

# 2<sup>nd</sup> Photonics Seminar

Date

**2018.6.29 (Fri) 14:30~15:30**

Place

Rm213, Photonics Center, Osaka University

Title

**「Nucleic Acid based BioEngineering and Organic Bioelectronics」**



Prof. I-Ming Hsing

Department of Chemical and Biological Engineering  
The Hong Kong University of Science and Technology

Abstract:

Rapid and Sensitive diagnostics of nucleic acid based molecular markers are in critical needs for countries/regions in the South East Asia. Over the years, our laboratory has developed a number of non-optical (e.g., electrochemistry) based sensing strategies with or without analyte amplification procedures, with or without the use of probe immobilization, and with or without the incorporation of enzyme (e.g., polymerase, or exonuclease). In the first half of my talk in nucleic acid based bioengineering, we will discuss platform strategies to achieve rational design of electrochemical DNA biosensors for point of care applications. In particular, the emphasis will be given to our recent approaches exploiting thermodynamics and kinetics of DNA self-assembly to achieve a molecular diagnostic platform that is sensitive, without the use of enzyme and flexible in integrating to various transduction platforms. In the rest of my presentation, I will introduce organic electrochemical transistor arrays (OECT) for extracellular electrophysiological recording of polarized and excitable cells and discuss new areas my group is developing into using this OECT based bioelectronics platform.