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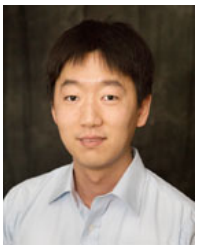

Education

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.
College of Information Science and Electronics Engineering

Experiences

2012–Present **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.

Research Interests

- Micro/Nano-ElectroMechanical (M/NMES) Systems and RF MEMS
- High frequency (RF to THz) integrated circuits and antennas
- Reconfigurable high frequency circuits and systems
- Biomedical applications of microwave/ultrasound technologies

Teaching

- EEC 130A: Introductory Electromagnetics I
- EEC 134: Design of RF Systems
- EEC 229: RF-MEMS and Adaptive Wireless Systems
- EEC 289N: Design of RF and Microwave Filters

Honors and Awards

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 Class, Zhejiang University*.

Publication

Journal Publication

[J14] Yuhao Liu and Xiaoguang Liu, "Extension of the Hot-Switching Reliability of RF-MEMS Switches Using A Series Contact Protection Technique," submitted, the IEEE Transactions on Microwave Theory and Techniques.

[J13] Akash Anand and Xiaoguang Liu, "Frequency and Bandwidth Tunable Coaxial-Cavity Filter with Two Transmission Zeros," submitted, the IEEE Transactions on Microwave Theory and Techniques.

[J12] Yu Bo, Yuhao Liu, Yu Ye, Junyan Ren, Xiaoguang Liu, and Jane Q. Gu, " High-Efficiency Micromachined Sub-THz Channels for Low-Cost Interconnect for Planar Integrated Circuits," the 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, 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× switching time improvement in severely under-damped fringing-field electrostatic MEMS actuators," Journal of Micromechanics and Microengineering, vol. 22, 125029, 2012. doi:10.1088/0960-1317/22/12/125029

[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 Component 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 Component 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 Publication

[C39] Md. Naimul Hasan, Qun Jane Gu, and Xiaoguang Liu, "Reconfigurable Blocker-Tolerant RF Front-End Filter with Tunable Notch for Active Cancellation of Transmitter Leakage in FDD Receivers," **(Student Paper Competition Finalist)**, accepted, IEEE International Symposium on Circuits and Systems (ISCAS), May., 2016.

[C38] Songjie Bi, Juan Zeng, Marzhan Bekbalanova and Xiaoguang Liu, "Contact-based Radar Measurement of Cardiac Motion—A Position and Polarization Study," Accepted, 2016 IEEE Topical Conference on Biomedical Wireless Technologies, Networks & Sensing Systems.

[C37] Hooman Rashtian, Jane Q. Gu, Xiaoguang Liu, "A 200-GHz Triple-Push Oscillator in 65-nm CMOS with Design Techniques for Enhancing DC-to-RF Efficiency, " Accepted, 16th IEEE Topical Meetings on Silicon Monolithic Integrated Circuits in RF Systems, 2016.

[C36] Md. Naimul Hasan, Sudhir Aggarwal, Qun 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.

[C35] Meijiao Li, Calvin Domier, Xiaoguang Liu, and Neville Luhmann, "Wide Band MM-Wave, Double-sided Printed Bow-Tie Antenna for Phased Array Applications," 2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting, Jul., 2015

[C34] **(Invited)** Yuhao Liu, Hao Wang, Yusha Bey, and Xiaoguang Liu, "A Novel RF-MEMS Shunt Capacitive Switch Design for Dielectric Charging Mitigation," IEEE MTT-S International Microwave Workshop Series on Advanced Materials and Processes for RF and THz Applications, Jul, 2015.

[C33] 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.

[C32] 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.

[C31] 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.

[C30] James T. Do, and Xiaoguang Liu, "A 75-110GHz Micro-Machined High-Q Tunable Filter," IEEE Wireless and Microwave Technology Conference (WAMICON), Apr., 2015.

[C29] **(Invited)** Xiaoguang Liu, "Tunable RF and Microwave Filters," IEEE Wireless and Microwave Technology Conference (WAMICON), Apr., 2015.

[C28] Md. Naimul Hasan, Sudhir Aggarwal Qun 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.

[C27] Akash Anand and Xiaoguang Liu, "Substrate-Integrated Coaxial-Cavity Filter With Tunable Center Frequency and Reconfigurable Bandwidth," **(Best student paper)** 2014 IEEE Wireless and Microwave Technology Conference (WAMICON), Tampa, FL, USA, June, 2014.

[C26] Yuhao Liu, Yusha Bey, Xiaoguang Liu, "Single-Actuator Shunt-Series RF-MEMS Switch," 2014 International Microwave Symposium, Tampa, FL, USA, June, 2014.

