

## Seminar on

CMOS mm-wave circuits design

by

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### Abstract

Since the first paper reporting 60-GHz circuits on silicon was published in ISSCC 2004, tremendous attentions have been attracted from both academics and industry to design mm-wave circuits using silicon based processes such as CMOS and SiGe technologies. Taking advantages of the advanced CMOS process, the cut-off frequency has exceeds several hundred GHz. On the other hand, plenty of free-licensed and lite-licensed spectrums are available in mm-wave frequency band such as 45 GHz, 60 GHz and 77 GHz. Both of the above factors enable the low cost CMOS mm-wave transceivers to support the Gbps transmission data rate, which is the requirement of the coming 5G communications. However, due to loss Si substrate and low breakdown voltage of the transistor compared to its competitor III-V processes (GaAs and InP), CMOS mm-wave circuits face to a series of challenges. This talk will point out these challenges and try to provide circuit design method to overcome the difficulties introduced by the process itself.

### Biography

**Kai Kang** received the B. Eng degree in electrical engineering from the Northwestern Polytechnical University, China in 2002, and the joint Ph.D. degree from the National University of Singapore, Singapore and Ecole Supérieure D'électricité, France in 2008.

From 2006 to 2010, he was a Senior Research Engineer at the Institute of microelectronics, A\*STAR, Singapore. From 2009 to 2010, he was an adjunct assistant professor at National University of Singapore. From 2010 to 2011, he was a Principle Engineer at Globalfoundries. Since June 2011, he has been with the University of Electronic Science and Technology of China, where he is now a professor and vice dean of the School of Electronic Engineering. His research interests are RF and mm-Wave integrated circuits design and modeling of on-chip devices.

Dr. Kang served as the chapter chair of IEEE Solid State Circuits Society Chengdu Chapter. He was co-recipient of the best paper award in IEEE RFIT 2009. He was selected into National "Thousand Talent Program for Young Outstanding Scientists" in 2011. He has authored and co-authored over 70 international referred journal and conference papers.

**Date** : 16 October, 2014 (Thursday)  
**Time** : 11:00 am – 12:00 noon  
**Venue** : Room 15-202, meeting room of State Key Laboratory of Millimeter Waves,  
15/F, Academic 3, City University of Hong Kong

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

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