

PHYSICAL CHEMISTRY SEMINAR



Prof. Brandi Cossairt

*Department of Chemistry
University of Washington*

Monday, Nov. 23, 2020

4:00 PM

via Zoom

“Interfacial Chemistry of Colloidal Nanocrystals to Direct Energy Conversion”



We are interested in developing colloidal nanocrystals for wide-ranging applications in energy interconversion. Our approach leverages the extraordinary properties of nanoscale systems and applies design principles of molecular inorganic chemistry. This talk will focus on two key research themes. First, we will explore how interfacial chemistry can be used to control the photophysics and emissive properties of colloidal semiconductor nanocrystals. Second, we will explore interfacial chemistry concepts to control the inner-sphere reactivity of colloidal electrocatalysts for multi-proton, multi-electron transformations. Ligand etching, ligand exchange, and covalent functionalization will be presented as complementary methods to alter electrocatalytic interfaces by tuning the activity, selectivity, and bulk interfacial properties. Ultimately, we are viewing nanocrystal interfaces as platforms for coordination chemistry that will direct function.