Tuesday, February 5, 2019, 12:30 pm
Seaver Science Library, Room 150
SSC Auditorium next to the library

Professor John Berry

Department of Chemistry
University of Wisconsin - Madison

New Chemistry of Metal-Metal Bonded Compounds: Toward a Nitrogen Energy Economy

Ammonia has arisen as an attractive potential large-scale energy carrier due to its improved storage and transport over hydrogen, provoking calls to explore a potential *Nitrogen Economy*. Two fundamental technologies are needed in order to realize a zero-carbon nitrogen energy economy: (1) Ammonia synthesis from solar electricity, and (2) high-performance direct ammonia fuel cells. These challenges are exemplified in the forward and reverse half-reactions shown below. Both are mechanistically challenging multi-proton, multi-electron transformations, and novel approaches to these problems are important to pursue. The Berry lab uses transition metal complexes featuring metal-metal bonds as platforms for exploring the feasibility of (electro)catalytic ammonia oxidation. This lecture will describe our efforts to unveil the chemistry of important reactive intermediates: Ru_2-nitrido species and Ru_2-NH_3 complexes.

$$N_2 + 6\,H^+ + 6\,e^- \rightleftharpoons 2\,NH_3 \qquad E^o = 0.057\ V\ vs\ NHE$$

Hosted by Professor Michael Inkpen

The scientific community is invited

USC Department of Chemistry
chem.usc.edu