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Education

- 2004–2010 **Ph.D.**, *Purdue University*, West Lafayette, IN, USA.
Dissertation topic: High-Q RF-MEMS Tunable Resonators and Filters for Reconfigurable Radio Frequency Front-Ends
Co-Advisors: Linda P. B. Katehi and Dimitrios Peroulis
- 2000–2004 **B.Eng.**, *Zhejiang University*, Hangzhou, China.
Chu Ko-Chen Honors College and College of Information Science and Electronics Engineering

Academic Experiences

- 2021–Present **Full Professor**, *Southern University of Science and Technology*, Shenzhen, China.
- 2017–2021 **Tenured Associate Professor**, *University of California*, Davis, CA.
- 2012–2017 **Assistant Professor**, *University of California*, Davis, CA.
- 2010–2011 **Postdoctoral Researcher**, *Purdue University*, West Lafayette, IN.
- 2005–2010 **Graduate Research Assistant**, *Purdue University*, West Lafayette, IN.
- 2004–2005 **Graduate Teaching Assistant**, *Purdue University*, West Lafayette, IN.

Industrial Experiences

- 2021–Present **Chief Scientist**, *Beijing AlpsenTek Technologies Co. Ltd*, Beijing, China.
- 2020–2021 **CEO & Chief Scientist**, *Shenzhen UMouse Technology Development Co. Ltd*, Shenzhen, China.
- 2017–2019 **Consultant**, *Futurewei Technologies*, Mountain View, CA.

Research Interests

- High-frequency (RF to THz) integrated circuits;
- Microelectronic and photonic devices, such as micro-electromechanical (MEMS) devices;
- Novel antennas, frequency selective surfaces, and passive components
- Reconfigurable high-frequency circuits and systems;
- Applications of high-frequency electronics to biomedical, industrial, environmental, and humanitarian problems;
- High-speed wireline and optical communications circuits.

Teaching

- SUSTech **SME202**, *Fundamentals of Integrated Circuits II – Digital Integrated Circuits*.
UC Davis **EEC 130A**, *Introductory Electromagnetics I*.
UC Davis **EEC 134AB**, *Design of RF Systems*.
UC Davis **EEC 221**, *Design of RF and Microwave Filters*.
UC Davis **EEC 229**, *RF-MEMS and Adaptive Wireless Systems*.

Honors and Awards

- 2013 **UC Davis IEEE Professor of the year**, *University of California Davis*.
Awarded by the UC Davis IEEE Chapter to 1 professor each year
2013 **Hellman Foundation Fellow**, *University of California Davis*.
Awarded to ~10 UC Davis assistant professors each year
2009 **IEEE Antenna-Propagation Society Graduate Fellowship** .
2004 **Graduation with Honors**, *Chu Kochen Honors College, Zhejiang University*.

Publications

Journal Publications

- [J49] Wanlu Shi, Xiaoguang Liu, and Yingsong Li, “ULA Fitting for MIMO Radar,” Accepted, *IEEE Communications Letters*, 2022
- [J48] Hao Wang, Jingjun Chen, Li Zhang, and Xiaoguang Liu, “High-Efficiency Millimeter-wave CMOS Oscillator Design using Port Voltage/Current Optimization and T-embedding Networks,” Accepted, *IEEE Transactions on Terahertz Science and Technology*, 2022.
- [J47] Zhigang Peng, Jingjun Chen, Hao Wang, Li Zhang, Wei Hong, and Xiaoguang Liu, “A 300 GHz Push-Push Coupling VCO Employing T-embedded Network in CMOS Technology,” Accepted, *IEEE Transactions on Terahertz Science and Technology*, 2022.
- [J46] Ying Chen, Robert Hu, Jo-Han Yu, Yu Ye, Yilun Zhu, Xianzi Liu, Shasha Qiu, Jingjun Chen, Xiaoguang Liu, Calvin Domier, Neville C Luhmann, “110–140-GHz Wide-IF-Band 65-nm CMOS Receiver Design for Fusion Plasma Diagnostics,” Accepted, *IEEE Microwave and Wireless Components Letters*, 2022.
- [J45] Xiaohu Wu and Xiaoguang Liu, “A Magnetless 4-Port Circulator And Its Microstrip Implementation,” *IEEE Transactions on Circuits and Systems II*, vol. 69, no. 3, pp. 969–973, Mar, 2022.
- [J44] C.W. Domier, J. Dannenberg, Y. Zhu, X. Liu, J.R. Sirigiri, Y. Ren, B. Stratton and N.C. Luhmann Jr., “A poloidal high-k scattering system for NSTX-U,” *Journal of Instrumentation*, vol. 17, C01018, Jan, 2022.
- [J43] Chen Feng, Xiaonan Jiang, Min-Gyo Jeong, Hong Hong, Chang-Hong Fu, Xiaohui Yang, E Wang, Xiaohua Zhu, and Xiaoguang Liu, “Multitarget Vital Signs Measurement With Chest Motion Imaging Based on MIMO Radar,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 69, no. 11, Nov, 2021.
- [J42] Zhigang Peng, Jingjun Chen, Hao Wang, Li Zhang, Wei Hong, and Xiaoguang Liu, “A 208-GHz Injection Locking Doubler Chain With 3.2% PAE and 2.9-mW Output Power in CMOS Technology,” *IEEE Microwave and Wireless Components Letters*, vol. 32, no. 4, pp. 351–354, Dec, 2021.

