Department of Electronic Engineering
Presents a seminar on

Integrated $\chi(2)$ photonics

by

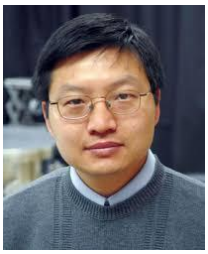
Prof. Hong Tang

Department of Electrical Engineering, Yale University

Abstract

The ability to generate and manipulate photons with high efficiency and coherence is of critical importance for both fundamental quantum optics studies and practical device applications. However mainstream integrated photonic platforms such as those based on silicon and silicon nitride lack the preferred cubic $\chi(2)$ nonlinearity, which limits active photon control functionalities. In this talk, I will present integrated photonics based on aluminum nitride (AlN), whose wurtzite crystal structure gives rise to the strong second-order optical nonlinearity and piezoelectric effect. Together with its low optical and mechanical losses, the integrated AlN photonics can provide enhanced $\chi(2)$ photon-photon interactions to achieve high fidelity photon control, including on-chip parametric down-conversion, coherent light conversion, spectral-temporal shaping, and microwave-to-optical frequency conversions.

Biography



Hong Tang is the Llewellyn West Jones, Jr. Professor of Electrical Engineering, Physics and Applied Physics at Yale University. He obtained his B.S. degree at the University of Science and Technology of China and Ph.D. at Caltech. His research utilizes integrated photonic circuits to study photon-photon, photon-mechanics and photon-spin interactions as well as quantum photonics involving microwave and optical photons. He has been on Yale faculty since 2006. He is a recipient of the NSF CAREER Award and Packard Fellowship in Science and Engineering.

Date:	11 June 2019 (Tuesday)
Time:	3:00pm – 4:00pm
Venue:	G6302, Yeung Kin Man Academic Building City University of Hong Kong Kowloon Tong
Language:	English

**** ALL ARE WELCOME ****

Enquiry: Prof. Stella Pang, Department of Electronic Engineering, City University of Hong Kong.
Tel.: 3442 7838, Fax: 3442 0562, Email: pang@cityu.edu.hk