

University of Pittsburgh

Petersen Institute of NanoScience and Engineering Seminar

- Speaker:** Professor Shana Kelley
Department of Biochemistry, University of Toronto
- Title:** *Ultrasensitive Electrochemical Biosensing of Cancer Biomarkers Using Nanostructured Electrodes*
- Time/Date:** 12:00 noon, Friday, April 25, 2008
(refreshments at 12:00noon - 12:15pm)
- Place:** Kresge Conference Center, 1175 Benedum Hall

Nanostructured materials provide new platforms for biomolecular sensing and clinical diagnostics that may yield increased sensitivity and amenability to miniaturization. However, the use of nanoarchitectures for electrochemical biomolecular detection represents an undeveloped area. Our laboratory recently developed methods for the electrochemical detection of nucleic acid and protein cancer biomarkers using a nanoscale electrode platform. Markedly improved sensitivity is achieved using our approach, and an electrocatalytic reporter system is applicable to both protein and nucleic acid targets. This presentation will summarize a number of discoveries made about the unique chemical and electrical properties of nanoscale objects that provide advantages for biosensor development, and will highlight the promise of nanomaterials for bioanalytical applications.

Biographical Sketch

Dr. Shana Kelley is Professor in the Department of Biochemistry (Medicine) and Division of Pharmaceutical Sciences (Pharmacy) at the University of Toronto. She holds a Ph.D. from California Institute of Technology, and was an NIH Postdoctoral Fellow at the Scripps Research Institute. Over the last seven years the Kelley laboratories have produced new biosensing methods and novel compounds that can be used to study subcellular biology. Since 2000, Kelley has received a Research Corporation Innovation Award, a Dreyfus New Faculty Award, a National Science Foundation CAREER Award, an Alfred P. Sloan Fellowship, a Camille Dreyfus Teacher-Scholar Award, the Pittsburgh Conference Achievement Award and was named to *Technology Review's* list of Top 100 innovators. Shana Kelley was a cofounder of GeneOhm Sciences, a company devoted to developing new clinical diagnostics.