

CORE-CM SEMINAR
Michigan State University — Department of Chemistry

Prof. John M. Papanikolas
University of North Carolina at Chapel Hill

**Visualizing Charge Carrier Motion in Nanowires Using
Femtosecond Pump-Probe Microscopy**

We have combined ultrafast pump-probe spectroscopy with optical microscopy to study the charge carrier dynamics in semiconductor nanowires with both spatial and temporal resolution. Photoexcited charge carriers are produced at a localized spot within a single nanowire by a focused femtosecond pump pulse. The electron-hole recombination dynamics at specific points within the structure are then monitored by changes in intensity of a focused probe pulse. The motion of charge carriers through the nanowire is imaged using a spatially-separated pump-probe (SSPP) configuration in which the nanowire is excited in one location and probed in another. The SSPP method has been used to directly observe carrier diffusion in Si nanowires and charge separation in nanowires encoded with an axial p-i-n junction.

Thursday, February 20, 2014
12:00 PM
Room 1400 – BPS
Professor Jim McCusker – Host

Accommodations for persons with disabilities may be requested by calling the Chemistry Department at (517) 355-9715, X345 two days prior to the event to ensure sufficient time to make arrangements. Requests received after this date will be met when possible.