- [J41] Shengyuan Luo, Yingsong Li, Chow-Yen-Desmond Sim, Yinfeng Xia, and Xiaoguang Liu, “MIMO Antenna Array Based on Metamaterial Frequency Selective Surface,” *Applied Computational Electromagnetics Society Journal*, vol. 36, no. 6, pp. 465–472, Apr, 2021.
- [J40] Xiaohu Wu, Mahmoud Nafe, Alejandro Álvarez Melcón, Juan Sebastián Gómez-Díaz, Xiaoguang Liu, “A non-reciprocal bandpass diplexer,” *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 31, no. 6, e22592, Mar, 2021.
- [J39] Xiaohu Wu, Mahmoud Nafe, Alejandro Alvarez-Melcon, Juan Sebastian Gomez-Diaz, and Xiaoguang Liu, “Frequency Tunable Non-Reciprocal Bandpass Filter Using Time-Modulated Microstrip $\lambda_g/2$ Resonators,” *IEEE Transactions on Circuits and Systems II*, vol. 68, no. 2, pp. 667–671, Feb, 2021.
- [J38] Taejun Lim, James Chen, Akash Anand, Xiaoguang Liu, and Yongshik Lee, “Design Method of Varactor-tuned Planar Bandpass Filters with Wide Tunable Frequency Range and Single Bias Control,” *IEEE Transactions on Circuits and Systems II*, vol. 68, no. 1, pp. 221–225, Jan, 2021.
- [J37] Xiaohu Wu, Yingsong Li, and Xiaoguang Liu, “Quasi-Reflectionless Microstrip Bandpass Filters With Improved Passband Flatness and Out-of-band Rejection,” *IEEE Access*, vol. 8, pp. 160500–160514, Sep, 2020.
- [J36] Jianfeng Jiang, Yingsong Li, Lei Zhao, and Xiaoguang Liu, “Wideband MIMO Directional Antenna Array with a Simple Meta-materials Decoupling Structure for X-band Applications,” *Applied Computational Electromagnetics Society Journal*, vol. 35, no.5, pp. 556–566, May, 2020.
- [J35] Dashuai Wang, Wei Li, Xiaoguang Liu, Nan Li, Junxiong Zhang, and Chunlong Zhang, “Environmental Perception and Autonomous Obstacle Avoidance: A Deep Learning and Depth Camera Combined Solution,” *Computers and Electronics in Agriculture*, vol. 175, 105523, Aug, 2020.
- [J34] Xiaohu Wu, Yingsong Li, and Xiaoguang Liu, “High-Order Dual-Port Quasi-Absorptive Microstrip Coupled-Line Bandpass Filters,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 68, no. 4, pp. 1462–1475, Apr, 2020.
- [J33] Yue Dong, Yingsong Li, Chow-Yen-Desmond Sim, and Xiaoguang Liu, “A Dipole-Type Millimeter-Wave Antenna with Directional Radiation Characteristics,” *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 30, e22059, Feb, 2020.
- [J32] Celia Gomez-Molina, Alejandro Pons-Abenza, James Do, Fernando Quesada-Pereira, Xiaoguang Liu, Juan Sebastian Gomez-Diaz, and Alejandro Alvarez-Melcon, “Wideband Bandpass Filters Using a Novel Thick Metallization Technology,” *IEEE Access*, vol. 8, pp. 34962–34972, Feb, 2020.
- [J31] Dashuai Wang, Xiaoguang Liu, Wei Li, Junxiong Zhang, Ting Yuan, Chunlong Zhang, “基于多传感器融合的无人机精准自主飞行控制方法,” *农业机械学报*, vol. 50, no. 12, pp. 98–106, Dec, 2019.
- [J30] Alejandro Alvarez-Melcon, Xiaohu Wu, Jiawei Zang, Xiaoguang Liu, and Juan Sebastian Gomez-Diaz, “Coupling Matrix Representation of Nonreciprocal Filters Based on Time Modulated Resonators,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 67, no. 12, pp. 4751–4763, Dec, 2019.
- [J29] Xiaohu Wu, Xiaoguang Liu, Mark D. Hickle, Dimitrios Peroulis, Juan Sebastian Gomez-Diaz, and Alejandro Alvarez Melcon, “Isolating Bandpass Filters Using Time-Modulated Resonators,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 67, no. 6, pp. 2331–2345, Jun, 2019.
- [J28] Xiaowei Zhang, Tao Jiang, Yingsong Li, and Xiaoguang Liu, “An Off-grid DOA Estimation Method using Proximal Splitting and Successive Nonconvex Sparsity Approximation,” *IEEE Access*, vol. 7, pp. 66764–66773, May, 2019.

- [J27] Jiawei Zang, Diego Correias-Serrano, James T. S. Do, and Xiaoguang Liu, Alejandro Alvarez-Melcon, and J. Sebastian Gomez-Diaz, “Nonreciprocal wavefront engineering with time-modulated gradient metasurfaces,” *Physical Review Applied*, vol. 11, no. 5, pp. 22572, May, 2019.
- [J26] Wanlu Shi, Yingsong Li, Luyu Zhao, and Xiaoguang Liu, “Controllable Sparse Antenna Array for Adaptive Beamforming,” *IEEE Access*, vol. 7, no. 1, pp. 6412–6423, Jan, 2019.
- [J25] Qingyang Wu, Carlos Feres, Daniel Kuzmenko, Zhi Ding, Zhou Yu, Xin Liu, and Xiaoguang Liu, “Deep Learning Based RF Fingerprinting for Device Identification and Wireless Security,” *IET Electronics Letters*, vol. 54, no. 24, pp. 1405–1407, Nov, 2018.
- [J24] Bo Yu, Xuan Ding, Hai Yu, Yu Ye, Xiaoguang Liu, and Q. Jane Gu, “Ring-Resonator-Based Sub-THz Dielectric Sensor,” *IEEE Microwave and Wireless Components Letters*, vol. 28, no. 11, pp. 1531–1309, Nov, 2018.
- [J23] Hao Wang, Jingjun Chen, Hooman Rashtian, and Xiaoguang Liu, “High-Efficiency Millimeter-wave Single-ended and Differential Fundamental Oscillators in CMOS,” *IEEE Journal of Solid-State Circuits*, vol. 53, no. 8, pp. 2151–2163, Aug, 2018.
- [J22] Kai Yu, Yingsong Li, and Xiaoguang Liu, “Mutual Coupling Reduction of Microstrip Patch Antenna Array Using Modified Split Ring Resonator Metamaterial Structures,” *Applied Computational Electromagnetics Society Journal*, vol. 33, no. 7, pp. 758–763, Jul, 2018.
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- [J21] Md. Naimul Hasan, Shahrokh Saeedi, Q. Jane Gu, Hjalti H. Sigmarsson, and Xiaoguang Liu, “Design Methodology of Reconfigurable N-path Filter with Center Frequency and Bandwidth Tuning,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 66, no. 6, pp. 2775–2790, Jun, 2018.
- [J20] Bo Yu, Yu Ye, Xuan Ding, Yuhao Liu, Zhiwei Xu, Xiaoguang Liu, and Q. Jane Gu, “Ortho-Mode Sub-THz Interconnect Channel for Planar Chip-to-chip Communications,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 66, no. 4, pp. 1864–1873, Apr, 2018.
- [J19] Yuhao Liu, Jiansong Liu, Bo Yu, and Xiaoguang Liu, “A Compact Single-Cantilever Multicontact RF-MEMS Switch With Enhanced Reliability,” *IEEE Microwave and Wireless Components Letters*, vol. 28, no. 3, pp. 191–193, Mar, 2018.
- [J18] Yuhao Liu, Yusha Bey, and Xiaoguang Liu, “High-Power High-Isolation RF-MEMS Switches with Enhanced Hot-switching Reliability Using A Shunt Protection Technique,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 65, no. 9, pp. 3188–3199, Apr, 2017.
- [J17] Yan Wang, Ben Tobias, Yu-Ting Chang, Jo-Han Yu, Meijiao Li, Fengqi Hu, Ming Chen, Manish Mamidanna, T. Phan, Anh-Vu Pham, Jane Q. Gu, Xiaoguang Liu, Yilun Zhu, Calvin W. Domier, L. Shi, E. Valeo, G. J. Kramer, D. Kuwahara, Y. Nagayama, A. Mase, and Neville C. Luhmann Jr., “Millimeter-wave Imaging of Magnetic Fusion Plasmas, Technology Innovations Advancing Physics Understanding,” *Nuclear Fusion*, vol. 57, pp. 29703, Mar, 2017.
- [J16] M. Naimul Hasan, Q. Jane Gu, and Xiaoguang Liu, “Tunable Blocker-Tolerant On-chip Radio Frequency Front-end Filter with Dual Adaptive Transmission Zeros for Software Defined Radio Applications,” *IEEE Transactions on Microwave Theory and Techniques*, vol. 64, no. 12, pp. 4419–4433, Dec, 2016.

