Millimeter-wave Integrated Circuits: 60GHz and Beyond

Overview

The implementation of millimeter-wave (30GHz-300GHz) wireless systems in silicon-based technologies is an exciting research area that is less than two decades old. Several “killer” applications have emerged for millimeter-wave (mmWave) circuits and systems in both the commercial and defense sectors, including short-range high-data-rate communication for personal area networks, vehicular radar, emerging mobile communication networks (5G), imaging and sensing. The design of mmWave integrated circuits (ICs) requires an interdisciplinary skill set that spans circuit design, electromagnetics and device physics. Through lectures, short home-works and a brief class project, this course will cover the principles of silicon-based mmWave IC design. This “one-of-a-kind” course was introduced at Columbia University by Prof. Harish Krishnaswamy around 6 years ago, and was the first course in the US education system to cover this emerging 3 research area. In the last 5 years, courses covering millimeter-wave IC design have started to emerge at several other US institutions as well.

Dates for the Course	**1st-17th January, 2016**
Host Institute	**IIT Madras**
No. of Credits	**2**
Maximum No. of Participants	**60**
You Should Attend If…	▪ You are a student in the area of analog/mixed signal/RF/Microwave IC design. ▪ You wish to learn from a world renowned expert in the area. ▪ You want to get up to speed on the important area of 60GHz wireless systems
Course Registration	The participation fees for taking the course is as follows:

Fees

Student Participants: Rs.2000, **Faculty Participants:** Rs.6000

Government Research Organization Participants: Rs.20000

Industry Participants: Rs.80000

The above fee is towards participation in the course and course material. The participants may be provided with hostel accommodation, depending on the availability, on payment basis.

Course Faculty

Prof. Harish Krishnaswamy received the B.Tech. degree in electrical engineering from the Indian Institute of Technology, Madras, India, in 2001, and the M.S. and Ph.D. degrees in electrical engineering from the University of Southern California (USC), Los Angeles, CA, USA, in 2003 and 2009, respectively. In 2009, he joined the Electrical Engineering Department, Columbia University, New York, NY, USA, where he is currently an Associate Professor. His research interests broadly span integrated devices, circuits, and systems for a variety of RF, mmWave and sub-mm wave applications.

Dr. Krishnaswamy serves as a member of the Technical Program Committee (TPC) of several conferences, including the IEEE International Solid-State Circuits Conference (2015/16-present) and IEEE RFIC Symposium (2013-present). He was the recipient of the IEEE International Solid-State Circuits Conference (ISSCC) Lewis Winner Award for Outstanding Paper in 2007, the Best Thesis in Experimental Research Award from the USC Viterbi School of 2 Engineering in 2009, the Defense Advanced Research Projects Agency (DARPA) Young Faculty Award in 2011, a 2014 IBM Faculty Award and the 2015 IEEE RFIC Symposium Best Student Paper Award - 1st Place.