



## SONGBIN GONG

(Updated July 5th, 2018)

Assistant Professor and Intel Alumni Fellow  
of Electrical and Computer Engineering  
University of Illinois at Urbana Champaign

Mail address:  
2264 Micro and Nano Technology Laboratory  
N. 208 Wright Street  
Urbana, IL 61801

Email: [songbin@illinois.edu](mailto:songbin@illinois.edu)  
Phone: 217-244-6454  
Fax: 217-244-6375  
[Iirm.ece.illinois.edu](http://irm.ece.illinois.edu)

### EMPLOYMENT

*Assistant Professor*  
Department of Electrical and Computer Engineering  
Micro and Nano Technology Laboratory  
Electromagnetic Laboratory  
University of Illinois at Urbana Champaign

Urbana, IL  
Aug 2013- Present

*Research Scientist*  
Department of Electrical and Computer Engineering  
PMANS Laboratory, Advisor: Prof. Gianluca Piazza  
Carnegie Mellon University

Pittsburgh, PA  
Sept 2012- July 2013

*Postdoctoral Researcher*  
Department of Electrical and Systems Engineering  
PMANS Laboratory, Advisor: Prof. Gianluca Piazza  
University of Pennsylvania

Philadelphia, PA  
June 2010- Aug 2012

Research Assistant  
Department of Electrical and Computer Engineering

Charlottesville, VA  
June 2005- May 2010

### EDUCATION

University of Virginia  
Ph. D. in Electrical Engineering  
Thesis: "DC-contact RF-MEMS Switches and Their Millimeter Wave Application"  
Advisor: Prof. N. Scott Barker

Charlottesville, VA  
May 2010

University of Virginia  
M. E. in Electrical Engineering

Charlottesville, VA  
June 2007

Huazhong University of Science and Technology  
B. S. in Electrical Engineering and B. A. in English

Wuhan, China  
June 2004

## **RESEARCH SUMMARY**

Prof. Songbin Gong's research leverages micro/nano electro mechanical systems (M/NEMS), semiconductor, and integrated photonic technologies to enable the development of chip-scale microsystems for RF to millimeter-wave frequency front-ends, sensing, and computing.

The major research topics include:

- Chip-scale programmable MEMS platforms for signal processing (100 MHz to 30 GHz)
- Passive MEMS-based RF front ends for IoT-inspired radios
- Radio frequency non-reciprocal materials, devices, and components
- Frequency control and synthesis (kHz to 30 GHz) based on parametric and nonlinear resonators
- Acoustically driven radiated structures
- Acoustic and EM Wireless Microsystems for Implantable and Wearable Electronics
- Multi-modality Resonant Sensors (Infrared, EM, and Acoustics)
- Ultra-broadband RF photonics devices and components
- Micromachining, heterogeneous integration methods, and layer transfer techniques

## **RESEARCH GRANTS AND CONTRACTS**

***Total Funding to PI. Gong: \$5,127,207.***

PI for projects with total funding of \$6,383,394.

- Department of Defense: Parametrically Excited Resonant Computing Systems (PERCs)  
Role: Principal Investigator. Total Funding Amount: \$500,000. Amount to PI Gong: \$500,000.  
Funding Period: Aug. 26<sup>th</sup>, 2014-Aug. 26<sup>th</sup>, 2017.
- Strategic Research Initiative: High-Throughput Single-Molecule Biophysics and Biomolecular Sensing  
Role: Principal Investigator, Total Funding Amount: \$150,000, Amount to PI Gong: \$70,000.  
Funding Period: July 1<sup>st</sup>, 2014-July 1<sup>st</sup>, 2016.
- Department of Defense: DARPA Supply Chain Hardware Integrity for Electronics Defense (SHIELD): Resonance Enhanced Authentication and Charging (REACH) Phase I  
Role: Principal Investigator. Total Funding Amount: \$524,947. Amount to PI Gong: \$301,619.  
Funding Period: Jan. 2015-July. 2016.
- Undisclosed Industry Sponsor: Research on Edge-Reflection Small Plate Wave Resonators without Spurious Response using Smart-Cut LN Substrates  
Role: Principal Investigator. Total Funding Amount: \$100,000. Amount to PI Gong: \$100,000.  
Funding Period: Sept. 2015-Sept. 2016.
- Department of Defense: DARPA Near Zero Power RF and Sensor Operations (NZERO): Virginia Efficient Near-zero Ultra-low-power Systems (VENUS)  
Role: Co-Principle Investigator. Total Funding Amount: \$3,409,000. Amount to Co-PI Gong: \$809,000.  
Funding Period: Nov. 2015-Feb. 2018.

- Applied Research Institute: High-Detectivity and Low-Cost Room-Temperature Infrared Detectors  
Role: Principal Investigator.  
Total Funding Amount: \$50,000. Amount to PI Gong: \$40,000.  
Funding Period: Nov. 2015-Feb. 2018
- Sandia National Lab: A tunable RF photonic platform based on high Q Lithium Niobate micro-resonators  
Role: Principal Investigator.  
Total Funding Amount: \$50,000. Amount to PI Gong: \$45,000.  
Funding Period: March 2016-October 2016
- Department of Defense: DARPA Supply Chain Hardware Integrity for Electronics Defense (SHIELD): Resonance Enhanced Authentication and Charging (REACH) Phase II  
Role: Principal Investigator.  
Total Funding Amount: \$392,439. Amount to PI Gong: \$239,838.  
Funding Period: July. 2016-May. 2017
- Department of Defense: DARPA Signal Processing at RF (SPAR)-Phase I: Chip-scale Anti-Reciprocal Platform of Electromechanical-elements (CARPE)  
Role: Principal Investigator.  
Total Funding Amount: \$617,670. Amount to PI Gong: \$480,972.  
Funding Period: Oct. 2016-April. 2018
- Department of Defense: DARPA A Mechanical based Antenna (AMEBA): Acoustically Driven and Modulation Inducible Radiating Elements (ADMIRE)  
Role: Principal Investigator.  
Total Funding Amount: \$3,157,298. Amount to PI Gong: \$1,698,908.  
Funding Period: August. 2017-April. 2021
- Department of Defense: DARPA Supply Chain Hardware Integrity for Electronics Defense (SHIELD): Resonance Enhanced Authentication and Charging (REACH) Phase III  
Role: Principal Investigator.  
Total Funding Amount: \$450,000. Amount to PI Gong: \$150,000.  
Funding Period: Feb. 2018-Dec. 2018
- National Aeronautics and Space Administration (NASA)-Space Technology Research Grants Program Early Career Faculty Award- Lithium Niobate Based Photonic Integrated Circuits for Reconfigurable Sensing and Signal Processing  
Role: Principal Investigator.  
Total Funding Amount: \$600,000. Amount to PI Gong: \$600,000  
Funding Period: Oct. 2017-Sept. 2020
- Sandia National Laboratory-X-band Piezoelectric Impedance Transformers for Wake-up Radios  
Role: Principal Investigator.

