

UNIVERSITY OF RHODE ISLAND
Department of Chemistry
SEMINAR

Room 105 Beupre Center
3:00 p.m, Monday April 15, 2019

Grace Han

Brandeis Universtiy

**“Light-responsive organic molecular
switches for energy storage and nano-gap
modulation”**

HOST

Matthew Kiesewetter
Department of Chemistry
401-874-2619

Light-responsive organic molecular switches for energy storage and nano-gap modulation

Dynamic molecular switches, which change their conformation upon exposure to external stimuli, have been of interest to diverse fields of study and applications such as sensing, drug delivery, and memory due to the rapid and significant changes of their physical properties. Particularly, photo-switches that exhibit reversible response to light by isomerization are of interest since they enable rapid and repeated switching by remote irradiation.

This seminar will illustrate diverse strategies for utilizing molecular photo-switches for energy and nano-device applications. Due to the intrinsic energy gap between isomeric states, solar energy can be absorbed and stored in a metastable state of photo-switches until being trigger-released. The nanoscale structural change of the molecule is employed to fine-tune small gaps of nano-devices. A new method developed to directly image the nanoscale structural change of photo-switches using annular dark-field scanning transmission electron microscopy (ADF-STEM) will also be presented.