



**THE CHINESE UNIVERSITY OF HONG KONG**  
**Department of Electronic Engineering**

**Seminar**



**Seminar I: Design of broadband antennas based on mode control**

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**Date: 21 December 2018 (Friday)**  
**Time: 10:00 a.m.**  
**Place: Rm 222, Ho Sin Hang Engineering Building, CUHK**

**Abstract**

At present, mobile communication has entered the fifth generation, 5G. New applications and requirements have posed unprecedented challenges to the design of base stations and terminal antennas. On the one hand, the antennas need to work in a wide frequency range in order to satisfy the simultaneous operation of multiple communication systems of different generations. On the other hand, in order to reduce the space occupied by base-station antenna, multiple arrays need to have a common aperture, that is, they need to share one reflector plate and one antenna radome, and RF modules even need to be directly integrated into the antenna, therefore the antenna elements are required to be as small as possible. In fact, conventional broadband antennas either cannot meet the requirements or they are too large. Traditionally, the designs of compact broadband antennas are mainly based on full-wave simulation software and experimental adjustment, lack of the direction of theoretical foundation or mechanism. Based on the concept of the mode control from input impedance or characteristic mode, this talk proposes the broadband mechanism and design method of multi-mode compact antennas, in which the broadband antennas can be realized almost without increasing the antenna size.

**Biography of the Speaker**

Qing-Xin Chu is the chair professor with the School of Electronic and Information Engineering, the director of the Research Institute of Antennas and RF Techniques, the director of the Engineering Center of Antennas and RF Techniques of Guangdong Province, director of the Electrical Information and Control National Experimental Teaching Demonstration Center in South China University of Technology. He is the founder and chair of IEEE Guangzhou AP/MTT Chapter, vice-chair of China Electronic Institute (CEI) Antenna Society, IEEE Fellow and CEI Fellow. His undergraduate course "Radio Frequency Circuit and Antenna" was rated as the national high-quality course in 2009, and the national high-quality resource-sharing course in 2012. He was awarded with the title of excellent teacher of Guangdong Province in 2010. He has published more than 400 academic papers with SCI citations more than 3,000 times, especially more than 70 of which has been published in the IEEE Transactions on Microwave Theory and technology, IEEE Transactions on Antennas and Propagation. since 2008, many papers became the top ESI (Essential Science Indicators) papers, In 2018, 8 papers (2 for 1% and 6 for 3%) were selected for ESI highly cited papers. Since 2014, he has been selected as the highly cited scholar of China in electrical and electronic engineering field by Elsevier every year. It has been authorized more than 60 Chinese invention patents. He was the recipient of the Science Award by CEI in 2018 and 2016, the Science Award by Guangdong Province of China in 2013, the Science Awards by the Education Ministry of China in 2008 and 2002, the Fellowship Award by Japan Society for Promotion of Science (JSPS) in 2004, the Singapore Tan Chin Tuan Exchange Fellowship Award in 2003, the Educational Award by Shaanxi Province in 2003. His current research interests include antennas and microwave filters in wireless communication, spatial power combining technology.

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

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