- [J15] Yuhao Liu, Yusha Bey, and Xiaoguang Liu, "Extension of the Hot-Switching Reliability of RF-MEMS Switches Using A Series Contact Protection Technique," *IEEE Transactions on Microwave Theory and Techniques*, vol. 64, no. 10, pp. 3151–3162, Oct, 2016.
- [J14] Akash Anand and Xiaoguang Liu, "Reconfigurable Planar Capacitive Coupling in Substrate-Integrated Coaxial-Cavities Filters," *IEEE Transactions on Microwave Theory and Techniques*, vol. 64, no. 8, pp. 2548–2560, Aug, 2016.
- [J13] Bo Yu, Yuhao Liu, Yu Ye, Xiaoguang Liu, and Q. Jane Gu, "Low-loss and Broadband G-Band Dielectric Interconnect for Chip-to-Chip Communication," *IEEE Microwave and Wireless Components Letters*, vol. 26, no. 7, pp. 478–480, Jun, 2016.
- [J12] Bo Yu, Yuhao Liu, Yu Ye, Junyan Ren, Xiaoguang Liu, and Q. Jane Gu, "High-Efficiency Micromachined Sub-THz Channels for Low-Cost Interconnect for Planar Integrated Circuits," *IEEE Transactions on Microwave Theory and Techniques*, vol. 64, no. 1, pp. 96–105, Jan, 2016.
- [J11] Young Seek Cho, Himanshu Joshi, Xiaoguang Liu, Hjalti H. Sigmarsson, William J. Chappell, and Dimitrios Peroulis, "Development of 6–12 GHz evanescent-mode two-pole low-loss tunable bandpass filter," *Microwave and Optical Technology Letters*, vol. 57, no. 10, pp. 2418–2422, Oct, 2015.
- [J10] Joshua Small, Adam Fruehling, Anurag Garg, Xiaoguang Liu, Dimitrios Peroulis, "Real-time DC-dynamic biasing method for switching time improvement in severely underdamped fringing-field electrostatic MEMS actuators," *Journal of Visualized Experiments*, Vol. 90, e51251, Aug, 2014.
- [J9] Akash Anand, Joshua Small, Dimitrios Peroulis, and Xiaoguang Liu, "Theory and Design of Octave Tunable Filters with Lumped Tuning Elements," *IEEE Transactions on Microwave Theory and Techniques*, vol. 62, no. 12, pp. 4353–4364, Dec, 2013.
- [J8] Joshua Small, Adam Fruehling, Anurag Garg, Xiaoguang Liu, and Dimitrios Peroulis, "DC-dynamic biasing for $>50\times$ switching time improvement in severely under-damped fringing-field electrostatic MEMS actuators," *Journal of Micromechanics and Microengineering*, vol. 22, 125029, 2012.
- [J7] Kenle Chen, Xiaoguang Liu, and Dimitrios Peroulis, "Widely-Tunable High-Efficiency Power Amplifier with Ultra-Narrow Instantaneous Bandwidth," *IEEE Transactions on Microwave Theory and Techniques*, vol. 60, No. 12, pp. 3787–3797, Dec, 2012.
- [J6] Joshua Small, Wasim Irshad, Adam Fruehling, Anurag Garg, Xiaoguang Liu and Dimitrios Peroulis, "Electrostatic fringing-field actuation for pull-in free RF-MEMS analogue tunable resonators," *Journal of Micromechanics and Microengineering*, vol. 22, No. 9, Sep, 2012.
- [J5] Xiaoguang Liu, Linda P. B. Katehi, William J. Chappell, and Dimitrios Peroulis, "Power Handling of High-Q MEMS Tunable Evanescent-mode Resonators and Filters," *IEEE Transactions on Microwave Theory and Techniques*, vol. 60, no. 2, pp. 270–283, Feb, 2012.
- [J4] Xiaoguang Liu, Joshua Small, David Berdy, Linda Katehi, William J. Chappell, and Dimitrios Peroulis, "Impact of Mechanical Vibration on the Performance of RF MEMS Evanescent-mode Tunable Resonators," *IEEE Microwave and Wireless Components Letters*, vol. 21, No. 8, pp. 406–408, Aug, 2011.
- [J3] Kenle Chen, Xiaoguang Liu, Andrew Kovacs, and Dimitrios Peroulis, "Anti-Biased Electrostatic RF MEMS Varactors and Filters," *IEEE Transactions on Microwave Theory and Techniques*, vol. 58, no. 12, pp. 3971–3981, Dec, 2010.

- [J2] Xiaoguang Liu, Linda P. B. Katehi, and Dimitrios Peroulis, "Novel Dual-Band Microwave Filter using Dual-Capacitively-Loaded Cavity Resonators," *IEEE Microwave and Wireless Components Letters*, vol. 20, no. 11, pp. 610–612, Nov, 2010.
- [J1] Xiaoguang Liu, Linda P. B. Katehi, William J. Chappell, and Dimitrios Peroulis, "High-Q Tunable Microwave Cavity Resonators and Filters using SOI-based RF MEMS Tuners," *IEEE/ASME Journal of Microelectromechanical Systems*, vol. 19, no. 4, pp. 774–784, Aug, 2010.

Conference Publications

- [C79] Chenghao Li, Hongwei Ren, Minjie Bi, Chenchen Ding, Wenjie Li, Rumin Zhang, Xiaoguang Liu, Hao Yu, "TLCD: A Transformer based Loop Closure Detection for Robotic Visual SLAM," *IEEE International Conference on Advanced Robotics and Mechatronics (ARM)*, Jul, 2022
- [C78] Li Zhang, Nguyen L. K. Nguyen, Jingjun Chen, Omeed Momeni, and Xiaoguang Liu, "A 3.2 mW 2.2–13.2 GHz CMOS Differential Common-Gate LNA for Ultra-Wideband Receivers," *IEEE MTT-S International Microwave Symposium (IMS)*, 2022
- [C77] Xiaonan Jiang, Xiaomeng Gao, Heng Zhao, Hong Hong, and Xiaoguang Liu, "A Compact Digital Low-IF Dual-PLL Doppler Radar for Remote Vital Sign Detection," *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2021.
- [C76] Yuting Zhao, Yingsong Li, and Xiaoguang Liu, "A Low-Profile Wideband Absorber Using Capacitive Surface," *International Workshop on Electromagnetics: Applications and Student Innovation Competition (iWEM)*, Aug, 2020.
- [C75] Yinfeng Xia, Yingsong Li, Wei Xue, and Xiaoguang Liu, "An ACS-fed Super Wideband Active Antenna," *International Workshop on Electromagnetics: Applications and Student Innovation Competition (iWEM)*, Aug, 2020.
- [C74] Heng Zhao, Xiaomeng Gao, Xiaonan Jiang, Hong Hong, Xiaoguang Liu, "Non-contact Robust Respiration Detection By Using Radar-Depth Camera Sensor Fusion," *International Conferences of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Jul, 2020.
- [C73] Mark Bourkov, James T.S. Do, Xiaoguang Liu, Juan Sebastian Gomez-Diaz, "Time-modulated Patch Antennas with Non-reciprocal Polarization Control," *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Jul, 2020.
- [C72] Xiaohu Wu, Mahmoud Nafe, and Xiaoguang Liu, "A Magnetless Microstrip Filtering Circulator based on Coupled Static and Time-Modulated Resonators," *IEEE MTT-S International Microwave Symposium (IMS)*, Aug, 2020.
- [C71] Xiaohu Wu, Mahmoud Nafe, and Xiaoguang Liu, "Non-Reciprocal 2nd-Order Bandpass Filter by Using Time-Modulated Microstrip Quarter-Wavelength Resonators," *International Conference on Microwave and Millimeter Wave Technology (ICMMT)*, May, 2019.
- [C70] Yuting Zhao, Yingsong Li, and Xiaoguang Liu, "A Novel Dual Polarized Tunable Frequency Selective Surface With Varactors," Accepted, *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Jul, 2019.
- [C69] Q. Jane Gu, Bo Yu, Xuan Ding, Yu Ye, Xiaoguang Liu, Zhiwei Xu, "THz interconnect for inter-/intra-chip communication," *Proc. SPIE 10982, Micro- and Nanotechnology Sensors, Systems, and Applications XI, 109822R*, May, 2019.
- [C68] Jingjun Chen, Hao Wang, and Xiaoguang Liu, "A 310-GHz Fundamental Oscillator with 0.4-mW Output Power and 3.2% dc-to-RF Efficiency in 65-nm CMOS," *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2019.
- [C67] Songjie Bi, Xiaonan Jiang, Xiaomeng Gao, and Xiaoguang Liu, "Coupling-Cancellation-Antenna for Improving Doppler Radar Motion Measurement Accuracy," *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2019.

