

## Seminar on

Phase-sensitive FMCW radar for polar ice monitoring and imaging

by

Dr Lai Bun Lok

Department of Electronic and Electrical Engineering, University College London, UK

### Abstract

This talk will describe a phase-sensitive FMCW radar system recently developed at University College London, in collaboration with the British Antarctic Survey in Cambridge, for imaging and high precision monitoring of Antarctic ice-shelves and grounded ice sheets. It is being used to gather observational data to help validate numerical models of ice dynamics and melting, for better predictions of future sea-level rise. Our radar system operates at UHF and supports multiple-input multiple-output (MIMO) imaging through the use of 8 transmit and 8 receive antennas. In January 2014, this unique radar was deployed for the first time on Pine Island Glacier, West Antarctica, as part of the £7.4m iSTAR programme funded by the Natural Environment Research Council (UK). It has recently also been deployed on Store Glacier in Greenland, through a collaboration with researchers from the Scott Polar Research Institute at the University of Cambridge. This presentation will give an overview of the radar system and its development, images processed from data measured during field deployment, and preliminary results from the first ever year-long datasets acquired from Pine Island Glacier.

### Biography

**Lai Bun Lok** received his MEng degree from Imperial College London in 1999 and PhD in Microwave Engineering from the University of Leeds in 2007. He worked in industry for Zarlink Semiconductor (UK) as a graduate engineer in the CMOS research and development group. During his PhD, he was a visiting researcher (3 months) at Zhejiang University, P. R. China. From 2006 to 2010, he was a research assistant at the Electronics Design Centre, University of Glasgow, and worked in the research area of millimetre-wave GaAs MMIC design and measurement to 325 GHz. Since 2011, he is a research associate in the Sensors Systems and Circuits Group at University College London, where he is carrying out research in radar systems for geophysical applications.

He received the GEC Plessey undergraduate scholarship and Worldwide Universities Network international research exchange scholarship.

**Date** : 3 August 2015 (Monday)  
**Time** : 11:00 am – 12:00 noon  
**Venue** : Room 15-202, 15/F, meeting room of State Key Laboratory of Millimeter Waves, 15/F, Academic 3, City University of Hong Kong

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

### Enquiries:

Dr Hang Wong, Department of Electronic Engineering

Tel.: 852-3442 5935 Fax: 852-3442 0353 e-mail: [hang.wong@cityu.edu.hk](mailto:hang.wong@cityu.edu.hk)