

# Seminar

## Radio frequency Micro-systems for Conventional and New Venues of RF Signal Processing

**Songbin Gong**

November 29, 2017 | 12:00 - 1:30pm | Scott Hall 6142



### Seminar abstract

5G and IoT have sparked great research interest in developing the next generation front ends that can meet the more stringent requirements on performance, bandwidth, power consumption, and spectral utilization efficiency. This talk will discuss several new types of RF micro-systems that can enable conventional signal processing functions (e.g. filtering and voltage amplification) with higher performance, or new ones (e.g. RF correlation and non-reciprocity) for emerging applications. Specifically, the most recent development on MEMS filters, multiplexers, transformers, chirp compressors, gyrators, and circulators will be first presented and followed by the discussions on overcoming the remaining technology bottlenecks in their paths to commercialization.

The DSN-I Seminar Series is hosted by the Device Science and Nanofabrication Initiative. DSN-I Seminars target researchers in micro and nanofabrication technologies or devices, with the goal of strengthening the user community of the new Scott Hall nanofabrication facility and other shared infrastructure.

### Speaker bio

Dr. Songbin Gong joined the Department of Electrical and Computer Engineering at University of Illinois Urbana Champaign as an assistant professor in August 2013. Prior to UIUC, he was a research scientist with the Department of Electrical and Computer Engineering at Carnegie Mellon University, Pittsburgh from 2012 to 2013, and a postdoctoral researcher with the Department of Electrical and Systems Engineering at the University of Pennsylvania, Philadelphia from 2010 to 2012. He received his PhD degree in Electrical Engineering from the University of Virginia, Charlottesville, in 2010, and his Bachelor degree from Huazhong University of Science and Technology, Wuhan, in 2004. He has over 13 years of research experience in RF microsystems and 60 peer-reviewed publications on the subject. His research interest primarily includes design and implementation of RF-MEMS devices, components, and hybrid microsystems for RF front ends. Dr. Gong is a recipient of the 2014 DARPA Young Faculty Award, and 2017 NASA Early Career Faculty Award. He has been a guest editor for the special issue of "RF-MEMS" in the Journal of Micromechanics and Microengineering, and also a technical committee member of MTT-21 RF-MEMS, 2016 and 2017 IEDM, and 2018 IFCS.