- [C66] **(Best Young Professional Paper)** Xiaomeng Gao, Xiaonan Jiang, Songjie Bi, Dennis Matthews, Saul Schaefer, and Xiaoguang Liu, "Measurement of the Complex Human Atrial-Ventricular Motions using Contact-Based Doppler Radar," *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2019.
- [C65] Mahmoud A. Nafe, Xiaohu Wu, Xiaoguang Liu, "A Wideband Magnetic-Free Circulator Using Spatio-Temporal Modulation of 2-pole Bandpass Filters," *IEEE Radio & Wireless Symposium (RWS)*, Jan, 2019.
- [C64] Hao Wang, Jingjun Chen, James T.S. Do, Xiaoguang Liu, "A 212-GHz Differential VCO with 5.3% dc-to-RF Efficiency in 65-nm CMOS Technology," *IEEE Radio & Wireless Symposium (RWS)*, Jan, 2019.
- [C63] Mahmoud Nafe, M. Naimul Hasan, Hind Reggad, Daniel Kuzmenko, Jingjun Chen, Xiaoguang Liu, "Magnetic-free Circulator Based On Spatio-Temporal Modulation Implemented via Switched Capacitors for Full Duplex Communication," *USNC-URSI Radio Science Meeting (Joint with AP-S Symposium)*, Jul, 2018.
- [C62] **(Invited)** Yuhao Liu, Jiansong Liu, Bo Yu, M. Naimul Hasan, Xiaoguang Liu, "RF MEMS switch for Reconfigurable RF-Front End with Improved Hot-Switching Capabilities," *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Jul, 2018.
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- [C61] Songjie Bi, Xiaomeng Gao, Victor M. Lubecke, Olga Boric-Lubecke, Dennis Matthews, Xiaoguang Liu, "A Multi-Arc Method for Improving Doppler Radar Motion Measurement Accuracy," *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2018.
- [C60] Bo Yu, Yu Ye, Xuan Ding, Xiaoguang Liu, Q. Jane Gu, "Sub-THz Interconnect for Planar Chip-to-Chip Communications," *IEEE Radio & Wireless Symposium (RWS)*, Jan, 2018.
- [C59] Jeronimo Segovia-Fernandez, James Do, Xiaonan Jiang, Yuhao Liu, Julius M. Tsai, Hooman Rashtian, Xiaoguang Liu, David A. Horsley, "Monolithic AlN MEMS-CMOS Resonant Transformer for Wake-up Receivers," *IEEE International Ultrasonics Symposium*, Sep, 2017.
- [C58] Yingsong Li, Songjie Bi, Xiaoguang Liu, "A Modified Bow-Tie Antenna for Contact-Based Heartbeats Detection Applications," *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Jul, 2017.
- [C57] Kai Yu, Xiaoguang Liu, Yingsong Li, "Mutual Coupling Reduction of Microstrip Patch Antenna Array Using Modified Split Ring Resonator Metamaterial Structures," *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Jul, 2017.
- [C56] Kai Yu, Yingsong Li, Xiaoguang Liu, "A High Gain Patch Antenna Using Near Zero-Index Metamaterial Coating," *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Jul, 2017.
- [C55] Scott Block, Xiaonan Jiang, Can Cui, Jeronimo Segovia Fernandez, Rajeevan Amirtharajah, David Horsley, Hooman Rashtian, Xiaoguang Liu, "A 170nW CMOS Wake-Up Receiver with -60-dBm Sensitivity Using AlN High-Q Piezoelectric Resonators," *IEEE International Symposium on Circuits and Systems (ISCAS)*, Jun, 2017.
- [C54] Md. Naimul Hasan, Xiaoguang Liu, "Tunable RF Front-end Filter with Wideband Blocker Suppression for Multi-Standard Applications," *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2017.

- [C53] Hao Wang, Daniel Kuzmenko, Bo Yu, Yu Ye, Q. Jane Gu, Hooman Rashtian, Xiaoguang Liu, “A Compact 213-GHz CMOS Fundamental Oscillator with 0.56-mW Output Power and 3.9% Efficiency using a Capacitive Transformer,” *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2017.
- [C52] **(Best Student Paper, Third Place)** Bo Yu, Yu Ye, Xuan Ding, Xiaoguang Liu, Q. Jane Gu, “Dielectric Waveguide Based Multi-Mode sub-THz Interconnect Channel for High Data-Rate High Bandwidth-Density Planar Chip-to-Chip Communication,” *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2017.
- [C51] Bo Yu, Yu Ye, Xuan Ding, Xiaoguang Liu, Q. Jane Gu, “High Energy-Efficiency High Bandwidth-Density Sub-THz Interconnect for the Last-Centimeter Chip-to-Chip Communications,” *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2017.
- [C50] Md Naimul Hasan, Mahmoud Nafe, Xiaoguang Liu, “Design of All Passive Blocker-Tolerant Reconfigurable RF Front-end Filter,” *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2017.
- [C49] Hao Wang, Akash Anand, Xiaoguang Liu, “A Miniature 800-1100-MHz Tunable Filter with High-Q Ceramic Coaxial Resonators and Commercial RF-MEMS Tunable Digital Capacitors,” *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2017.
- [C48] Fengqi Hu, Meijiao Li, Calvin W. Domier, Xiaoguang Liu, Neville C. Luhmann, Jr., “Microwave Imaging Radar Reflectometer System Utilizing Digital Beam Forming,” *APS Division of Plasma Physics Meeting*, Oct, 2016.
- [C47] Bo Yu, Yu Ye, Xiaoguang Liu, and Q. Jane Gu, “Microstrip line based sub-THz interconnect for high energy-efficiency chip-to-chip communications,” *IEEE International Symposium on Radio-Frequency Integration Technology (RFIT)*, Aug, 2016.
- [C46] Bo Yu, Yu Ye, Xiaoguang Liu, and Q. Jane Gu, “Sub-THz interconnect channel for planar chip-to-chip communication,” *IEEE International Symposium on Electromagnetic Compatibility (EMC)*, Jul, 2016.
- [C45] Md. Naimul Hasan, Q. Jane Gu, and Xiaoguang Liu, “Tunable Blocker-Tolerant RF Front-end Filter with Dual Adaptive Notches for Reconfigurable Receivers,” *IEEE MTT-S International Microwave Symposium (IMS)*, May, 2016.
- [C44] Akash Anand and Xiaoguang Liu, “Metallic Air Cavities Integrated with Surface Mount Tuning Components for Tunable Evanescent-Mode Resonators,” *IEEE MTT-S International Microwave Symposium (IMS)*, May, 2016.
- [C43] James Chen, Akash Anand, Marvin D. Benge, Hjalti Sigmarsson, and Xiaoguang Liu, “An Evanescent-mode Tunable Dual-band Filter with Independently-Controlled Center Frequencies,” *IEEE MTT-S International Microwave Symposium (IMS)*, May, 2016.
- [C42] **(Student Paper Competition Finalist)** Md. Naimul Hasan, Q. Jane Gu, and Xiaoguang Liu, “Reconfigurable Blocker-Tolerant RF Front-End Filter with Tunable Notch for Active Cancellation of Transmitter Leakage in FDD Receivers,” *IEEE International Symposium on Circuits and Systems (ISCAS)*, May, 2016.
- [C41] James T. S. Do and Xiaoguang Liu, “A High-Q W Band Tunable Bandpass Filter,” *IEEE MTT-S International Microwave Symposium (IMS)*, May, 2016.

