

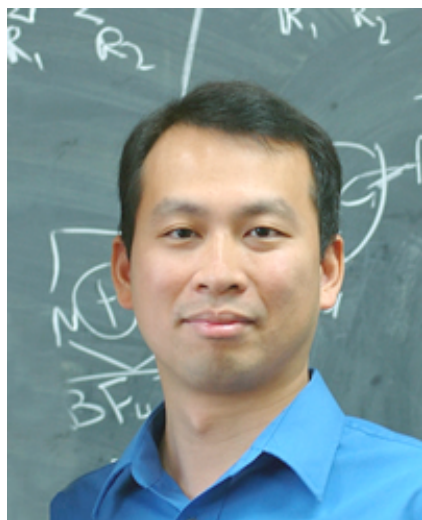
Physical Chemistry Seminar

Tuesday,
April 1, 2014

11:00 am

Room 1315
Chemistry Building

Molecular Vibrations: A Structural Tool



Professor Junrong Zheng
*Department of Chemistry
Rice University*

Hosts: Professors John Wright & Song Jin

Methodology of ultrafast nonlinear vibrational spectroscopy in determining three dimensional molecular conformations in liquids, solids and on nanomaterials surfaces and transient ($<1\text{ns}$) short-range ($<1\text{nm}$) molecular interactions in liquids is introduced. The method directly measures the cross angles among vibrations that cover the entire molecular space. The vibrational angles are then translated into cross angles among chemical bonds. The 3D molecular conformations are constructed by these bond angles. The distance between two vibrations is determined by vibrational energy transfers. The measurements on the formations of ion pairs and clusters in strong electrolyte aqueous solutions are used to demonstrate the principle. Systematic studies also suggest new views on intermolecular vibrational energy transfers in condensed phases.

Refreshments will be available prior to the seminar at 10:45 a.m. outside room 1315

Graduate Students may meet with the speaker at 1:00 p.m. in Room 8335