Optical and Electronic Approaches towards Understanding of Solution Processed Solids for Optoelectronic and Electrochemical Applications

This talk will introduce our work developing and implementing new analytical approaches to study optoelectronic and electrochemically active materials. The first part of the talk will focus on open questions related to the behavior of colloidal quantum-dot (QD) based solids. Examples will include the use of capacitive structures for investigating the origins of luminescence quenching in colloidal quantum dots and deep level transient spectroscopy to identify trap states and transport phenomenon in solids. The second part of the talk will focus on electrochemical systems, specifically our work with synchrotron x-ray tomography to visualize the microstructure of lithium ion battery porous electrodes in order to quantify and understand performance limitations.

References