- [C40] Songjie Bi, Juan Zeng, Marzhan Bekbalanova and Xiaoguang Liu, “Contact-based Radar Measurement of Cardiac Motion—A Position and Polarization Study,” *IEEE Topical Conference on Biomedical Wireless Technologies, Networks & Sensing Systems*, Jan, 2016.
- [C39] Hooman Rashtian, Q. Jane Gu, Xiaoguang Liu, “A 200-GHz Triple-Push Oscillator in 65-nm CMOS with Design Techniques for Enhancing DC-to-RF Efficiency,” *IEEE Topical Meetings on Silicon Monolithic Integrated Circuits in RF Systems (SiRF)*, Jan, 2016.
- [C38] Md. Naimul Hasan, Sudhir Aggarwal, Q. Jane Gu, and Xiaoguang Liu, “Tunable N-Path RF Front-end Filter with an Adaptive Integrated Notch for FDD/Co-Existence,” *IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, Aug, 2015.
- [C37] **(Student Paper Competition Honorable Mention)** Meijiao Li, Calvin Domier, Xiaoguang Liu, and Neville Luhmann, “Wide Band MM-Wave, Double-sided Printed Bow-Tie Antenna for Phased Array Applications,” *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Jul, 2015
- [C36] **(Invited)** Yuhao Liu, Hao Wang, Yusha Bey, and Xiaoguang Liu, “A Novel RF-MEMS Shunt Capacitive Switch Design for Dielectric Charging Mitigation,” *IEEE International Microwave Workshop Series on Advanced Materials and Processes for RF and THz Applications*, Jul, 2015.
- [C35] Akash Anand, and Xiaoguang Liu, “Capacitively Coupled Coaxial-Cavity Bandstop Filters with Tunable Center Frequency and Bandwidth,” *IEEE MTT-S International Microwave Symposium (IMS)*, May, 2015.
- [C34] Danqing Fu, Yusha A. Bey, Calvin Domier, Neville C. Luhmann Jr., and Xiaoguang Liu, “A Q-Band RF-MEMS Tapered True Time Delay Line for Fusion Plasma Diagnostics Systems,” *IEEE MTT-S International Microwave Symposium (IMS)*, May, 2015.
- [C33] Qianteng Wu, and Xiaoguang Liu, “A 3.4–3.6-GHz High Efficiency Gallium Nitride Power Amplifier Using Bandpass Output Matching Network,” *IEEE MTT-S International Microwave Symposium (IMS)*, May, 2015.
- [C32] James T.S. Do, and Xiaoguang Liu, “A 75–110GHz Micro-Machined High-Q Tunable Filter,” *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2015.
- [C31] **(Invited)** Xiaoguang Liu, “Tunable RF and Microwave Filters,” *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2015.
- [C30] Songjie Bi, Dennis Matthews, and Xiaoguang Liu, “An experimental study of 2-D cardiac motion pattern based on contact radar measurement,” *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2015.
- [C29] Chan Ho Kim, Kai Chang, and Xiaoguang Liu, “Varactor Tuned Ring Resonator Filter With Wide Tunable Bandwidth,” *IEEE Radio & Wireless Symposium (RWS)*, Jan, 2015.
- [C28] Qi Jiang, Danqing Fu, Fengqi Hu, Meijiao Li, Calvin W. Domier, Xiaoguang Liu, Neville C. Luhmann, “Mixer and beamforming advances in millimeter-wave imaging,” *International Conference on Infrared, Millimeter, and Terahertz waves (IRMMW-THz)*, Sep, 2014.
- [C27] Md. Naimul Hasan, Sudhir Aggarwal Q. Jane Gu, and Xiaoguang Liu, “Reconfigurable N-path RF front-end filter with improved blocker rejection,” *IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, Aug, 2014.

- [C26] Akash Anand and Xiaoguang Liu, "Substrate-Integrated Coaxial-Cavity Filter With Tunable Center Frequency and Reconfigurable Bandwidth," **(Best student paper)** *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Jun, 2014.
- [C25] Yuhao Liu, Yusha Bey, Xiaoguang Liu, "Single-Actuator Shunt-Series RF-MEMS Switch," *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2014.
- [C24] Bo Yu, Yuhao Liu, Xing Hu, Xiaoxin Ren, Xiaoguang Liu, Q. Jane Gu, "Micromachined Sub-THz Interconnect Channels for Planar Silicon Processes," *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2014.
- [C23] **(Best Conference Paper)** Bo Yu, Yuhao Liu, Xing Hu, Xiaoxin Ren, Xiaoguang Liu, Q. Jane Gu, "Micromachined Silicon Channels for THz Interconnect," *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Jun, 2014.
- [C22] **(Best Student Paper)** Akash Anand, Yuhao Liu, and Xiaoguang Liu, "Substrate Integrated Octave-Tunable Bandstop Filter with Surface Mount Varactors," *IEEE MTT-S International Microwave Symposium (IMS)*, Apr, 2014.
- [C21] Yuhao Liu, Akash Anand, Xiaoguang Liu, "Design of Low Phase-Noise Voltage-Controlled Oscillator Using Tunable Evanescent-Mode Cavity," *IEEE Radio & Wireless Symposium (RWS)*, Jan, 2014.
- [C20] Akash Anand, Joshua Small, Muhammad Shoaib Arif, Michael Sinani, Dimitrios Peroulis, and Xiaoguang Liu, "A Novel High-Qu Octave-Tunable Resonator with Lumped Tuning Elements," *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2013
- [C19] Eric Naglich, Xiaoguang Liu, Dimitrios Peroulis, and William Chappell, "MEMS-Tunable Highly-Loaded Cavity Bandstop Filters for X Band and Beyond," *Government Microcircuit Applications and Critical Technologies (GOMACTech) Conference*, Mar, 2013
- [C18] Akash Anand, Joshua Small, Hjalti Sigmarsson, Xiaoguang Liu, "Tunable RF Filters Based on Radially Loaded Evanescent-mode Cavity Resonators," *USNC-URSI National Radio Science Meeting*, Jan, 2013
- [C17] Joshua S. Benjestorf, and Xiaoguang Liu, "Non-Mating Connector (NMC) for USB 3.0 - A Quality Waterproof Connection," *International Conference on Consumer Electronics*, Jan, 2013
- [C16] Xiaoguang Liu, Eric Naglich, and Dimitrios Peroulis, "Non-linear Effects in MEMS Tunable Bandstop Filters," *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2012.
- [C15] **(Invited)** Xiaoguang Liu and Dimitrios Peroulis, "Tunable 3-D MEMS Components for Reconfigurable RF Front-Ends," *IEEE International Symposium on Antennas and Propagation*, Jul, 2011.
- [C14] Xiaoguang Liu, Adam Fruehling, Linda Katehi, William J. Chappell and Dimitrios Peroulis, "Capacitive Monitoring of Electrostatic MEMS Tunable Evanescent-mode Cavity Resonators," *European Microwave Symposium*, Oct, 2011.
- [C13] Muhammad S. Arif, Xiaoguang Liu, Wasim Irshad, William J. Chappell, and Dimitrios Peroulis, "A High-Q Magnetostatically-tunable All-silicon Evanescent Cavity Resonator," *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2011.
- [C12] Kenle Chen, Xiaoguang Liu, William J. Chappell, and Dimitrios Peroulis, "Integrated Design of Power Amplifier and Narrowband Filter using High-Q Evanescent-Mode Cavity Resonator," *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2011.

