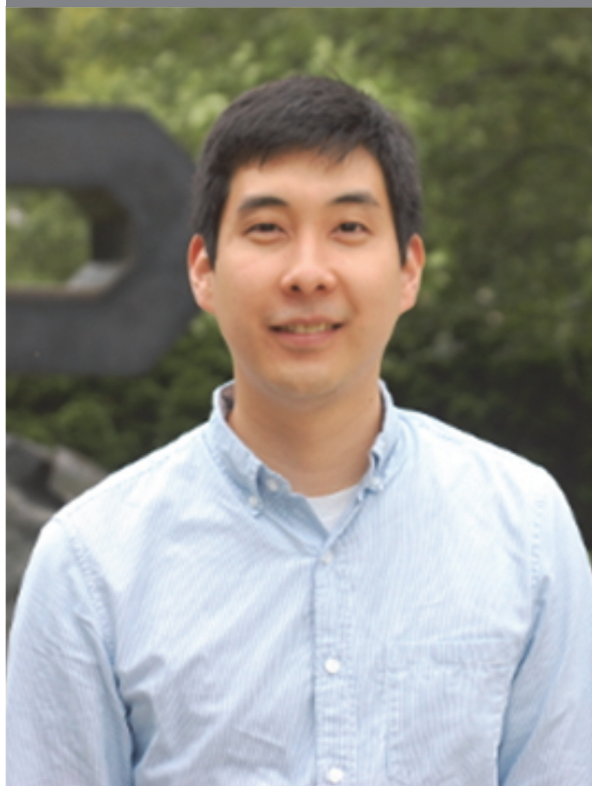


“Catalysis at Metal-Metal Bonds “



INORGANIC SEMINAR

Professor Christopher Uyeda

Purdue University

Department of Chemistry

Monday, October 23rd, 4:00pm

Hutchison Hall 473

University of Rochester

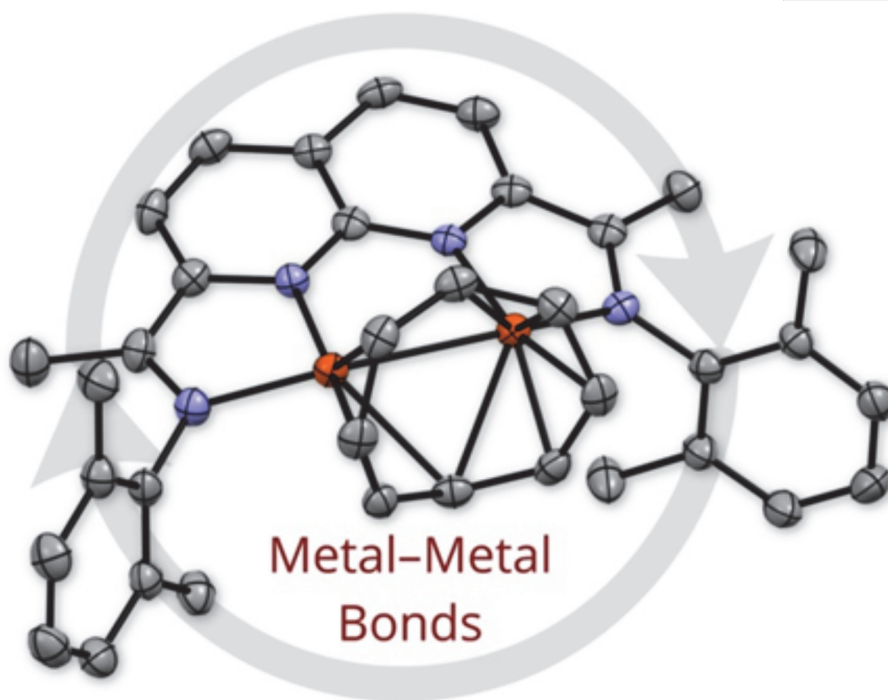
Department of Chemistry



Abstract

The discovery of new catalysts is central to the pursuit of more efficient and sustainable processes in organic synthesis. While mononuclear transition metal complexes have been widely utilized in reaction methodology, the scope of both stoichiometric and catalytic processes for complexes of higher nuclearity is comparatively limited. In principle, multinuclear complexes might engage in unprecedented modes of reactivity by binding substrates or engaging in redox processes that span multiple metal centers. New classes of catalysts that can capitalize on these cooperativity effects have the potential to exhibit activity or selectivity profiles that complement or surpass existing mononuclear systems.

Our group has been developing new platforms that support coordinatively unsaturated and reactive metal-metal bonds. In pursuit of this goal, we have developed a naphthyridine–diimine ligand that was used to prepare dinuclear complexes of mid-to-late first-row transition metals. The redox-active nature of these ligands imparts rich redox chemistry to these complexes, enabling an array of multielectron oxidation and reduction reactions. The applications of these complexes to catalytic processes relevant to organic synthesis will be presented.



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