

Optofluidics: A New Approach to Microfluidics-based Biophotonics

GUEST SPEAKER

Dr. David Erickson

Assistant Professor

Sibley School of Mechanical and Aerospace Engineering

Cornell University

When: **7th January 2011, 2.00 p.m. to 3.00 p.m.**

Where: **Institute of Microelectronics, Singapore**

11 Science Park Road Singapore Science Park II Singapore 117685

Abstract

An overview of Cornell University's work in the general area of optofluidics will be presented, followed by the focus on their recent efforts in applying these techniques to biomolecular photonics. Also in the spotlight will be efforts to create novel sensing and single molecule handling devices using both optical resonance in silicon photonics and Surface Enhanced Raman Spectroscopy (SERS) in plasmonic structures. The first topic will be the development of "Nanoscale Optofluidic Sensor Arrays" first in the context of molecular based medical diagnostics, then for optical handling of the smallest materials. Subsequently, discussion will centre upon some of the fundamental physics involved in optimally integrating these highly sensitive photonic sensors such as these with sample delivery, in particular emphasising the role of optical forces. The second topic will be on Cornell's efforts on using SERS structures for protein characterisation and their recent attempts to develop plasmonic technology for low resource setting medical diagnostics.

About the Speaker



Dr. David Erickson is an Assistant Professor in the Sibley School of Mechanical and Aerospace Engineering at Cornell University where he directs the Integrated Micro- and Nanofluidic Systems Laboratory. Prior to joining the faculty in September 2005, Dr. Erickson was a postdoctoral scholar at the California Institute of Technology (2004-2005) and he received his Ph.D. degree from the University of Toronto in 2004. In recent years, Dr. Erickson has received the DARPA-MTO Young Faculty Award (2007), the NSF CAREER Award (2009), and the Department of Energy Early Career Award (2010). In 2007 he also won the Robert '55 and Vanne '57 Cowie Excellence in Teaching Award. He is currently an associate editor of the Journal Smart Materials and Structures and the Journal of Microfluidics and Nanofluidics. Research in the Erickson lab is primarily funded through grants from the NSF, NIH, AFOSR, ONR, DOE and DARPA.

Registration

Pre-registration is required. Closing date is 5th January 2011. To register, please log on:

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