



INORGANIC SEMINAR

Catalytic Strategies for the Synthesis of Weak Chemical Bonds

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PRINCETON UNIVERSITY
Host: Prof. Zach Wickens

The synthesis of weak chemical bonds at or near thermodynamic potential is a fundamental challenge in catalysis. As part of our efforts in the study of carbon neutral ammonia synthesis, N–H bonds with bond dissociation energies below the thermodynamic threshold for H₂ formation were routinely encountered inspiring new strategies for their synthesis. These studies also raised the question – what are the N–H bond strengths in nitrogen-containing ligands such as imides, amides and ammine complexes routinely encountered as intermediates in nitrogen fixation cycles? Because H₂ is the thermodynamically preferred reductant for hydrogenation of N₂ and other organic molecules such as aromatics and heteroatomics, we have focused on catalytic strategies to simultaneously break the H–H bond while forming a new albeit weak element–hydrogen bond. Proton coupled electron transfer has been central to these efforts and my lecture will focus on the application of both thermal and photochemical methods to drive these reactions.

DATE: WEDNESDAY, FEBRUARY 3rd, 2021

TIME: 3:30 PM VIRTUAL ON ZOOM

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