Total Funding Amount: \$241,040. Amount to PI Gong: \$241,040

Funding Period: May. 2018-Nov. 2019

## **ACADEMIC HONORS, AWARDS, AND MEMBERSHIPS**

- **2<sup>nd</sup> Place Best Paper Award at International Microwave Symposium 2018**
- **NASA Early Career Faculty Award 2017**
- **Best Paper Award at 2017 International Frequency Control Symposium**
- **Intel Alumni Fellow 2017**
- **DARPA Young Faculty Award (YFA) 2014**
- Teachers Ranked as Excellent by Their Students - ECE 447 Active Microwave Circuits (2017)
- Teachers Ranked as Excellent by Their Students - ECE 457 Microwave Devices and Circuits (2015)
- Teachers Ranked as Excellent by Their Students - ECE 329 Fields and Waves (2014)
- Chen Zili Outstanding Student Fellowship, Chinese Government, 2004-2007
- Academic Excellence Fellowship, Huazhong University of Science and Technology, 2002-2004
- Member of ETA KAPPA NU honor Society, 2006-Now
- IEEE Senior member (Dec. 2016-now)

## **AWARDS AND SCHOLARSHIPS WON BY GRADUATE STUDENTS AND POSTDOCS**

- 2015 Lam Research Award to Ruochen Lu
- 2015 Omron Electrical Engineering Scholarships to Liuqing Gao
- 2016 E. C. Jordan Award to Liuqing Gao
- Finalist for the best poster paper at 2015 International Solid-State Sensors, Actuators and Microsystems Conference (Transducers) to Ruochen Lu
- 2016 Nick and Katherine Holonyak, Jr Graduate Research Fellowship to Anming Gao
- 2016 Lieutenant General Thomas M. Rienzi Graduate Research Award to Brandon Arakawa
- 2017 Nick and Katherine Holonyak, Jr Graduate Research Award to Ruochen Lu
- 2017 Lieutenant General Thomas M. Rienzi Graduate Research Award to Brandon Arakawa
- 2017 ECE distinguished graduate fellowship to Liuqing Gao
- 2017 Best Paper Award to Ruochen Lu and Tomas Manzaneque at International Frequency Control Symposium
- 2018 Nick and Katherine Holonyak, Jr Graduate Research Fellowship to Ruochen Lu
- 2018 James M. Henderson Fellowship to Liuqing Gao
- 2018 Internal Frequency Control Symposium Best Paper Finalist, Yansong Yang
- 2018 Internal Microwave Symposium Best Paper Competition 2<sup>nd</sup> Place, Yansong Yang

## **RESEARCH SUMMARY (PRIOR TO UIUC)**

Research projects at Carnegie Mellon University

- *Field Programmable Filtering using High Q passives (Supported by the DARPA RF-FPGA program).*
- *Monolithic Multi-frequency narrow-band AlN MEMS filters (Supported by the IARPA Trusted*

## *IC program)*

### Research projects at the University of Pennsylvania

- *Monolithic Multi-frequency piezoelectric filters using micro-machined LiNbO<sub>3</sub> micro-resonators*  
(Supported by the DARPA N/MEMS S&T program).
- *Extremely High Q Lateral Overtone Bulk Acoustic-wave Resonators (LOBAR) for chip scale spectrum analyzer/sensing (CSSA).*(Supported by the DARPA CSSA program).
- *Wide-band AlN filters and their integration with CMOS electronics* (Supported by the Qualcomm Inc)

### Research projects at the University of Virginia

- *State-of-the-art cryogenic (1.6-300 K) RF-MEMS switches and switched capacitors with broad bandwidth performance from DC to 110 GHz.*
- *Broadband (1-75 GHz) compact low-loss single pole four throw (SP4T) switches and broadband (1-65 GHz) low-loss True Time Delay (TTD) phase shifters for switching networks and phased array antenna.*
- *Broadband half-wave and quarter-wave phase modulation units for NASA's next generation Beyond Einstein Inflation Probe mission.*
- *Temperature-insensitive designs for RF-MEMS devices in harsh environments.*

## **TEACHING**

- Course Director and Instructor ECE 447: Active Microwave Circuit Design, Fall 2017, UIUC
- Course Instructor ECE 210: Analog Signal Processing, Fall 2018, UIUC
- Course Instructor ECE 350: Fields and Waves II, Spring 2018, UIUC
- Course Director and Instructor ECE 447: Active Microwave Circuit Design, Fall 2017, UIUC
- Course Instructor ECE 457: Microwave Circuit and Device, Spring 2017, UIUC.
- Course Director and Instructor ECE 447: Active Microwave Circuit Design, Fall 2016, UIUC
- Course Instructor ECE 457: Microwave Circuit and Device, Spring 2016, UIUC.
- Course Instructor ECE 457: Microwave Circuit and Device, Spring 2015, UIUC.
- Course Instructor ECE 329: Fields and Waves I, Fall 2014, UIUC.
- Course Instructor ECE 329: Fields and Waves I, Spring 2014, UIUC.
- Course Instructor ECE 329: Fields and Waves I, Fall 2013, UIUC.
- Teaching Assistant ECE 366: Electronics II, Spring 2007, University of Virginia.

## **PUBLICATIONS**

### **Books and Chapters**

1. **S. Gong**, "Lithium Niobate for N/MEMS" in "Piezoelectric RF-MEMS resonators" Microsystems and Nanosystems Series, Springer 2017

