

INORGANIC CHEMISTRY SEMINAR



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“Beyond Traditional Superatom Ligands and Cores”

Abstract: As technological development continues to advance at a rapid pace, there is an increasing need for next-generation materials. There are several fundamental challenges associated with developing these novel materials, including understanding the nature of the electronic contacts and tuning the specific properties of a material. In the context of novel ligands and core compositions of superatoms, this talk will first describe how Near Edge X-ray Absorption Fine Structure (NEXAFS) and X-ray Photoelectron Spectroscopy (XPS) coupled with Density Functional Theory (DFT) calculations were used to determine the geometry and structure of N-heterocyclic carbenes (NHCs) on a Au(111) surface. Followed by a demonstration of how a novel *in situ* reduction technique was used to probe the conductance of NHCs on the single molecule level using the Scanning Tunneling Microscopy – Break Junction (STM-BJ) technique. Finally, the synthesis of nickel phosphinidene superatoms from the uncommon organocyclophosphine precursor will be discussed.

Wednesday, December 2nd
Zoom