



**Department of Electronic Engineering  
The Chinese University of Hong Kong  
Seminar**

**Title:** Selected TCAD Topics on More Moore and More than Moore

**Speaker:** Dr. Hiu Yung Wong, Synopsys

**Time:** 10am – 11am

**Date:** 4 September 2017

**Venue:** SHB 222

**Abstract:**

Moore's Law is approaching the end in the traditional sense. However, the field of semiconductor is only getting more exciting as tremendous efforts have been put in to continue the "exponential" functional improvement of electronic devices and systems. We will first discuss the scaling of MOSFETs, the problems it is facing and the possible solutions. From TCAD perspective, we will cover Negative Bias Temperature Instability (NBTI) in FinFET and nanowire, self-healing of NBTI, simulation of variability, design of stringer FinFET, negative capacitance transistor using ferroelectric materials and Design Technology CoOptimization (DTCO).

Besides continuing the traditional Moore's Law, "more than Moore" offers another thrust in growing the functions in electronic systems. We will discuss several aspects of GaN power devices including degradation and stress engineering. Finally, we will discuss the application of Diamond transistor for power rf applications and its modeling.

**Biography:**

**Dr. Hiu Yung Wong** received his B. Eng. and M. Phil. in CSE from the Chinese University of Hong Kong in 1999 and 2001 and his PhD in EECS from the University of California, Berkeley in 2006. He has an eclectic range of interests in solid-state and semiconductor physics, some of which are reflected in over 40 technical papers, invited presentations, and patents. Before 2006, in the universities, he worked on using FPGA to solve NP-hard problem, devices (CLBT) for analog computing, energy harvesting resonator and circuit design, melt-laser annealing and metal gate technologies for FinFETs. He then worked in Spansion (AMDFujitsu) until 2009 on the development of 45/32nm NOR flash memory.

Since 2009, he has been with Synopsys. Besides working on more-Moore simulations (e.g. NBTI of nanowires, nanosheets and III-V devices), he has been the main contributor to the More-than-Moore simulations, including SiC, GaN and Diamond power device and circuit simulations. He also worked closely with advanced foundries and IDMs.

\*\* All are welcome to attend \*\*

For inquires, please contact Prof. K P Pun Tel. No. 3943 8293