



**THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY  
DEPARTMENT OF ELECTRONIC AND COMPUTER ENGINEERING  
AND  
IEEE PHOTONICS SOCIETY (HONG KONG CHAPTER)**

**JOINT SEMINAR**

**Nanophotonics Go Green: From Stacked Photonics to Solar Cells**

**Dr. Weidong Zhou  
Associate Professor**

**Department of Electrical Engineering, NanoFAB Center  
The University of Texas at Arlington, USA**

**Abstract**

As the world grapples with problems of sustainability, global warming, and energy independence, it is clear that optoelectronic and photonic technologies will play a key part. "Green" photonics impacts energy generation (photovoltaics), lighting (solid state lighting and displays), and communications (intra and inter chip, board, and system).

In this talk, I will first discuss the recent advances on silicon photonics based on photonic crystals and stacked nanomembranes, for energy efficient computing and communication systems. Various active optoelectronic devices are being pursued in my group, including sources, detectors, filters, and modulators, both on rigid silicon/glass substrates, as well as on flexible polymer substrates. In the second part of my talk, I will provide an overview about other research activities in my group, including cost effective solar cells based on innovative optical design and solution processed omnidirectional anti-reflection coating technologies. In all these collaborative and interdisciplinary research areas, epitaxial and colloidal quantum dots, micro-sized particles, and photonic crystal structures are being explored and heterogeneously integrated for innovative optoelectronic devices.

**Biography**

Dr. Weidong Zhou received his B.E. and M.S. degrees from Tsinghua University, China, and PhD degree from University of Michigan, Ann Arbor, all in Electrical Engineering. Currently Dr. Zhou is an Associate Professor of Electrical Engineering at University of Texas at Arlington (UTA). His current research projects include photonic crystals, infrared sensors, silicon photonics and solar cells, with funding support from US National Science Foundation, US Department of Defense Agencies (AFOSR, AFRL, ARO, DARPA) and recently a multi-million MURI center project (Multidisciplinary University Research Initiative program), etc. To date, Dr. Zhou has authored or co-authored over 120 peer reviewed journal publications, conference presentations and invited talks. He serves as various proposal and journal reviewers (e.g. Science magazine), and various conference committees (e.g. IEEE LEOS Annual Meeting). Dr. Zhou's major awards include prestigious Outstanding Student of Beijing City (Beijing, 1992), Outstanding Graduates Award (Tsinghua Univ., Gold medal, 1993); IEEE/LEOS Graduate Student Fellowship award (IEEE/LEOS, 2000), Rackham Predoctoral Fellow award (2000-2001, Michigan), and UTA College of Engineering Research Excellence Awards (2007, 2008).

**DATE : 21 May 2009 (Thursday)  
TIME : 4:00 – 5:00 pm  
VENUE : Room 2302, 2/F (lift 17, 18)  
Academic Complex, HKUST**

**~ ALL ARE WELCOME ~**