### **Journals (Students and Postdocs in my group are underlined)**

1. **S. Gong**, R. Lu, T. Manzanque, Y-H. Song, and Y. Yang, “Lithium Niobate Piezoelectric Resonators” in *Journal of Micromechanics and Microengineering*, 2018 (Invited topical review paper, to appear).
2. R. Lu, T. Manzanque, Y. Yang, J. Zhou, H. Hassanieh, and **S. Gong**, “RF Filters with Periodic Passbands for Sparse Fourier Transform-based Spectrum Sensing,” in *Journal of Microelectromechanical Systems*, 2018 (Manuscript in preparation).
3. Y. Yang, R. Lu, T. Manzanque, and **S. Gong**, “Acoustics Beyond 10 GHz: Lithium Niobate Asymmetrical Mode Piezoelectric MEMS Resonators,” in *IEEE Transaction on Microwave Theory and Techniques*, 2018 (Manuscript in preparation for 2018 IMS Special issue).
4. A. Kourani and **S. Gong**, “Tunable Low Power Oscillators based on High Q Lithium Niobate MEMS Resonators and 65 nm CMOS ”, in *IEEE Transaction on Microwave Theory and Techniques*, 2018 (Under review for 2018 T-MTT IMS Special issue).
5. R. Lu, T. Manzanque, Y. Yang, L. Gao, A. Gao, and **S. Gong**, “A Radio Frequency Non-reciprocal Network Based on Switched Acoustic Delay Lines,” in *IEEE Transaction on Microwave Theory and Techniques*, 2018 (Under Review).
6. W. Huang, J. Zhou, P. Froeter, K. Walsh, S. Liu, M. Kraman, M. Li, J. Michaels, D. Sievers, **S. Gong**, and Xiuling Li, "Three-dimensional radio frequency transformers based on a self-rolled-up membrane platform," *Nature Electronics*, 1(5), p.305.
7. W. N. Allen, A. Gao, **S. Gong** and D. Peroulis, "Hybrid Bandpass-Absorptive-Bandstop Magnetically Coupled Acoustic-Wave-Lumped-Element-Resonator Filters," in *IEEE Microwave and Wireless Components Letters*, vol. 28, no. 7, pp. 582-584, July 2018.
8. R. Lu, J. Krol, L. Gao, and **S. Gong**, “Frequency Independent Framework for Synthesis of Programmable Non-reciprocal Networks”, Scientific Report, July 2018 (to appear).
9. R. Lu, T. Manzanque, Y. Yang, and **S. Gong** "Lithium Niobate Phononic Crystals for Tailoring Performance of RF Laterally Vibrating Devices," in *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, vol. 65, no. 6, pp. 934-944, June 2018.
10. T. Manzanque, R. Lu, and **S. Gong** “Lithium Niobate Chirp Compressors for RF front ends of IoT Devices,” in *Journal of Microelectromechanical Systems*, vol. 26, no. 6, pp. 1204-1215, Dec. 2017.
11. Y-H. Song and **S. Gong**, “Wideband Spurious-free Lithium Niobate RF-MEMS Filters”, in *Journal of Microelectromechanical Systems*, vol. 26, no. 4, pp. 820-828, Aug. 2017.
12. Y-H. Song and **S. Gong**, “Wideband RF Filters Using Medium-scale Integration of Lithium Niobate Laterally Vibrating Resonators”, in *IEEE Electron Device Letters*, vol. 38, no. 3, pp. 387-390, March 2017.
13. G. G. See, A. Gao, L. Xu, R. Nuzzo, **S. Gong**, and B. T. Cunningham, “Quantum Dot Emission Modulation using Piezoelectric Photonic Crystal MEMS Resonator" *Optics Express*, vol. 25, no. 21, pp. 25831-25841, October 2017.
14. R. Liu, S. Dev, Y. Zhong, R. Lu, W. Streyer, J.W. Allen, M.S. Allen, B. R. Wenner, **S. Gong**, and D. Wasserman, "Enhanced responsivity resonant RF photodetectors," *Opt. Express* 24, 26044-26054 (2016)



15. R. Liu, R. Lu, C. Roberts, **S. Gong**, J. W. Allen, M. S. Allen, B. R. Wenner and D. Wasserman "Multiplexed Infrared Photodetection using Resonant RF Circuits" *Applied Physics Letters*, 108, 061101 (2016).
16. A. Gao and **S. Gong**, "Harnessing Mode Conversion for Spurious Mode Suppression in AlN Laterally Vibrating Resonators," in *Journal of Microelectromechanical Systems*, vol. 25, no. 3, pp. 450-458, June 2016.
17. Y-H. Song, R. Lu and **S. Gong**, "Analysis and Removal of Spurious Response in SH0 Lithium Niobate MEMS Resonators," in *IEEE Transactions on Electron Devices*, vol. 63, no. 5, pp. 2066-2073, May 2016.
18. Y-H. Song and **S. Gong**, "Elimination of spurious modes in SH0 Lithium Niobate laterally vibrating resonators," *IEEE Electron Devices Letter*, vol.36, no.11, pp.1198-1201, Nov. 2015
19. X. Yu, W. Huang, M. Li, T. M. Comberiate, **S. Gong**, J. E. Schutt-Aine, X. Li "Ultra-Small, High-Frequency, and Substrate-Immune Microtube Inductors Transformed from 2D to 3D" *Scientific reports* 5 (2015): 9661.
20. **S. Gong** and G. Piazza, "Monolithic Multi-Frequency Wideband RF Filters using Laterally Vibrating Lithium Niobate Resonators," in *Journal of Microelectromechanical Systems*, vol. 23, no. 5, pp. 1188-1197, Oct. 2014.
21. **S. Gong** and G. Piazza, "Figure of Merit Enhancement for Laterally Vibrating Lithium Niobate MEMS Resonators," in *IEEE Transaction on Electron Devices*, vol. 60, issue 11, pp. 3888-3894, 2013.
22. **S. Gong** and G. Piazza, "Design and Analysis of Lithium Niobate based High Electromechanical Coupling RF-MEMS Resonators for Wideband Filtering," in *IEEE Transaction on Microwave Theory and Techniques*, vol. 61, no.1, pp. 403-414, Jan. 2013.
23. **S. Gong**, N. Kuo, and G. Piazza, "GHz High Q Lateral Overmoded Bulk Acoustic-wave Resonators using Epitaxial SiC Thin Film," in *Journal of Microelectromechanical Systems*, no. 99, pp. 1-3, Jan 2012.
24. **S. Gong**, H. Shen, and N. S. Barker, "A 60 GHz 2-bit Switched-line phase shifter using SP4T RF-MEMS switches," in *IEEE Transaction on Microwave Theory and Techniques*, vol.59, no.4, pp.894-900, April 2011.
25. **S. Gong**, H. Shen, and N. S. Barker, "Study of Broadband Cryogenic DC-Contact RF-MEMS switches," in *IEEE Transaction on Microwave Theory and Techniques*, vol. 57, no. 12, pp. 3442-3449, Dec. 2009.

#### Conference Proceedings (Students and Postdocs in my group are underlined)

[IEEE IMS (acceptance ~45%, oral~20% ), IEEE IEDM (acceptance ~10%, oral~10% ) IEEE MEMS (acceptance ~38%, oral~8% ), Hilton Head (acceptance ~40%, oral~10% ), Transducers (acceptance ~40%, oral~20%), IEEE Frequency Control Symposium (acceptance ~70%, oral ~30%), IEEE Ultrasonic Symposium (acceptance ~60%, oral ~30%)]

1. R. Lu, T. Manzanique, Y. Yang, J. Zhou, H. Hassanieh, and **S. Gong**, "A Radio Frequency Comb Filter for Sparse Fourier Transform-based Spectrum Sensing", in *2018 IEEE International Ultrasonic Symposium*. (Accepted as oral presentation).