[C25] Bo Yu, Yuhao Liu, Xing Hu, Xiaoxin Ren, Xiaoguang Liu, Qun Jane Gu, "Micromachined Sub-THz Interconnect Channels for Planar Silicon Processes," 2014 International Microwave Symposium, Tampa, FL, USA, June, 2014.

[C24] Bo Yu, Yuhao Liu, Xing Hu, Xiaoxin Ren, Xiaoguang Liu, Qun Jane Gu, "Micromachined Silicon Channels for THz Interconnect," **(Best conference paper)** 2014 IEEE Wireless and Microwave Technology Conference (WAMICON), Tampa, FL, USA, June, 2014.

[C23] Tsung-chieh Lee, Xiaoguang Liu, William Chappell, Dimitrios Peroulis, "An Extended Coupling Matrix for Filters with a Complex Load Impedance," 2014 Government Microcircuit Applications and Critical Technologies (GOMACTech) Conference, Las Vegas, Mar. 2014

[C22] Akash Anand, Yuhao Liu, and Xiaoguang Liu, "Substrate Integrated Octave-Tunable Bandstop Filter with Surface Mount Varactors," 2014 International Wireless Symposium, Xi'an, China, 2014.

[C21] Yuhao Liu, Akash Anand, Xiaoguang Liu, "Design of Low Phase-Noise Voltage-Controlled Oscillator Using Tunable Evanescent-Mode Cavity," 2014 IEEE Radio and Wireless Symposium, Newport Beach, CA, 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," 2013 International Microwave Symposium, Seattle, WA, USA, Jun. 2013

[C19] Eric Naglich, Xiaoguang Liu, Dimitrios Peroulis, and William Chappell, "MEMS-Tunable Highly-Loaded Cavity Bandstop Filters for X Band and Beyond," 2013 Government Microcircuit Applications and Critical Technologies (GOMACTech) Conference, Las Vegas, Mar. 2013

[C18] Akash Anand, Joshua Small, Hjalti Sigmarsson, Xiaoguang Liu, "Tunable RF Filters Based on Radially Loaded Evanescent-mode Cavity Resonators," 2013 USNC-URSI National Radio Science Meeting, Boulder, CO, USA, 2013

[C17] Joshua S. Benjestorf, and Xiaoguang Liu, "Non-Mating Connector (NMC) for USB 3.0 - A Quality Waterproof Connection," 2013 International Conference on Consumer Electronics, Las Vegas, USA, Jan. 2013

[C16] Xiaoguang Liu, Eric Naglich, and Dimitrios Peroulis, "Non-linear Effects in MEMS Tunable Bandstop Filters," 2012 IEEE MTT-S International Microwave Symposium, Montreal, Canada, Jun. 2012.

[C15] **(Invited)** Xiaoguang Liu and Dimitrios Peroulis, "Tunable 3-D MEMS Components for Reconfigurable RF Front-Ends," 2011 IEEE International Symposium on Antennas and Propagation, July 3-8, Spokane, Washington, 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," 2011 European Microwave Symposium, Manchester, 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," 2011 IEEE MTT-S International Microwave Symposium, Baltimore, 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," 2011 IEEE MTT-S International Microwave Symposium, Baltimore, 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," the 24th International Conference on Micro Electro Mechanical Systems (MEMS), Cancun, Mexico, Jan. 2011.

[C10] Wesley N. Allen, Xiaoguang Liu, and Dimitrios Peroulis, "Hermetically-Sealed Evanescent-mode Resonators Utilizing Packaging as Cavities," 2010 IEEE Radio and Wireless Symposium (RWS), pp.416-419, New Orleans, LA, USA, 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," 2009 Asia-Pacific Microwave Conference, Singapore, Dec. 2009

[C8] Joshua Small, Xiaoguang Liu, and Dimitrios Peroulis, "Electrostatically Tunable Analog Single Crystal Silicon Fringing Field MEMS Varactors," Asia-Pacific Microwave Conference, Singapore, Dec. 2009

[C7] Xiaoguang Liu, Linda P. B. Katehi, and Dimitrios Peroulis, "Non-toxic Liquid Metal Microstrip Resonators," 2009 Asia-Pacific Microwave Conference, Singapore, 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, Singapore, 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," 2009 IEEE Sensors Conference, Christchurch, New Zealand, 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," 2009 IEEE MTT-S International Microwave Symposium, Boston, MA, USA, 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," 2008 IEEE International Conference on Microwaves, Communications, Antennas and Electronic Systems, Israel, 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," 2008 ASME International Mechanical Engineering Congress and Exposition, Boston, MA, USA, Oct. 2008

[C1] Xiaoguang Liu, Linda P. B. Katehi, and Dimitrios Peroulis, "MEMS Liquid Metal Through-Wafer Microstrip to Microstrip Transition," 2008 IEEE MTT-S International Microwave Symposium Digest, pp. 41–44, Atlanta, GA, USA, Jun. 2008

Invited Seminars and Workshops

[S7] "Tunable RF and Microwave Filters,", Mitsubishi Electronics Research Lab, Boston, Apr. 29^{th}, 2015.

