

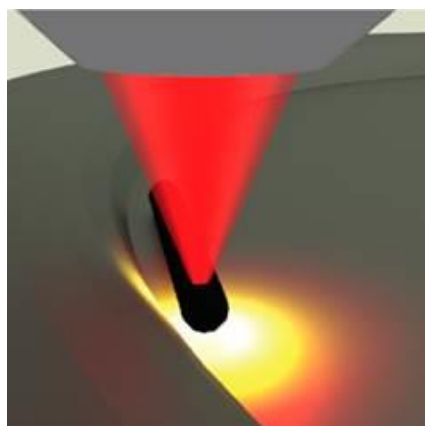


Chemical & Physical Sciences
UNIVERSITY OF TORONTO
MISSISSAUGA

COLLOQUIUM
TUESDAY, 03 MARCH 2015
11:00 AM - 12:00 NOON
KN132

Dr. Randall H. Goldsmith
University of Wisconsin – Madison
Department of Chemistry

**Enabling Single-Molecule Measurements
with Microfluidics and Optical
Microresonators: Disordered Proteins and
Semiconducting Polymers**



Single-Molecule measurements offer a wealth of detail about chemical diversity and unsynchronized dynamics, but only if the system under study is conducive to known methods of single-molecule fluorescence microscopy. I will present two cases where new measurement technology enables new observations on individual molecules. In the first case, a microfluidic trap that cancels Brownian motion will be used to explore the solution-phase conformation of an intrinsically disordered protein, Tau, central to the etiology of Alzheimer's Disease. In the second case, a method to enable study of non-

fluorescent molecules will be described using ultrahigh quality-factor optical microresonators as platforms for spectroscopy. This method will be applied to study the electronic structure of doped conjugated polymers.