2. R. Lu, T. Manzanque, Y. Yang, and S. Gong, “S0-Mode Lithium Niobate Acoustic Delay Lines with 1 dB Insertion Loss”, in *2018 IEEE International Ultrasonic Symposium*. (Accepted as oral presentation).
3. R. Lu, T. Manzanque, Y. Yang, A. Gao, L. Gao, and S. Gong, “A Radio Frequency Non-reciprocal Network Based on Switched Low-Loss Acoustic Delay Lines”, in *2018 IEEE International Ultrasonic Symposium*. (Submitted).
4. W. N. Allen, A. Gao, S. Gong and D. Peroulis, "Simultaneous analog tuning of the series- and anti-resonances of acoustic wave resonators," *2018 IEEE 19th Wireless and Microwave Technology Conference (WAMICON)*, Sand Key, FL, 2018, pp. 1-3. (Oral presentation).
5. Y. Yang, R. Lu, T. Manzanque, and S. Gong, “Towards Ka Band Acoustics: Lithium Niobate Asymmetrical Mode Piezoelectric MEMS Resonators” in *IEEE International Frequency Control Symposium*. May 2018 (Oral presentation and Best Paper Finalist).
6. R. Lu, T. Manzanque, Y. Yang, A. Gao, L. Gao, and S. Gong, “A Radio Frequency Non-reciprocal Network Based on Switched Low-loss Acoustic Delay Lines”, *Proceedings of the 2018 Solid-State Sensors, Actuators and Microsystems Workshop (Hilton Head 2018)*, June 2018. (accepted)
7. T. Manzanque, R. Lu, Y. Yang, and S. Gong, “Realizing Radio Frequency Acoustic Delays and Transversal Filtering with Sub-2 dB Insertion Loss and 10% Fractional Bandwidth,” *Proceedings of the 2018 Solid-State Sensors, Actuators and Microsystems Workshop (Hilton Head 2018)*, June 2018. (accepted)
8. Y. Yang, R. Lu, T. Manzanque, and S. Gong, “GHz Lithium Niobate MEMS Resonators with FoM of 336 and  $fQ$  of  $9.15 \times 10^{12}$ ,” in *IEEE International Microwave Symposium (IMS)*, June 2018 (Oral presentation and **won 2nd Place in Best Paper Competition**).
9. A. Kourani, R. Lu, T. Manzanque, and S. Gong, “A 175 MHz 72 uW Voltage Controlled Oscillator with 1.4% Tuning Range based on Lithium Niobate MEMS Resonator and 65 nm CMOS,” in *IEEE International Microwave Symposium (IMS)*, June 2018. (in press)
10. C. Tu, C. Zhao, R. Lu, T. Manzanque, A. Gao, Y. Yang, D. P. Shoemaker, and S. Gong, “A Chip-scale Magnetoelectric MEMS Gyrator for RF Non-reciprocal Networks” in 2018 GOMACTech conference. Miami, FL. 2018.
11. S. M. Bowers, P. Bassirian, A. Gao, T. Manzanque, A. Roy, J. Moody, B. H. Calhoun, and S. Gong, “Nanowatt Level Wake-up Receivers Using Co-Designed CMOS-MEMS Technologies”, in 2018 GOMACTech conference. Miami, FL. 2018. (Oral Presentation).
12. R. Lu, A. Kourani, T. Manzanque, Y. Yang, and S. Gong, “Lithium Niobate Lateral Overtone Resonators for Low Power Synthesis of Orthogonal Frequency Coded Transmissions”, in *2018 IEEE Micro Electro Mechanical Systems (MEMS)*, Belfast, United Kingdom, 2018, pp. 751-754.
13. R. Lu, T. Manzanque, Y. Yang, and S. Gong, “Exploiting Parallelism in Resonators for Large Voltage Gain in Low Power Wake up Radio Front-ends”, in *2018 IEEE Micro Electro Mechanical Systems (MEMS)*, Belfast, United Kingdom, 2018, pp. 747-750.
14. T. Manzanque, R. Lu, Y. Yang, and S. Gong, “An SH0 Lithium Niobate Trans-impedance Chirp Compressor with High Voltage Gain”, in *2018 IEEE Micro Electro Mechanical Systems (MEMS)*, Belfast, United Kingdom, 2018, pp. 783-786.



15. P. Bassirian, J. Moody, A. Gao, T. Manzanegue, B. H. Calhoun, N. S. Barker, **S. Gong** and S. M. Bowers, "A Passive 461 MHz AlN-CMOS RF Front-end for Event-driven Wakeup Receivers," in *2017 IEEE Sensors Conference*, Glasgow, 2017, pp. 1-3.(Oral Presentation)
16. A. Gao, J. Zou, and **S. Gong**, "A 3.5 GHz AlN S1 Lamb Mode Resonator" in *2017 IEEE International Ultrasonics Symposium (IUS)*, Washington, DC, 2017, pp. 1-4. (Oral Presentation)
17. **S. Gong**, Y.-H. Song, T. Manzanegue, R. Lu, Y. Yang, and A. Kourani, "Lithium niobate MEMS devices and subsystems for radio frequency signal processing," *2017 IEEE 60th International Midwest Symposium on Circuits and Systems (MWSCAS)*, Boston, MA, 2017, pp. 45-48. (Invited).
18. M. Breen, R. Lu, A. Gao, and **S. Gong**, "Parametric and nonlinear phenomena in aluminum nitride MEMS resonators," in *2017 Napa Microsystems Workshop*, August, 2017.
19. J. Krol, and **S. Gong**, "Theoretical limits on loss and noise figure of nonreciprocal devices based on parametric modulation," in *2017 Napa Microsystems Workshop*, August, 2017.
20. A. Kar, A. Gao, L. L. Goddard, and **S. Gong**, "Characterization of lithium niobate microdisk resonators with grating couplers," *2017 IEEE Photonics Conference (IPC)*, Orlando, FL, 2017, pp. 221-222. (Oral Presentation).
21. T. Manzanegue, R. Lu, Y. Yang, and **S. Gong**, "An SH0 lithium niobate correlator for orthogonal frequency coded spread spectrum communications," *2017 Joint Conference of the European Frequency and Time Forum and IEEE International Frequency Control Symposium (EFTF/IFCS)*, Besancon, 2017, pp. 143-147. (Oral Presentation).
22. R. Lu, T. Manzanegue, Y. Yang, and **S. Gong**, "Lithium niobate phononic crystals for radio frequency SH0 waves," *2017 Joint Conference of the European Frequency and Time Forum and IEEE International Frequency Control Symposium (EFTF/IFCS)*, Besancon, 2017, pp. 846-849. (Oral Presentation and **Best Paper Award**).
23. J. Krol and **S. Gong**, "A non-magnetic gyrator utilizing switched delay lines," *2017 47th European Microwave Conference (EuMC)*, Nuremberg, 2017, pp. 452-455.
24. T. Manzanegue, R. Lu, and **S. Gong**, "A high FoM lithium niobate resonant transformer for passive voltage amplification," *2017 19th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS)*, Kaohsiung, 2017, pp. 798-801. (Oral Presentation).
25. Y.-H. Song and **S. Gong**, "A 1.17 GHz wideband MEMS filter using higher order SH0 lithium niobate resonators," *2017 19th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS)*, Kaohsiung, 2017, pp. 806-809. (Oral Presentation).
26. W. Huang, J. Zhou, P. Froeter, K. Walsh, S. Liu, J. Michaels, M. Li, **S. Gong**, and X. Li "CMOS-compatible on-chip self-rolled-up inductors for RF/mm-wave applications," *2017 IEEE MTT-S International Microwave Symposium (IMS)*, Honolulu, HI, 2017, pp. 1645-1648. (Oral Presentation).
27. B. Arakawa, L. Gao, Y. Yang, J. Guan, A. Gao, R. Lu, and **S. Gong**, "Simultaneous wireless power transfer and communication to chip-scale devices," *2017 IEEE MTT-S International Microwave Symposium (IMS)*, Honolulu, HI, 2017, pp. 311-314. (Oral Presentation).

