

Seminar On

**IEEE MTT-S Distinguished Microwave Lecturers:
Fundamentals of RF and mm-Wave Power Amplifier Designs**

Prof. Hua Wang

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Date : 5 July 2024 (Friday)
Time : 3:00 pm – 4:00 pm
**Venue : Room 2406, Department of Electronic and Computer Engineering (Lift 17/18),
The Hong Kong University of Science and Technology**

Abstract

This distinguished lecture talk presents an overview of RF and mm-wave Power Amplifier (PA) designs in silicon, focusing on the fundamentals, design practices, and advanced PA topologies. First, the distinguished lecture talk will introduce PA performance metrics and their impacts on wireless systems. Next, it presents PA device-level designs, including active device large-signal operations, nonlinearity, and stability as well as passive network impedance transformation and power combining. Then, the talk will go through popular PA classes of linear and switching PAs. The talk will cover a wide variety of advanced PA topologies that enhance bandwidth, efficiency and linearity. Finally, the distinguished lecture talk will conclude with several PA design examples at RF and mm-Wave frequencies.

Biography



Hua Wang is a full professor and chair of electronics at Department of Information Technology and Electrical Engineering (D-ITET) of Swiss Federal Institute of Technology Zürich (ETH Zürich). He is the Institute Deputy Director of ETH Integrated Systems Laboratory (IIS). He is the director of the ETH Integrated Devices, Electronics, And Systems (IDEAS) Group. Prior to that, he was an associate professor with tenure at the School of Electrical and Computer Engineering (ECE) at Georgia Institute of Technology, USA. He worked at Intel Corporation and Skyworks Solutions from 2010 to 2011. He received his M.S. and Ph.D. degrees in electrical engineering from the California Institute of Technology,

Pasadena, in 2007 and 2009, respectively.

Dr. Wang is interested in innovating analog, mixed-signal, RF, and mm-Wave integrated circuits and hybrid systems for wireless communication, sensing, and bioelectronics applications. He has authored or co-authored over 200 peer-reviewed journal and conference papers.

Dr. Wang is an IEEE Fellow. He received the DARPA Director's Fellowship Award in 2020 (the first awardee in Georgia Tech's history), the DARPA Young Faculty Award in 2018, the National Science Foundation CAREER Award in 2015, the Qualcomm Faculty Award in 2020 and 2021, and the IEEE MTT-S Outstanding Young Engineer Award in 2017.

His research group has won multiple academic awards, including the 2019 Marconi Society Paul Baran Young Scholar and the best paper awards for the IEEE RFIC, IMS, CICC, Sensors conferences and the IEEE Microwave Magazine journal.

Dr. Wang was a Technical Program Committee (TPC) Member for IEEE ISSCC, RFIC, CICC, and BCICTS conferences. He is currently a TPC member for IEEE European Conference on Solid-State Circuits (ESSCIRC) and European Microwave Integrated Circuits Conference (EUMIC).

***** ALL ARE WELCOME *****

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