- [C11] Xiaoguang Liu, Kenle Chen, Linda P. B. Katehi, William J. Chappell and Dimitrios Peroulis, “System-level Characterization of Bias Noise Effects on Electrostatic RF MEMS Tunable Filters,” *International Conference on Micro Electro Mechanical Systems (MEMS)*, Jan, 2011.
- [C10] Wesley N. Allen, Xiaoguang Liu, and Dimitrios Peroulis, “Hermetically-Sealed Evanescent-mode Resonators Utilizing Packaging as Cavities,” *IEEE Radio & Wireless Symposium (RWS)*, Jan, 2010
- [C9] Wesley N. Allen, Joshua Small, Xiaoguang Liu, and Dimitrios Peroulis, “Bandwidth-optimal Single Shunt-capacitor Matching Networks for Parallel RF Loads of $Q \gg 1$,” *Asia-Pacific Microwave Conference (APMC)*, Dec, 2009
- [C8] Joshua Small, Xiaoguang Liu, and Dimitrios Peroulis, “Electrostatically Tunable Analog Single Crystal Silicon Fringing Field MEMS Varactors,” *Asia-Pacific Microwave Conference (APMC)*, Dec, 2009
- [C7] Xiaoguang Liu, Linda P. B. Katehi, and Dimitrios Peroulis, “Non-toxic Liquid Metal Microstrip Resonators,” *Asia-Pacific Microwave Conference (APMC)*, Dec, 2009
- [C6] Xiaoguang Liu, Linda P. B. Katehi, William J. Chappell, and Dimitrios Peroulis, “Power Handling Capability of High-Q Evanescent-mode RF MEMS Resonators with Flexible Diaphragm,” *Asia-Pacific Microwave Conference (APMC)*, Dec, 2009
- [C5] Anurag Garg, Joshua Small, Ajit Mahapatro, Xiaoguang Liu, and Dimitrios Peroulis, “Impact of Sacrificial Layer Type on Thin Film Metal Residual Stress,” *IEEE Sensors Conference*, Oct, 2009
- [C4] Xiaoguang Liu, Linda P. B. Katehi, William J. Chappell, and Dimitrios Peroulis, “A 3.4–6.2 GHz Continuously Tunable Electrostatic MEMS Resonator with Quality Factor of 460–530,” *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2009
- [C3] Xin Wang, Hao-Han Hsu, Xiaoguang Liu, Wesley N. Allen, Linda P. B. Katehi, and Dimitrios Peroulis, “Frequency- and Time- Domain Adaptive RF Front-ends and Antennas,” *IEEE International Conference on Microwaves, Communications, Antennas and Electronic Systems*, Aug, 2008
- [C2] Anurag Garg, Joshua Small, Xiaoguang Liu, and Dimitrios Peroulis, “Post-release Displacement Uncertainty of Micro-Cantilevers due to Anchor Over/Under Etching,” *ASME International Mechanical Engineering Congress and Exposition*, Oct, 2008
- [C1] Xiaoguang Liu, Linda P. B. Katehi, and Dimitrios Peroulis, “MEMS Liquid Metal Through-Wafer Microstrip to Microstrip Transition,” *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2008

Invited Talks, Seminars, and Workshops

- [S21] 刘晓光, “移动机器人中的智能与传感器,” 边缘智能芯片设计新进展与前沿论坛, 中国人工智能产业年会, Suzhou, China, Apr, 2021
- [S20] Xiaoguang Liu, “Pushing the limit of Integrated Millimeter-wave/THz Signal Generation,” South University of Science and Technology, China, Dec, 2019
- [S19] Xiaoguang Liu, “Pushing the limit of Integrated Millimeter-wave/THz Signal Generation,” Berkeley Wireless Research Center, Nov, 2019
- [S18] Hao Wang, Jingjun Chen, and Xiaoguang Liu, “Optimal Design of Integrated Millimeter-wave Oscillators for Power and Efficiency,” *IEEE International Symposium on Radio-Frequency Integration Technology (RFIT)*, Aug, 2019

- [S17] Xiaoguang Liu, “Optimal Design of Integrated Millimeter-wave Oscillators for Power and Efficiency,” HRL Laboratories, Jun, 2019
- [S16] Alejandro Alvarez-Melcon, Jiawei Zang, Diego Correas-Serrano, James T. Do, Xiaoguang Liu, and Juan Sebastian Gomez-Diaz, “Nonreciprocal Light Manipulation Using Time-modulated Metasurfaces,” *Photonics & Electromagnetics Research Symposium (PIERS)*, Jun, 2019
- [S15] Hao Wang, Jingjun Chen, and Xiaoguang Liu, “Optimal Design of Integrated Millimeter-wave Oscillators for Power and Efficiency,” *International Conference on Microwave and Millimeter Wave Technology (ICMMT)*, May, 2019
- [S14] Xiaohu Wu, Mahmoud Nafe, and Xiaoguang Liu, “Wideband Magnetic-Free Non-Reciprocal Based on High-Order Spatio-Temporal Modulation,” *IEEE MTT-S International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization (NEMO)*, May, 2019
- [S13] Yuhao Liu, Jiansong Liu, Bo Yu, M. Naimul Hasan, Xiaoguang Liu, "RF MEMS switch for Reconfigurable RF-Front End with Improved Hot-Switching Capabilities," *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Jul, 2018
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- [S12] Hao Wang, Jingjun Chen, and Xiaoguang Liu, “Optimal Design of Integrated Millimeter-wave Oscillators for Power and Efficiency,” *IEEE International Wireless Symposium (IWS)*, May, 2018
- [S11] Xiaoguang Liu, “Pushing the Limit of Integrated Millimeter-wave Signal Generation with Applications in High-Speed Interconnects,” Chinese Academic of Sciences, Beijing, Feb, 2018
- [S10] Hao Wang, Jingjun Chen, and Xiaoguang Liu, “Optimal Design of Integrated Millimeter-wave Oscillators for Power and Efficiency,” *IEEE Radio and Wireless Week (RWW)*, Jan, 2018
- [S9] Yuhao Liu and Xiaoguang Liu, “High-Power Handling RF-MEMS Switches,” *Workshop Passive Integrated Circuits, IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2017
- [S8] Yuhao Liu, Hao Wang, Yusha Bey, and Xiaoguang Liu, “A Novel RF-MEMS Shunt Capacitive Switch Design for Dielectric Charging Mitigation,” *IEEE International Microwave Workshop Series on Advanced Materials and Processes for RF and THz Applications*, Jul, 2015.
- [S7] Xiaoguang Liu, “Tunable RF and Microwave Filters,” *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Apr, 2015.
- [S6] Xiaoguang Liu, “Tunable RF/Microwave MEMS Filters,” *2012 Microwave Update (MUD)*, Oct, 2012.
- [S5] Xiaoguang Liu, “FMCW Radar as a Microwave Education Tool,” *2012 Microwave Update (MUD)*, Oct, 2012.
- [S4] Xiaoguang Liu, “3-D RF-MEMS Devices for Reconfigurable Radio Front-ends,” *ECE Graduate Seminar, Texas Tech University*, Nov, 2011.
- [S3] Xiaoguang Liu, “RF-MEMS: Lessons and Prospects,” *ECE Graduate Seminar, University of California, Davis*, Sep, 2011.
- [S2] Xiaoguang Liu and Dimitrios Peroulis, “Power Handling and Dynamic Monitoring of MEMS Evanescent-mode (EVA) Tunable Resonators/Filters,” *Workshop WMJ: Recent Advances in Reconfigurable Filters, IEEE MTT-S International Microwave Symposium (IMS)*, May, 2010.

