

CHEMISTRY COLLOQUIUM



WED., OCTOBER 5TH, 2016,
12:00PM

HUTCHISON HALL ROOM 140
LANDER AUDITORIUM

University of Rochester
Department of Chemistry

GUEST SPEAKER:
PROFESSOR ABRAHAM NITZAN
UNIVERSITY OF PENNSYLVANIA
DEPARTMENT OF CHEMISTRY



**Title: Molecular conduction and
beyond**

Abstract:

In molecular conductance spectroscopy, the current through a molecule (or molecules) connecting two metal or semiconductors electrodes is measured as a function of the applied voltage. With eye on potential technological applications the main problems facing researchers in this field fall within the subjects of fabrication, characterization, stability, functionality and control. This talk will review recent progress in understanding molecular conduction with particular emphasis on the role played by the molecular electronic structure and conformation, its coupling to the electrodes and its interaction with the underlying nuclear motion and the thermal environment. As a theoretical problem, one needs to deal with a non-equilibrium system open to electron and energy reservoirs, possibly under illumination. We will focus on relative timescales of different processes as a way to assess their importance in the overall conduction. Characterization, stability functionality and control will be discussed in the framework of recent studies on inelastic tunneling spectroscopy, heating and heat conduction in molecular junctions and magnetic and optical response of such systems.

Host: Professor Ignacio Franco, email: franco@chem.rochester.edu