

### Seminar On

Lab for Nanoscale Sensors and Systems

By

Dr YANG Daquan

State Key Laboratory of Information Photonics and Optical Communication(IPOC)  
School of information and communication Engineering  
Beijing University of Posts and Telecommunications(BUPT)

Date : ~~19 September 2019 (Thursday)~~ **24 September 2019 (Tuesday)**

Time : 11:00 am – 12:00 noon

Venue : Room 15-202, 15/F, State Key Laboratory of Terahertz and Millimeter Waves,  
Lau Ming Wai Academic Building, City University of Hong Kong

#### Abstract

Silicon photonic crystal nanobeam cavity (PCNC) plays an important role on light-matter interactions due to its ultra-small mode volume and high quality factors. For its compatibility with on-chip integration and CMOS process, PCNC acquires promising future in the biosensing production. We will research the band-gap structure and the light field localization of PCNC, develop novel PCNC design with high quality factor and extreme-small mode volume. In this way, we can significantly enhance the light field of PCNC, realize ultra-sensitive and label-free detection of single molecule DNA in experiment. Furthermore, we will complete the experimental verification, and achieve rapid label-free parallel detection of a variety of different biological samples. In summary, the research results will provide theoretical guidance and technical support for developing high performance photonic integrated biochips.

#### Biography

**YANG Daquan** was born in Shandong, China, in 1986. He received his BS degrees in Electronic Information Science and Technology from the University of Jinan, China, in 2005. He received his PhD in Information and Communication Engineering from the University of Posts and Telecommunications, China, in 2014. He was a visiting fellow in Harvard University from 2012 to 2014. He is currently an associate professor of BUPT. His research interests include Optical Micro-cavity Sensing and Terahertz devices.

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

#### Enquiries:

Prof Chi Hou Chan, State Key Laboratory of Terahertz and Millimeter Waves  
Tel.: (852) 3442 9360 Fax: (852) 3442 0353 Email: [eechic@cityu.edu.hk](mailto:eechic@cityu.edu.hk)