- [S1] Xiaoguang Liu and Dimitrios Peroulis, “Evanescent Cavity-Based Tunable RF MEMS Filters,” Workshop WFD: Emerging Applications of RF-MEMS, *IEEE MTT-S International Microwave Symposium (IMS)*, Jun, 2009.

Patents

- [P11] Xiaohu Wu and Xiaoguang Liu, “Quasi-Reflectionless Microstrip Bandpass Filters with Improved Passband Flatness and Out-of-band Rejection,” Patent Application No.: US 63/018,232, 2020
- [P10] Xiaomeng Gao, Xiaonan Jiang, Xiaoguang Liu, Dennis Matthews, Saul Schaefer, “Pulmonary artery pressure change monitor,” US Patent Application No.: US 17/102,838, 2019
- [P9] Xiaoguang Liu, Xudong He, and Yuehui Ouyang, “Tunable Filter,” US Patent Application No.: US 62/645,489, 2018
- [P8] Mohammad-Hadi Sohrabi, Mohamadali Malakoutian, Xiaoguang Liu, and Omeed Momeni, “Field Effect Bipolar Transistor,” Patent Application No.: US 62/765,076, PCT/US2019/046879, 2018
- [P7] Joshua Hihath, Xiaoguang Liu, and Maria L. Marco, “On-chip Platform for Single-Molecule Electrical Conductance Measurements,” US Patent Application No.: US 15/646,956, 2015
- [P6] Chang Liu and Xiaoguang Liu, “Quarter-rate Serial-Link Receiver with Low-Aperture-Delay Samplers,” US Patent No.: US 11,018,845, May, 2021
- [P5] Qun Gu, Xiaoguang Liu, Neville C. Luhmann, Jr., and Bo Yu, “Sub-terahertz/terahertz Interconnect,” US Patent No.: US 9,978,676, May, 2018
- [P4] Dennis Matthews, Xiaoguang Liu, and Songjie Bi, “Portable Heart Motion Monitor,” US Patent No.: US 11,116,416, Sep., 2021
- [P3] Dimitrios Peroulis, Akash Anand, Joshua Azariah Small, and Xiaoguang Liu, Muhammad Shoaib Arif, Mihal Sinani, “Tunable cavity resonator having a post and variable capacitive coupling,” US Patent No.: US 9,325,052, Apr, 2016
- [P2] Dimitrios Peroulis, Adam Fruehling, Joshua Azariah Small, Xiaoguang Liu, Wasim Irshad, and Muhammad Shoaib Arif, “Tunable Cavity Resonator Including A Plurality of MEMS Beams,” US Patent No.: US 9,166,271, Oct, 2015
- [P1] Himanshu Joshi, Hjalti H. Sigmarsson, Dimitrios Peroulis, William J Chappell, and Xiaoguang Liu, “Tunable Evanescent-Mode Cavity Filter,” US Patent No.: US 9,024,709, May, 2015

Student Awards

- [SA6] **Best Young Professional Paper**, Xiaomeng Gao, *IEEE Wireless and Microwave Technology Conference (WAMICON)*, 2019
- [SA5] **Best Student Paper – 3rd Place**, Bo Yu, *IEEE MTT-S International Microwave Symposium (IMS)*, 2017
- [SA4] **Best Student Paper Finalist**, Md. Naimul Hasan, *IEEE International Symposium on Circuits and Systems (ISCAS)*, 2016
- [SA3] **Student Paper Competition Honorable Mention**, Meijiao Li, *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, 2015

- [SA2] **Best Conference Paper**, Bo Yu, Yuhao Liu, Xing Hu, Xiaoxin Ren, *IEEE Wireless and Microwave Technology Conference (WAMICON)*, 2014
- [SA1] **Best Student Paper**, Akash Anand, Yuhao Liu, *IEEE Wireless and Microwave Technology Conference (WAMICON)*, 2014

Service

2018–Present **Associate editor.**

- *IEEE Access*, 2018–Present

2009–Present **Technical reviewer.**

Journals

- *Applied Sciences (MDPI)*
- *AEÜ – International Journal of Electronics and Communications*
- *IEEE Access*
- *IEEE Communications Magazine*
- *IEEE Journal of Electromagnetics, RF, and Microwaves in Medicine and Biology*
- *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*
- *IEEE/ASME Journal of Microelectromechanical Systems*
- *IEEE Journal of Solid-State Circuits*
- *IEEE Microwave and Wireless Components Letters*
- *IEEE Microwave Magazine*
- *IEEE Transactions on Biomedical Circuits and Systems*
- *IEEE Transactions on Circuits and Systems I*
- *IEEE Transactions on Circuits and Systems II: Express Briefs*
- *IEEE Transactions on Components, Packaging and Manufacturing Technology*
- *IEEE Transactions on Industrial Electronics*
- *IEEE Transactions on Instrumentation and Measurement*
- *IEEE Transactions on Microwave Theory and Techniques*
- *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*
- *IET Electronics Letters*
- *IET Microwaves, Antennas & Propagation*
- *IMAPS Journal of Microelectronics and Electronic Packaging*
- *International Journal of Circuit Theory and Applications*
- *Microelectronics Journal*
- *Scientific Reports*
- *Sensors (MDPI)*
- *Sensors & Actuators: A. Physical*

Conferences

- *IEEE MTT-S International Microwave Workshop Series on Advanced Materials and Processes for RF and THz Applications (IMWS-AMP)*, 2019
- *IEEE International Wireless Symposium (IWS)*, 2019
- *IEEE International Microwave Biomedical Conference (IMBioC)*, 2018–2019
- *IEEE MTT-S International Microwave Symposium (IMS)*, 2014–Present
- *IEEE Wireless and Microwave Technology Conference (WAMICON)*, 2014–Present
- *Asia-Pacific Microwave Conference (APMC)*, 2010–2012

2012–Present **Steering committee member.**

- *IEEE Wireless and Microwave Technology Conference (WAMICON)*, 2014, 2015–2017 (Technical Program Co-Chair), 2018–2019 (Invited Papers Co-Chair)
- *IEEE MTT-S International Microwave Symposium (IMS)*, 2013, 2016, 2018

2012, 2017 **Panel reviewer**, National Science Foundation (NSF).

2006–2007 **President**, Purdue University Chinese Students and Scholars Association (PUCSSA).

Mentoring

Current Graduate Students and Researchers

2022– **Yongxin Cheng**

Ph.D.

2022– **Shenghao Liu**

Ph.D.

