2009-2013
UCF EECS Department Graduate Committee, 2006-2010
UCF EECS Department ABET review, 2008, 2014

IEEE

IEEE MTT-8 (Filters & Passive Components) Technical Coordinating Committee (TCC), 2009-present
IEEE MTT-8 (Filters & Passive Components) TCC Webmaster, 2011-present
IEEE MTT-S Region 3&4 Chapter Coordinator, 2011-present
IEEE MTT-S Undergraduate/Pre-Graduate Fellowship Reviewer, 2011-2012
IEEE Orlando Section Awards Chair, 2012-2013
IEEE Orlando Section Chair, 2011
IEEE Orlando Section Vice-Chair, 2009-2010
IEEE Orlando Section Secretary, 2008

IEEE AP/MTT Orlando Chapter Chair, 2007-2010

IMAPS
IMAPS Student Chapter at University of Central Florida, advisor, 2008-present

Others
USF WAMI Advisory Board, 2006-present
Orlando Chinese School of Tomorrow Board Member, 2013
Seminole County Science Fair Judge, 2011

Thesis/Dissertation Committee:

Ph.D. Dissertation Committee:

2013
- Saeed Khan, "Silicon photonic devices for optical delay lines and mid-infrared applications"
- Seyed Esmaeil Banaei, "Polymer optical fibers for luminescent solar concentration"

2012
- Mainul Hossain, "X-ray radiation enabled cancer detection and treatment with nanoparticles"
- Brian Fisher, "Surface acoustic wave (SAW) cryogenic liquid and hydrogen gas sensors"
- Shuyu Chen, "RF power amplifier and oscillator design for reliability and variability"
- Jian Liu, "Experimental study and modeling of mechanical micro-machining of particle reinforced heterogeneous materials"
- Dawn Trout, "Electromagnetic environment in payload fairing cavities"

2011
- Yaohan Chen, "Structure and properties of polymer-derived SiBCN ceramics"
- Nancy Saldanha, "Modeling, design and fabrication of orthogonal and pseudo-orthogonal frequency coded SAW wireless spread spectrum RFID sensor tags"
- Nikolai Kozlovski, "Passive wireless SAW sensors with new and novel reflector structures: design and applications"

2010
- Huiyong Wang, "Novel improvements on the analytical chemistry of polycyclic aromatic hydrocarbons and their metabolites"

2009
- Jian Lu, "Embedded magnetics for power system on chip (PSoC)"

2008
- G. Londe, "Integration of nanostructures and nanomaterials for microfluidic and sensing applications"

Master Thesis Committee:

2012
- Maxim Troshin, "Synchronous Communication System for SAW Sensors Interrogation"

2011
- Jason Steighner, "Investigation and trade study on hot carrier reliability of the PHEMT for DC and RF performance"
- Yiheng Wang, "Design and reliability analysis of high linearity 5.8 GHz power amplifier with an internal linearizer"

2010
- Karan Kutty, "Analysis and design of a class-E power amplifier and its long term stress effects on circuit performance"

2007

- Shailini Dhru, "Process development for fabrication of mesoscale electrostatic valve assembly"
- Eric Leach, "Knowledge based measurement of enhancing brain tissue in anisotropic MR imagery"

2006

- Michael Pepper, "Rapid prototyping of microfluidic packages"
- Bharath Srinivasan, "Prototype of coupling unit network for power line communications"

Undergraduate Honors in the Major (HIM) Thesis Committee:

2012

- Erich Dondyk, "Denial of convenience attack to smart phones using fake Wi-Fi access point"

2011

- Ross Kerley, "Small-scale hybrid alternative energy maximize for wind turbines and photovoltaic panels"

Other Advice:

- 2012-2013 UCF Research and Mentoring Program (RAMP) – Daniel Ramirez
- 2011-2013 UCF STATESS Program – Lucas Chokanis and Evianis Cruz-Montanez