[S6] "Tunable RF/Microwave MEMS Filters," 2012 Microwave Update (MUD), Santa Clara, Oct. 20^{th}, 2012.

[S5] "FMCW Radar as a Microwave Education Tool," 2012 Microwave Update (MUD), Santa Clara, Oct. 20^{th}, 2012.

[S4] "3-D RF-MEMS Devices for Reconfigurable Radio Front-ends," Invited Seminar, Texas Tech University, Nov. 11^{th}, 2011.

[S3] "RF-MEMS: Lessons and Prospects," Invited Seminar, University of California, Davis, Sept.23^{rd}, 2011.

[S2] "Power Handling and Dynamic Monitoring of MEMS Evanescent-mode (EVA) Tunable Resonators/Filters," (with Dimitrios Peroulis) Workshop WMJ: Recent Advances in Reconfigurable Filters, 2010 IEEE MTT-S International Microwave Symposium, Anaheim, CA, USA, May, 2010.

[S1] "Evanescent Cavity-Based Tunable RF MEMS Filters," (with Dimitrios Peroulis) Workshop WFD: Emerging Applications of RF-MEMS, 2009 IEEE MTT-S International Microwave Symposium, Boston, MA, USA, Jun. 2009.

Patents

[P2] Himanshu Joshi, Hjalti Hreinn Sigmarsson, Dimitrios Peroulis, William J Chappell, and Xiaoguang Liu, "Tunable Evanescent-Mode Cavity Filter,", US Patent #: US 9,024,709, PCT Application #: PCT/US2009/059466.

[P1] 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 #: US 9,166,271.

Service

2009–Present **Technical reviewer**.

- IEEE Transactions on Components, Packaging and Manufacturing Technology
- IEEE Transactions on Instrumentation and Measurement
- IEEE Transactions on Microwave Theory and Techniques
- IEEE/ASME Journal of Microelectromechanical Systems
- IEEE Microwave and Wireless Component Letters
- Electronics Letters
- IMAPS Journal of Microelectronics and Electronic Packaging
- Sensors & Actuators: A. Physical.

2014–2016 **Steering committee**, *2016 IEEE MTT-S International Microwave Symposium (IMS).*

2014–2016 **Technical program co-chair**, *2015 & 2016 IEEE Wireless and Microwave Technology Conference (WAMICON).*

2012–2013 **Steering committee**, *2013 IEEE MTT-S International Microwave Symposium (IMS).*

2012–2013 **Technical Reviewer Committee**, *IEEE Wireless and Microwave Technology Conference (WAMICON).*

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

2010–2012 **Technical Reviewer Committee**, *Asia Pacific Microwave Conference (APMC).*

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

Mentoring

Current Students and Researchers

2012–	**Akash Anand**	*Ph.D.*
2012–	**Songjie Bi**	*Ph.D.*
2012–	**Md. Naimul Hasan**	*Ph.D., co-advised with Prof. Jane Q. Gu*
2011–	**Fengqi Hu**	*Ph.D., co-advised with Prof. Neville C. Luhmann, Jr.*
2015–	**Daniel Kuzmenko**	*Ph.D.*
2011–	**Meijiao Li**	*Ph.D., co-advised with Prof. Neville C. Luhmann, Jr.*
2012–	**Yuhao Liu**	*Ph.D.*
2014–	**Hao Wang**	*Ph.D.*
2013–	**Bo Yu**	*Ph.D., co-advised with Prof. Jane Q. Gu*

Past Students and Researchers

2015–2015	**Juan Zeng**	*Postdoc*
2013–2015	**Minjie Zhu**	*M.S.*
2013–2015	**Samuel Cheung**	*M.S.*
2013–2015	**Qianteng Wu**	*M.S.*
2012–2014	**Danqing Fu**	*Ph.D., co-advised with Prof. Neville C. Luhmann, Jr.*
2013–2014	**Yaping Liang**	*Postdoc*
2013–2014	**Chan-Ho Kim**	*Postdoc*
2012–2014	**Yusha Bey**	*Postdoc*