2022–	Danlu Zhang	<i>M.S.</i>
2022–	Mandong Zhang	<i>M.S.</i>
2022–	Caihong Liu	<i>M.S.</i>
2021–	Tianye Wen	<i>M.S.</i>
2021–	Jingdong Zhang	<i>M.S.</i>
Past Graduate Students and Researchers		
	2016–2022	Li Zhang
2017–	Xiaonan Jiang	<i>Ph.D.</i>
2016–2022	Jingjun Chen	<i>Ph.D.</i>
2016–2021	Hind Reggad	<i>Ph.D.</i>
2016–2021	Mahmoud Ali Nafe	<i>Ph.D.</i>
2015–2021	Daniel Kuzmenko	<i>Ph.D.</i>
2018–2020	Te-Chen Lin	<i>M.S.</i>
2014–2020	Hao Wang	<i>Ph.D.</i>
2017–2019	Xiaomeng Gao	<i>Postdoc</i>
2016–2019	James T. S. Do	<i>Ph.D.</i>
2012–2019	Akash Anand	<i>Ph.D.</i>
2017–2018	Chang Liu	<i>Postdoc</i>
2013–2018	Bo Yu	<i>Ph.D., co-advised with Prof. Q. Jane Gu</i>
2012–2018	Songjie Bi	<i>Ph.D.</i>
2018	Asem Elshimi	<i>M.S.</i>
2012–2017	Md. Naimul Hasan	<i>Ph.D., co-advised with Prof. Jane Q. Gu</i>
2011–2017	Fengqi Hu	<i>Ph.D., co-advised with Prof. Neville C. Luhmann, Jr.</i>
2011–2017	Meijiao Li	<i>Ph.D., co-advised with Prof. Neville C. Luhmann, Jr.</i>
2012–2017	Yuhao Liu	<i>Ph.D.</i>
2013–2016	Hooman Rashtian	<i>Postdoc</i>
2015–2015	Juan Zeng	<i>Postdoc</i>
2013–2015	Minjie Zhu	<i>M.S.</i>
2013–2015	Samuel Cheung	<i>M.S.</i>
2013–2015	Qianteng Wu	<i>M.S.</i>
2012–2014	Danqing Fu	<i>Ph.D., co-advised with Prof. Neville C. Luhmann, Jr.</i>
2013–2014	Yaping Liang	<i>Postdoc</i>
2013–2014	Chan-Ho Kim	<i>Postdoc</i>
2012–2014	Yusha Bey	<i>Postdoc</i>

Funded Research Projects

- 2022–2024 **Pushing the Limit of Integrated Millimeter-wave/THz Signal Generation**, -, Lead PI, Total: ¥3 000 000.
- 2022–2024 **Key Laboratory of Integrated Circuits**, Department of Education of Guangdong Province, Lead PI, Total: ¥1 000 000.
- 2021–2022 **High-Efficiency Millimeter-wave Signal Generation Methods**, Shenzhen Nanshan Technology Bureau, Lead PI, Total: ¥286 000.

- 2020–2020 **Low-Power Wearable Radar for Arrhythmia Monitoring**, *Cardiac Motion LLC*, Lead PI, Total: \$230 000; UCD: \$230 000.
- 2019–2020 **STTR Phase I: High Precision Remote Cardiopulmonary Monitoring through combined iPPG and Low Power Radar**, *Air Force*, Lead PI, Total: \$150 000; UCD: \$75 000.
- 2019–2019 **STTR Phase I: Ultra Low Outgassing, Focusing, and Hard Seal Capable Materials for HPM Radomes**, *Air Force*, Lead PI, Total: \$150 000; UCD: \$48 000.
- 2017–2019 **STTR Phase II: Radar-based Contact-mode Heart Health Monitoring**, *National Science Foundation (NSF)*, Lead PI, Total: \$750 000; UCD: \$350 000.
- 2017–2019 **SPAR Phase I–III: Low Power Plug-and-Play RF Front-End Signal Processing for High Gain Spread Spectrum Communications and Jamming Rejection**, *Defense Advanced Research Projects Agency (DARPA)*, Lead PI, Total: \$3 186 409; UCD: \$1 117 858.
- 2017–2019 **Wearable Cardiac Arrhythmia Monitor based on Low-Power Radar Principle**, *Philippines-California Advanced Research Institutes*, Lead PI, Total: \$181 000; UCD: \$181 000.
- 2017–2018 **REnewALL—21st Century Solutions for 20th Century Wind Projects**, *California Energy Commission*, Co-PI, Total: \$935 000; UCD: \$935 000.
- 2016–2017 **Ultra-low-power Sensors using Aluminum Nitride Micro-Electromechanical (MEMS) Resonators**, *Catalyst Foundation*, Lead PI, Total: \$20 000; UCD: \$20 000.
- 2016–2017 **Monitoring of Atrial Fibrillation Using Ultrawideband Micro-Impulse Radar (MIR) - Extension**, *Tahoe Institute of Rural Health Research (TIRHR)*, Lead PI, Total: \$172 000; UCD: \$172 000.
- 2016–2017 **NZERO Phase I: Ultralow Power Microsystems via an Integrated Piezoelectric MEMS-CMOS Platform**, *Defense Advanced Research Projects Agency (DARPA)*, Co-PI, Total: \$650 000; UCD: \$400 000.
- 2016–2016 **STTR Phase I: Ka-Band, kW Power, GaN Amplifier with Sequential Combining**, *Missile Defense Agency*, Co-PI, Total: \$30 000; UCD: \$30 000.
- 2015–2016 **Monitoring of Atrial Fibrillation Using Ultrawideband Micro-Impulse Radar (MIR) - Extension**, *Tahoe Institute of Rural Health Research (TIRHR)*, Lead PI, Total: \$20 000; UCD: \$20 000.
- 2015–2016 **MRI: Acquisition of a Plasma Enhanced Chemical Vapor Deposition (PECVD) Tool with Inductively Coupled Plasma (ICP)**, *National Science Foundation (NSF)*, Co-PI, Total: \$490 000; UCD: \$490 000.
- 2015–2015 **Spacecraft-Inspection Cubesat**, *National Aeronautics and Space Administration*, Co-PI, Total: \$77 000; UCD: \$77 000.
- 2014–2015 **STTR Phase I: Radar-based Contact-mode Heart Health Monitoring**, *National Science Foundation (NSF)*, Lead PI, Total: \$80 000; UCD: \$80 000.
- 2014–2017 **EARS: Reconfigurable Bandpass Receivers for Software-Defined Radio Applications**, *National Science Foundation (NSF)*, Lead PI, Total: \$500 000; UCD: \$500 000.
- 2014–2014 **Agilent Modular VSA/G Contest Runner-Up Award**, *Agilent Technologies*, Lead PI, Total: \$14 000; UCD: \$14 000.
- 2013–2014 **Monitoring of Atrial Fibrillation Using Ultrawideband Micro-Impulse Radar (MIR) - Extension**, *Tahoe Institute of Rural Health Research (TIRHR)*, Lead PI, Total: \$20 000; UCD: \$63 000.

- 2012–2013 **Interference Tolerant Wireless Systems**, *Hellman Foundation*, Lead PI, Total: \$29 000; UCD: \$29 000.
- 2012–2014 **Development of a MEMS Integrated Inductor**, *Pine Tree Technologies*, Lead PI, Total: \$120 000; UCD: \$120 000.
- 2012–2013 **Investigation of Novel Microwave Ablation Techniques for Cancer Treatment**, *American Cancer Society Institutional Research Grant*, Lead PI, Total: \$36 000; UCD: \$36 000.
- 2012–2013 **Highly Tunable High-Q Varactors Based on Thick-film Piezoelectric Actuators**, *UC Davis Academic Senate*, Lead PI, Total: \$25 000; UCD: \$25 000.
- 2012–2012 **A Microwave Filter Broadly Tunable With a Surface Acoustic Wave**, *Defense Advanced Research Projects Agency (DARPA)*, Lead PI, Total: \$48 000; UCD: \$48 000.