28. A. Kourani, Y-H. Song, B. Arakawa, R. Lu, J. Guan, A. Gao, and **S. Gong**, "A 150 MHz voltage controlled oscillator using lithium niobate RF-MEMS resonator," *2017 IEEE MTT-S International Microwave Symposium (IMS)*, Honolulu, HI, 2017, pp. 1307-1310. (Oral Presentation).
29. T. Manzanegue, R. Lu, and **S. Gong**, "An SH0 Lithium Niobate dispersive delay line for chirp compression-enabled low power radios," *2017 IEEE 30th International Conference on Micro Electro Mechanical Systems (MEMS)*, Las Vegas, NV, 2017, pp. 155-158. (Oral Presentation).
30. Y. Yang, A. Gao, and **S. Gong**, "5 GHz lithium niobate MEMS resonators with high FoM of 153," *2017 IEEE 30th International Conference on Micro Electro Mechanical Systems (MEMS)*, Las Vegas, NV, 2017, pp. 942-945.
31. M. Breen, W. Streyer, R. Lu, A. Gao, D. Wasserman, and **S. Gong**, "High-speed mid-infrared detectors based on MEMS resonators and spectrally selective metamaterials," *2016 IEEE International Frequency Control Symposium (IFCS)*, New Orleans, LA, 2016, pp. 1-6. (Oral Presentation).
32. A. Gao and **S. Gong**, "Mitigation of AO spurious modes in AlN MEMS resonators with SiO<sub>2</sub> addendums," *2016 IEEE International Frequency Control Symposium (IFCS)*, New Orleans, LA, 2016, pp. 1-5. (Oral Presentation).
33. R. Jhaveri, R. Lu, **S. Gong**, and M. Kamon, "Distributed and thermos-acoustically coupled modeling for accurate thermal nonlinearity prediction for piezoelectric MEMS resonators," Hilton Head Solid-State Sensors, Actuators, and Microsystems Workshop, June 2016.
34. R. Lu, A. Gao and **S. Gong**, "A piezoelectric parametric oscillator with extremely low phase noise," Hilton Head Solid-State Sensors, Actuators, and Microsystems Workshop, June 2016 (Oral Presentation).
35. L. Gao, Y. Yang, B. Arakawa, J. Postma and **S. Gong**, "Radio frequency wireless power transfer to chip-scale apparatuses," *2016 IEEE MTT-S International Microwave Symposium (IMS)*, San Francisco, CA, 2016, pp. 1-4. (Oral Presentation).
36. R. Lu, T. Manzanegue, and **S. Gong**, "Piezoelectric RF resonant transformers for IoT applications", *2016 IEEE MTT-S International Microwave Symposium (IMS)*, San Francisco, CA, 2016, pp. 1-4. (Oral Presentation).
37. A. Gao and **S. Gong**, "Eradication of asymmetrical spurious modes in AlN MEMS resonators using mode conversion", in *Micro Electro Mechanical Systems (MEMS)*, IEEE 28th International Conference on, pp.119-122, Jan 2016 (Oral Presentation).
38. R. Lu, A. Gao, and **S. Gong**, "Deciphering intermodulation in AlN laterally vibrating resonators", in *Micro Electro Mechanical Systems(MEMS)*, IEEE 28th International Conference on, pp.671-674, Jan 2016.
39. Y-H. Song and **S. Gong**, "Arraying SH0 lithium niobate laterally vibrating resonators for mitigation of higher order spurious modes ", in *Micro Electro Mechanical Systems (MEMS)*, IEEE 28th International Conference on, pp. 111-114, Jan 2016 (Oral Presentation).
40. Y-H. Song and **S. Gong**, "Spurious Mode Suppression in SH0 Lithium Niobate Laterally Vibrating MEMS Resonators" in *2015 IEEE International Electron Device Meeting (IEDM)*, pp.18.5.1-18.5.4, Dec 2015 (Oral Presentation).

