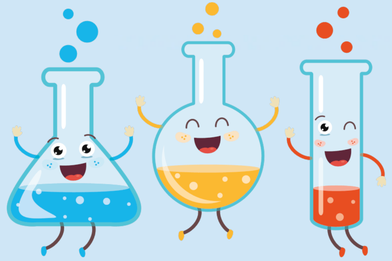
Please join us for an upcoming departmental seminar!



THE UNIVERSITY OF UTAH

The Department of Chemistry and Biochemistry presents:

"Defects Chemistry as a Design Parameter to Enable Functional Electronics."

A seminar by Dr. Luisa Whittaker-Brooks from the University of Utah.

Abstract: The advancement of electronics, along with its cornerstones - the Internet of Things, artificial intelligence, and energy-related devices - is closely linked to our ability to control "good" and "bad" defects at different length scales. Nonetheless, this progress faces constraints due to significant variability and a prevailing phenomenological approach to materials design. In this talk, we will discuss how defects chemistry can be used to: (1) control the assembly of layered inorganic and organic systems and interfaces at the molecular level (orientation and mode of attachment), (2) match phonon band structure in coordination polymers with discrete vibrations within the molecule, and (3) tune energetic offsets for effective charge and spin transfer in self-doped organic materials. This defect control as a design parameter may ultimately govern charge transport, the preservation of coherence, and energy transfer in functional electronic and energy devices. We will also discuss how we can use diffraction and spectroscopy to correlate changes in the electronic structure as a function of the morphology and defect states in layered metal chalcogenides and π-d conjugated organic systems. We will then compare and contrast different doping methods to increase the carrier and spin concentrations in materials.

Where? – Cosby LL32

When? – Tuesday 4/9 at 11:00 AM

Will Dr. Whittaker-Brooks be able to fix my defective electronics? – Maybe? But she'll be pretty busy.