

**CHEMISTRY SEMINAR 291****Ultrafast Dynamics and Interactions of Molecules in the Strong Coupling Limit**Date: **10/11/19**Time: **3:00 PM**Location: **COB1 267****Wei Xiong**Assistant Professor, Chemistry & Chemical Biology
University of California, San DiegoFor more
information,
contact : **Tao Ye****tye2@ucmerced.edu****Abstract**

2D IR of Molecular Polaritons. Molecular vibrational polaritons, are hybrid half-light, half-matter quasiparticle, which open opportunities for new photonic and molecular phenomena. Many of these developments hinge on fundamental understanding of its physical properties of molecular vibrational polaritons. Using 2D IR spectroscopy to study vibrational-polaritons, we obtained results that challenge and advance both polariton and spectroscopy fields. I will discuss a few phenomena of IR molecular vibrational-polaritons due to their delocalization and hybridized nature: 1. A macroscopic dependent optical nonlinearity of polaritons. 2. Cavity-enabled intermolecular energy transfer and inter-cavity interactions. 3. Nonlinear interactions between cavities enabled by molecules. These results will have significant implications in novel infrared photonic devices, lasing, molecular quantum simulation, as well as new chemistry by tailoring potential energy landscapes.

About the Speaker**Education**2011 Ph.D., University of Wisconsin,
Madison
2006 B.S., Peking University**Appointments**2014 Asst. Professor, UCSD
2011 Postdoc, University of Colorado,
Boulder**Awards and Academic Honors**

- 2019 NSF CAREER Award
- 2019 ACS JPC&PHYS Lectureship Award
- 2017 DARPA Director's Fellowship
- 2016 AFOSR Young Investigator Program Award (YIP)
- 2015 DARPA Young Faculty Award (YFA)