41. W. Huang, M. Li, **S. Gong**, and X. Li, "Extremely Miniaturized and High Performance RFIC Transformer by Self-rolled-up Membrane Nanotechnology" InterPACKICNMM2015
42. W. Huang, M. Li, **S. Gong**, and X. Li, "Self-rolled-up tube transformers: Extreme miniaturization and performance enhancement," Device Research Conference (DRC), 2015 73rd Annual, pp.223-224, 21-24 June 2015.
43. R. Lu, A. Gao and **S. Gong**, "Parametric Excitation in Geometrically Optimized Contour Mode AlN Resonators," in Frequency Control and the European Frequency and Time Forum (FCS), 2015 Joint Conference of the IEEE International. pp.1-4, 12-16 April 2015 (Oral Presentation).
44. R. Lu and **S. Gong**, "Study of Thermal Nonlinearity in Lithium Niobate-Based MEMS Resonators," in Solid-State Sensors, Actuators and Microsystems Conference (TRANSDUCERS), 2015 18th International, pp. 1993-1996, 21-25 June 2015.
45. **S. Gong** and G. Piazza, "Overmoded shear horizontal wave MEMS resonators using X-cut lithium niobate thin film," *2014 IEEE International Ultrasonics Symposium*, Chicago, IL, 2014, pp. 568-571. (Oral Presentation).
46. **S. Gong** and G. Piazza, "An 880 MHz ladder filter formed by arrays of laterally vibrating thin film Lithium Niobate resonators," *2014 IEEE 27th International Conference on Micro Electro Mechanical Systems (MEMS)*, San Francisco, CA, 2014, pp. 1241-1244.
47. **S. Gong** and G. Piazza, "Large frequency tuning of Lithium Niobate laterally vibrating MEMS resonators via electric boundary reconfiguration," *2013 Transducers & Eurosensors XXVII: The 17th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS & EUROSENSORS XXVII)*, Barcelona, 2013, pp. 2465-2468. (Oral Presentation).
48. **S. Gong** and G. Piazza, "Multi-frequency wideband RF filters using high electromechanical coupling laterally vibrating lithium niobate MEMS resonators," *2013 IEEE 26th International Conference on Micro Electro Mechanical Systems (MEMS)*, Taipei, 2013, pp. 785-788.
49. **S. Gong** and G. Piazza, "Laterally vibrating lithium niobate MEMS resonators with high electromechanical coupling and Quality factor," *2012 IEEE International Ultrasonics Symposium*, Dresden, 2012, pp. 1051-1054. (Oral Presentation).
50. **S. Gong** and G. Piazza, "Weighted Electrode Configuration for Electromechanical Coupling Enhancement in a New Class of Micromachined Lithium Niobate Laterally Vibrating Resonators," 2012 IEEE International Electron Device Meeting (IEDM). Dec 2012 (Oral Presentation).
51. **S. Gong**, L. Shi, and G. Piazza, "High electromechanical coupling resonators using ion sliced X-cut LiNbO<sub>3</sub> thin film," in 2012 IEEE MTT-S int. Microwave Symp. Dig. pp. 1-3, 17-22, June 2012.
52. **S. Gong**, N. Kuo, and G. Piazza, "Geometry Optimization for Quality Factor Enhancement in SiC-based Lateral Overmoded Bulk Acoustic-wave Resonators," IEEE 25th International Conference on Micro Electro Mechanical Systems(MEMS), pp. 692-695, 2012.
53. N. Kuo, **S. Gong**, J. Hartman, J. Kelliher, W. Miller, J. Parke, S. V. Krishaswamy, J. D. Adam, and G. Piazza, "Micromachined sapphire GHz lateral overtone bulk acoustic resonators transduced by aluminum nitride," IEEE 25th International Conference on Micro Electro Mechanical Systems (MEMS), 2012, pp. 27-30, Jan 2012 (Oral Presentation).

54. N. Kuo, **S. Gong**, and G. Piazza, "Ultra High Frequency Fractal Phononic Crystal in Silicon Carbide," 2011 16th International Solid-State Sensors, Actuators, and Microsystems Conference (TRANSDUCERS), pp. 2486-2489, June 2011.
55. **S. Gong**, N. Kuo, and G. Piazza, "A 1.75 GHz piezoelectrically-transduced SiC lateral overmoded bulk acoustic-wave resonator," 2011 16th International Solid-State Sensors, Actuators and Microsystems Conference (TRANSDUCERS), pp.922-925, 5-9 June 2011 (Oral Presentation).
56. **S. Gong**, N. Kuo, and G. Piazza, "GHz AlN lateral overmoded bulk acoustic wave resonators with a  $fQ$  of  $1.17E13$ ," 2011 Joint Conference of the IEEE International Frequency Control and the European Frequency and Time Forum (FCS), pp.1-5, 2-5 May 2011 (Oral Presentation).
57. **S. Gong**, and N. S. Barker, "Design of a V-band phase shifter using SP4T RF-MEMS Switches with Sonnet," 27th Annual Review of Progress in Applied Computational Electromagnetic, pp.418-421, March 2011 (Oral Presentation).
58. **S. Gong**, T. Reck, and N.S. Barker, "A temperature insensitive DC-contact RF-MEMS switch," Microwave Conference (EuMC), 2010 European, pp.1114,1117, 28-30 Sept. 2010.
59. **S. Gong**, H. Shen, and N. S. Barker, "A Broadband Cryogenic DC contact RF-MEMS switch," in IEEE MTT-S int. Microwave Symp. Dig., pp. 227-230. 2009 (Oral Presentation).
60. H. Shen, **S. Gong**, and N. S. Barker, "DC-Contact RF-MEMS switches using thin film cantilever," in Microwave Integrated Circuit Conference, 2008. EuMIC 2008. European, Oct.2008, pp. 382-385.

## **PRESENTATIONS AND PATENTS:**

### **Invited Talks, Seminars and Tutorials:**

#### **Universities and Research Labs:**

1. Chip-scale RF microsystems for frequency dynamic wireless applications," ECE Seminar, Carnegie Mellon University, Jan 2013. Pittsburgh, PA.
2. "Chip-scale RF microsystems for frequency dynamic wireless applications," ECE Colloquium, University of Illinois at Urbana Champaign, Dec 2013. Urbana, IL.
3. "Chip-scale programmable RF micro-systems for frequency-dynamic wireless applications," I-Optics Seminar, Beckman Institute, April 2014. Urbana, IL.
4. "Lithium Niobate Micro-resonators and their technological development," Army Research Laboratory, September 2014. Adelphi, MD.
5. "Leveraging resonances towards high-performance RF and Computing platforms," ECE Seminar, Northeastern University, Nov 2015. Boston, MA.
6. "Signal Processing at RF with high-performance microsystems," 2017 ShanghaiTech Workshop on Emerging Devices, Circuits and Systems (SWEDCS'2017), July 2017, Shanghai, China.
7. "Signal Processing at RF with high-performance Microsystems," Zhejiang University, July 2017, Hangzhou, China.
8. "Radio frequency micro-systems for conventional and new venues of RF signal processing," Tsinghua University, March 2018, Beijing, China.

9. “Radio frequency micro-systems for conventional and new venues of RF signal processing,” Shanghai Institute of Microsystems and Information Technology, March 2018, Academia of China, Shanghai, China.

