Chemical & Physical Sciences
UNIVERSITY OF TORONTO
MISSISSAUGA

COLLOQUIUM

TUESDAY, MARCH 20TH, 2012
12:00 P.M. (SHARP) – 1:00 P.M.
CCT 2150

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"SNAPSHOTS OF BIOLOGY WITH A FEMTOSECOND CAMERA"

At the length scale of a single protein the fastest processes in biology occur within femtoseconds. On this time scale bonds are made and broken, and the motions that ultimately lead to biological function begin. To follow dynamics this fast we need a camera that won't miss out on the action: that means we need femtosecond time resolution. Using the versatile tools of ultrafast nonlinear spectroscopy we can initiate and probe fundamental processes such as energy transfer and conformational changes that drive biological function. Bringing these same spectroscopic tools to the microscope provides new ways to examine the biological world over diverse length scales. I discuss recent advances in nonlinear spectroscopy with applications aimed at understanding the design principles of photosynthesis. I illustrate how nonlinear spectroscopy can provide new types of chemical contrast for microscopic studies of biological systems.