

## SEMINAR

Room 1020 ETB

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### Antenna-Electronics Co-Design

by

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**Abstract:** Conventionally, antennas and electronics are often treated as two distinct and separated domains: antenna designers handle the antennas; circuit designer's deal with the electronics; and they only talk to each other over one single standard  $50\Omega$  interface. It is noteworthy that the far-field antenna radiation characteristics are completely governed by its local current and voltage distributions, suggesting the possibility of using "multiple distributed electronic feeds" to "actively synthesize" the desired antenna responses. In addition, since on-chip antennas have become ubiquitous at mm-wave and cost of adding more on-chip circuits are negligible, boundaries of these two domains are further blurred, and thus, multi-feed antennas co-integrated with complex electronics now emerge as a very promising technology choice particularly for mm-wave communication systems.

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**Taiyun Chi** received the B.S. degree (with highest honor) from the University of Science and Technology of China (USTC) in 2012, and the Ph.D. degree from the Georgia Institute of Technology in 2017. In 2018, he was with Speedlink Technology Inc., a Silicon-Valley startup, working on extremely broadband millimeter-wave transceiver front-end for 5G communication. He joined Rice University as an Assistant Professor in January 2019. His research interests include RF/millimeter-wave/terahertz integrated circuits, integrated bio-sensors and bio-actuators.

Dr. Chi is a recipient of the Sigma Xi Best Ph.D. Thesis Award (Georgia Tech Chapter) in 2018, the IEEE Custom Integrated Circuits Conference (CICC) Best Paper Award in 2017, the IEEE Solid-State Circuits Society (SSCS) Predoctoral Achievement Award in 2017, the IEEE Microwave Theory and Techniques Society (MTT-S) Graduate Fellowship for Medical Applications in 2016, and the USTC Guo Moruo Presidential Scholarship in 2012. He is also a co-recipient of the IEEE SENSORS Best Live Demo Award (2nd place) in 2016, and the IEEE RFIC Best Student Paper Awards (2nd place) in 2016 and 2018.