## International Conferences and Workshops:

10. “Piezoelectric and Electrostatic MEMS Devices for Future Reconfigurable RF Front Ends,” CMOS Emerging Technology Research Symposium, June 2016, Montreal, CA.
11. “Chip-scale piezoelectric RF micro-systems for frequency-dynamic wireless applications,” International Microwave Symposium, June 2016, San Francisco, CA.
12. “Lithium Niobate laterally vibrating resonators and comprising filters for Carrier Aggregation,” Workshop on Acoustic Multiplexer for Carrier Aggregation, International Microwave Symposium, June 2017, Honolulu , Hawaii.
13. “Lithium Niobate MEMS resonators and filters: Ready for Prime Time?” Workshop on Materials and Devices for Next-Generation RF Resonators and Filters, International Microwave Symposium, June 2017, Honolulu , Hawaii.
14. “Lithium Niobate for MEMS/NEMS,” Tutorial on piezoelectric RF MEMS, 2017 IEEE International Frequency Control Symposium, July 2017.
15. “Modeling and implementation of high  $Q$  and high electromechanical coupling MEMS resonators based on Lithium Niobate thin films,” Workshop on High-Q RF MEMS devices and their consideration in a cross-layer multi physical circuit design, 2017 the European Microwave Conference (EuMC), Nuremberg, Germany, October 2017
16. “Lithium Niobate MEMS Devices and Subsystems for Radio Frequency Signal Processing,” 60<sup>th</sup> IEEE International Midwest Symposium on Circuits and Systems, Boston, MA, USA. August 2017.
17. “Towards 5G Bands Beyond 24 GHz: Lithium Niobate Asymmetrical Mode Piezoelectric MEMS Resonators,” PiezoMEMS Workshop, Jan 2018, Orlando, Florida.
18. “Time-Varying Non-Reciprocal Systems: A true path to outperform magnetic non-reciprocal devices,” USNC-URSI National Radio Science Meeting, Jan 2018, Boulder, Colorado.
19. “Radio frequency Micro-systems for IoT inspired Front-end Signal Processing”, International Microwave Symposium, June 2018, Philadelphia, Pennsylvania.
20. “Extremely Low Loss Lithium Niobate Acoustic Delay Lines for Zero Power Wireless Sensing and Signal Processing,” 2018 Passive Wireless Sensor Technology Workshop, December 2018 Huntsville, Alabama.

## Industry:

21. “Chip-scale programmable RF micro-systems for frequency-dynamic wireless applications,” Qualcomm, June 2014, San Diego, CA.
22. “Chip-scale programmable RF micro-systems for frequency-dynamic wireless applications,” Intel Corporation, March 2014. Portland, OR.
23. “Chip-scale programmable RF micro-systems for frequency-dynamic wireless applications,” Viasat. Inc, December 2014, Phoenix, AZ.
24. “Leveraging resonances towards high-performance RF and Computing platforms,” Seminar, CoventorWare. Inc, Nov 2015. Boston, MA.
25. “Lithium Niobate Micro-resonators and their progress of development,” Intel Corporation, July 2015. Lake Zurich, IL



26. “Lithium Niobate Micro-resonators and filters for next-generation RF front-ends,” Murata, July 2016. Kyoto, Japan.
27. “Signal Processing at RF with high-performance microsystems,” NanoLN, July 2017, Jinan, China.
28. “Radio frequency micro-systems for conventional and new venues of RF signal processing,” Hi-silicon, Shanghai, China. March 2018.
29. “Radio Frequency Microsystems for 5G and IoT Inspired Front-end Signal Processing,” Texas Instruments, Santa Clara, CA. July 2018.
30. “Radio Frequency Microsystems for 5G and IoT Inspired Front-end Signal Processing,” Skyworks. Inc, Irvine, CA. July 2018.

#### **Patents and Disclosures (Students and Postdocs in my group are underlined)**

1. **S. Gong** and G. Piazza, “Microelectronic Structures with suspended lithium-based thin films”, application submitted to USPTO by Carnegie Mellon University and the University of Pennsylvania.
2. Y-H. Song and **S. Gong**, “Spurious mode suppression for laterally vibrating MEMS resonators”, patent submitted to USPTO by UIUC.
3. **S. Gong** and D. Wasserman, “Uncooled high sensitivity spectral selective infrared detector”, patent application submitted to USPTO by UIUC.
4. L. Gao, Y. Yang, B. Arakawa, J. Postma, and **S. Gong**, “Wireless power transfer and communication link to chip-scale devices” provisional application submitted to USPTO by UIUC.
5. S. Shim, C. Yu, M. Rosenblatt, and **S. Gong**, “Intraocular Display Implant for Vision Restoration”, provisional patent application submitted to USPTO by UIUC.
6. T. Manzanegue, R. Lu, and **S. Gong**, “Piezoelectric MEMS chirp compressor” provisional patent application submitted to USPTO by UIUC.
7. T. Manzanegue, R. Lu, and **S. Gong**, “Chip-scale anti-reciprocal electro-mechanical elements” Patent application submitted to USPTO by UIUC.
8. R. Lu, J. Krol, L. Gao, and **S. Gong**, “Frequency Independent Framework for Synthesis of Programmable Non-reciprocal Networks” provisional patent application submitted to USPTO by UIUC.

#### **STUDENTS AND POSTDOCS**

##### ***Postdoctoral Researchers:***

- Dr. Yongha Song (Ph.D. in EE, August 2014, KAIST, Korea)  
Oct 15<sup>th</sup> 2014 —Nov 10<sup>th</sup> 2016  
Initial Position and Employer: Senior Research Staff, Advanced Defense Development.
- Dr. Tomas Manzanegue Garcia (Ph.D. in Mechatronics, May 2015, *University of Castilla-La Mancha*, Spain),  
Oct 1st 2015 —May 15<sup>th</sup> 2018  
Initial Position and Employer: Research Scientist, Delft University of Technology.
- Dr. Cheng Tu (Ph.D. in EE, Sept 2016, City *University of Hong Kong*, Hong Kong)  
Nov 2016—June 15<sup>th</sup> 2018



- Dr. Ming-Huang Li (Ph.D. in Nanoengineering and Microsystems, July 2015, *National Tsing Hua University, Hsinchu, Taiwan*)  
Sept 2017-Now
- Dr. Meisam Bahadori (Ph.D. in EE, June 2018, *Columbia University, New York, US*)  
July 2018-Now

***Ph.D. Students:***

- Anming Gao (Ph.D. in ECE expected Dec 2018)  
Thesis: Optimization and Design of AlN MEMS Resonators.
- Ruochen Lu (Ph.D. in ECE expected Aug 2019)  
Thesis: Harnessing Nonlinearity and Nonreciprocity with MEMS Devices for Low Power RF Front-end Frequency Synthesis and Signal Processing
- Yansong Yang (Ph.D. in ECE expected Aug 2019)  
Thesis: Reconfigurable lithium niobate filtering platform for next-generation RF front-end
- Ali Kourani (Ph.D. in ECE expected Aug 2020)  
Thesis: Hybridizing MEMS resonators and CMOS for wireless applications
- Michael Breen (Ph.D. in ECE expected Aug 2019)  
Thesis: Cross-domain MEMS transductions and applications in RF
- Ahmed Emad (Ph.D. in ECE expected Aug 2022)  
Thesis: Mechanically Driven Antennas from VLF to RF

