Seminar On

Parametric Tunability, Functional Controllability and Systematic Reconfigurability for Smart 5G Wireless and Internet of Things

By

Prof Ke Wu, FIEEE, FCAE, FRSC
2016 President of IEEE Microwave Theory and Techniques Society (MTT-S)
Canada Research Chair in RF and Millimeter-Wave Engineering
NSERC-Huawei Industrial Research Chair in Future Wireless Technologies
Poly-Grames Research Center
Department of Electrical Engineering
Center for Radiofrequency Electronics Research (CREER) of Quebec
Ecole Polytechnique (University of Montreal), Canada

Date : **28 November 2016 (Monday)**
Time : **02:30 pm – 03:30 pm**
Venue : **Room 15-202, meeting room of State Key Laboratory of Millimeter Waves, 15/F, Lau Ming Wai Academic Building, City University of Hong Kong**

Abstract

Tunability, controllability and reconfigurability are the most important technological enablers for the next generation smart and cognitive wireless circuits and systems for functional and efficient 5G and Internet of Things (IoT). This presentation reviews a set of key enabling techniques for the development of dynamically controlled circuits and systems over the MHz-to-THz frequency region. Mechanical, thermal, electrical and magnetic tuning/switching schemes and technologies are reviewed with emphasis on advanced materials-enabled design platforms such as ferroelectrics and transition compounds. In this talk, discrete and distributed design techniques are discussed with reference to a compromise between loss performance and tuning effectiveness. Simultaneous two-dimensional electric and magnetic parametric tuning and reconfigurable techniques are highlighted as the most promising and next generation design methodologies for enabling smart and wide-ranged functional control and system re-configurability. A technological outlook related to performances that can be expected from different technologies is assessed. Practical examples for tunable and reconfigurable RF and microwave circuits and systems are presented.

Biography

Dr. Ke Wu is Professor of electrical engineering, and Canada Research Chair in RF and millimeter-wave engineering at the Ecole Polytechnique (University of Montreal). He is also the NSERC-Huawei Industrial Research Chair in Future Wireless Technologies (the first Huawei-endowed Chair in the world). He has been the Director of the Poly-Grames Research Center and the Founding Director (2008-2014) of the Center for Radiofrequency Electronics Research of Quebec. He held/holds visiting/honorary professorships at various universities in the world. He has authored/co-authored over 1100 referred papers, and a number of books/book chapters and more than 40 patents. Dr. Wu was the general chair of the 2012 IEEE MTT-S International Microwave Symposium. He is the 2016 President of the IEEE Microwave Theory and Techniques Society (MTT-S). He also serves as the inaugural North-American representative in the General Assembly of the European Microwave Association (EuMA). He was the recipient of many awards and prizes including the inaugural IEEE MTT-S Outstanding Young Engineer Award, the 2004 Fessenden Medal of the IEEE Canada, the 2009 Thomas W. Eadie Medal from the Royal Society of Canada (The Academies of Arts, Humanities and Sciences of Canada), the Queen Elizabeth II Diamond Jubilee Medal, the 2013 Award of Merit of Federation of Chinese Canadian Professionals, the 2014 IEEE MTT-S Microwave Application Award, the 2014 Marie-Victorin Prize (Prix du Québec – the highest distinction of Québec in the Natural Sciences and Engineering), the 2015 Prix d'Excellence en Recherche et Innovation of Polytechnique Montréal and the 2015 IEEE Montreal Section Gold Medal of Achievement. He is a Fellow of the IEEE, a Fellow of the Canadian Academy of Engineering (CAE) and a Fellow of the Royal Society of Canada. He was an IEEE MTT-S Distinguished Microwave Lecturer from Jan. 2009 to Dec. 2011.

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

Enquiries:

Professor Chi Hou Chan, State Key Laboratory of Millimeter Waves
Tel.: (852) 3442 9360 Fax: (852) 3442 0353 Email: eechic@cityu.edu.hk