



# Rensselaer

The HOWARD P. ISERMANN  
DEPARTMENT OF CHEMICAL AND  
BIOLOGICAL ENGINEERING

## CBE Seminar Series – Spring 2022

**Dr. Ke Xu**

Associate Professor  
Department of Chemistry  
University of California, Berkeley

**Seminar: Wednesday, February 23, 2022**

**11:30 a.m. EST (ONLINE)**

WebEx link: <https://rensselaer.webex.com/rensselaer/onstage/g.php?MTID=e828415c0fbc98aad992b6f2e8afbd8ca>  
Password: CBESeminar

### **“A Multidimensional Microscopy Approach Toward Nanoscale Biology, Chemistry, and Materials”**

#### **Abstract:**

Recent advances in super-resolution fluorescence microscopy have led to exciting spatial resolutions of ~10 nm based on far-field optical detection. We discuss our recent developments on the continued development of super-resolution methods to extend to new measurement dimensions as the single-molecule emission spectra and diffusivities, as well as tools to visualize the in situ mechanical properties and reactions of graphene with exceptional contrast and resolution. Together, we demonstrate how the nanoscopic worlds of biology, chemistry, and materials can be visualized and understood in new ways through advances in optics.

#### **Biography:**



Ke Xu is an associate professor of Chemistry at UC-Berkeley. He received his B.S. from Tsinghua University, did his Ph.D. work with Prof. Jim Heath at Caltech, and performed postdoctoral research with Prof. Xiaowei Zhuang at Harvard University. Dr. Xu joined the Department of Chemistry at UC-Berkeley in the summer of 2013. His current research develops new microscopy tools to interrogate biological, chemical, and materials systems at the nanoscale with extraordinary resolution, sensitivity, and functionality. To this end, his lab takes a multidimensional approach that integrates advanced microscopy, spectroscopy, nanotechnology, and cell biology. Dr. Xu has been named a Packard Fellow for Science and Engineering, a Sloan Research Fellow, a Beckman Young Investigator, a Pew Biomedical Scholar, and the C&EN Talented 12.

**Due to COVID-19, no refreshments will be available for this seminar.**

For more information, please contact Lisa Martin ([swishl@rpi.edu](mailto:swishl@rpi.edu)) or Vidhya Chakrapani ([chakrv@rpi.edu](mailto:chakrv@rpi.edu))