***MS Students:***

- Michael Breen (MS in ECE, Graduated Dec 2016)  
Thesis: Aluminum nitride microelectromechanical infrared detectors with integrated metamaterial absorbers  
Initial Position and Employer: Ph.D. candidate, UIUC
- Ruochen Lu (MS in ECE Graduated Dec 2016)  
Thesis: Thermal nonlinearity in radio frequency piezoelectric laterally vibrating resonators  
Initial Position and Employer: Ph.D. candidate, UIUC
- John Krol (MS in EE Graduated May 2017)  
Thesis: Nonreciprocal microwave devices using parametric frequency conversion  
Initial Position and Employer: Staff Engineer, General Electric.
- Yansong Yang (MS in EE, Graduated Aug 2017)  
Thesis: Super-high-frequency lithium niobate microelectromechanical system resonators  
Initial Position and Employer: Ph.D. candidate, UIUC
- Brandon Arakawa (MS in EE Graduated Aug 2017)  
Thesis: Near-field wireless power transfer to and communication with chip-scale devices  
Initial Position and Employer: Technical Staff Member, Viasat. Inc.
- Arunita Kar (MS in EE expected March 2018)  
Thesis: A Frequency Agile RF-Photonics Platform based on LiNbO<sub>3</sub> Micro-resonators  
Initial Position and Employer: Technical Staff Member, Honeywell.

- Sarah Shim (MS in EE expected December 2018)  
Thesis: Wireless powering and communication for blindness restoring intraocular implants
- Liuting Gao (MS in EE expected August 2019)  
Thesis: Symmetry breaking systems for wireless power and signal processing
- Ali Lavasani (MS in EE expected August 2019)  
Thesis: Ultra-wideband spectrometry using a programmable RF photonics platform

### ***Undergraduate Students (served as thesis advisor):***

- Liuting Gao (Currently a graduate student research assistant in my research group)
- Sean Yu (Currently an undergraduate research assistant in my research group)
- Sarah Shim (Currently a graduate student research assistant in my research group)
- Junfeng Guan (Currently a graduate student at University of Illinois at Urbana Champaign)
- Ryan Sungho Kang (Currently a graduate student at Northeastern University)
- Gene Shiue (Currently a graduate student at University of Illinois at Urbana Champaign)
- Do Youn Kim (Currently a graduate student at University of Illinois at Urbana Champaign)
- Zhijian Li (Currently a graduate student at University of Illinois at Urbana Champaign)
- Ege Iseri (Currently a graduate student at University of California at San Diego)

### ***Other Graduate Students' Defense Committees:***

Department of Electrical and Computer Engineering at UIUC:

- Yunjia Zeng (Advisor: Prof. Jianming Jin)
- William Streyer (Advisor: Prof. Dan Wasserman)
- Kurt Schab (Advisor: Prof. Jennifer Bernhard)
- Gloria See (Advisor: Prof. Brian Cunningham)
- Robert Mertens (Advisor: Prof. Elyse Rosenbom)
- Matthew Young (Advisor: Prof. Jennifer Bernhard)
- Aaron King (Advisor: Prof. Jennifer Bernhard)
- Xinhao Wang (Advisor: Prof. Logan Liu)
- Eric Iverson (Advisor: Prof. Milton Feng)
- Yafang Tan (Advisor: Prof. Brian Cunningham)
- Brian Herting (Advisor: Prof. Jennifer Bernhard)
- Wen Huang (Advisor: Prof. Xiuling Li)
- Nick Thompson (Advisor: Prof. Elyse Rosenbom)
- John Outwater (Advisor: Prof. Jennifer Bernhard)
- Pallavi Sharma (Advisor: Prof. Jennifer Bernhard)
- Kedi Zhang (Advisor: Prof. Jianming Jin)
- Yang Xiu (Advisor: Elyse Rosenbom)

Other Universities:

- Sean Yen (Advisor: Profs. Tamal Mukherjee and Gary Fedder, CMU)
- Changting Xu (Advisor: Prof. Gianluca Piazza, CMU)

## **PROFESSIONAL ACTIVITIES**

### **Reviewer for Journals:**

- IEEE ASME Journal of MicroElectroMechanical Systems
- IEEE Transaction on Microwave Theory and Techniques
- IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control
- IEEE Sensors Journal
- IEEE Transaction on Electron Devices
- IEEE Microwave and Wireless Component Letters
- IEEE Electron Device Letters
- IEEE Journal of Solid-State Circuits
- IEEE Transaction on Applied Superconductivity
- Journal of Micromechanics and Microengineering
- Wiley Encyclopedia of Electrical and Electronics Engineering
- Applied Computational Electromagnetics Society Conference
- Microsystem and Nanoengineering
- Applied Physics Letters
- AIP- APL-Photonics
- Elsevier-Sensors and Actuators A: Physical

### **Proposal Reviewer:**

- NSF engineering directorate Electronics Magnetic Photonics Device (EPMD) review panel 2014
- NSF engineering directorate Electronics Magnetic Photonics Device (EPMD) review panel 2018

### **Conferences Organizer:**

- Topic Chair for ASME 2015 International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK2015)
- Technical Committee Member of IEEE Microwave Theory and Techniques Society MTT-21 RF-MEMS
- Scientific Committee of the European Frequency and Time Forum 2015-2018
- Reviewer for IEEE Sensor 2016 Topic 7 acoustic devices and sensors
- International Electron Device Meeting Sensors, MEMS, and BioMEMS(SMB) subcommittee 2016-2018
- Joint International Frequency Control Symposium / European Frequency and Time Forum Technical Program Committee 2016-now
- TRF's Napa Institute 2017 workshop on Non-linear and Non-Reciprocal Microsystems
- Topic Chair for Group 1 of International Frequency Control Symposium 2018

### **Editorial Board:**

- Guest editor for the special issue of "RF-MEMS" in the Journal of Micromechanics and Microengineering,
- Guest editor for 2018 IFCS Special Issue of the Transactions of the Ultrasonics, Ferroelectrics and Frequency Control (T-UFFC).

**University Service:**

- Member, UIUC ECE Graduate Admission Committee (2013-2014)
- Member, UIUC ECE Colloquium Committee (2013-2016)
- Member, UIUC ECE Electromagnetic Area Committee (2013-2016)
- Member, UIUC ECE Graduate Recruiting Committee (2014-2015)
- Member, UIUC ECE Graduate Fellowship Committee (2015-2016)
- Chair, UIUC MNTL ICP-RIE Acquisition Committee (2014-2015)
- Chair, UIUC MNTL Etch Engineer Search Committee (2015-2016)
- Member, UIUC MNTL Advisory Committee (2015-Now)
- Member and Scribe, UIUC ECE Advisory Committee (2017-Now)

**Outreach:**

- Mentor for RET Teacher Katie Hutchinson in Summer 2015 through the RET center for Nanotechnology at MNTL
- Mentor for REU student in Summer 2016 through the REU center for Nanotechnology at MNTL