

## Seminar On

### Pin-loaded Patch Antennas with Improved Functionalities

By

Prof Lei Zhu

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**Date** : 04 May 2018 (Friday)  
**Time** : 05:00 pm – 06:00 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

Patch antennas have been widely used as a key element in wireless systems. However, conventional patch antennas often suffer from high edge-fed impedance, and low radiation gain. Shorting technique is well known for size miniaturization and dual-band design of patch antennas. On the one hand, the shorting effect of pins increases the current density and reduces the electric field intensity in the vicinity, thus allowing one to reduce the high input impedance of edge-fed patch antennas. On the other hand, the shorting pins loaded between patch and the ground can be regarded as shunt inductance, thus boosting up the resonant frequency of its dominant mode and enhancing its radiation gain.

This talk will introduce three distinctive functionalities of the proposed patch antennas:

- 1) Patch antennas with loading of shorting pins toward flexible impedance matching and low cross-polarization.
- 2) Gain-enhanced linearly-polarized patch antenna with loading of shorting pins.
- 3) High gain and circular polarization simultaneously achieved with loading of shorting pins.

#### Biography

**Prof Lei Zhu (祝雷)** received the B.Eng. and M.Eng. Degrees in Radio Engineering from Nanjing Institute of Technology (now Southeast University), Nanjing, China, in 1985 and 1988, respectively, and the Ph.D. Degree in Electronic Engineering from the University of Electro-Communications, Tokyo, Japan, in 1993. He joined the Faculty of Science and Technology, University of Macau in August 2013, where he has been a Distinguished Professor since Dec. 2016. So far, he has published more than 280 journal papers (including more than 170 papers in IEEE Transactions/Letters/Magazine) and about 140 conference papers. His research interests include microwave circuits, guided-wave periodic structures, planar antennas, and computational electromagnetic techniques. Prof Zhu was the Associate Editors for IEEE Transactions on Microwave Theory and Techniques (2010-2013) and IEEE Microwave and Wireless Components Letters (2006-2012). He served as the members of IEEE MTT-S Fellow Evaluation Committee (2013-2015), and IEEE AP-S Fellows Committee (2015-2017). He was a General Chair of 2008 IEEE MTT-S International Microwave Workshop Series on the Art of Miniaturizing RF and Microwave Passive Components, Chengdu, China. He was the recipient of the 1997 Asia-Pacific Microwave Prize Award. He is the Fellow of IEEE.

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

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