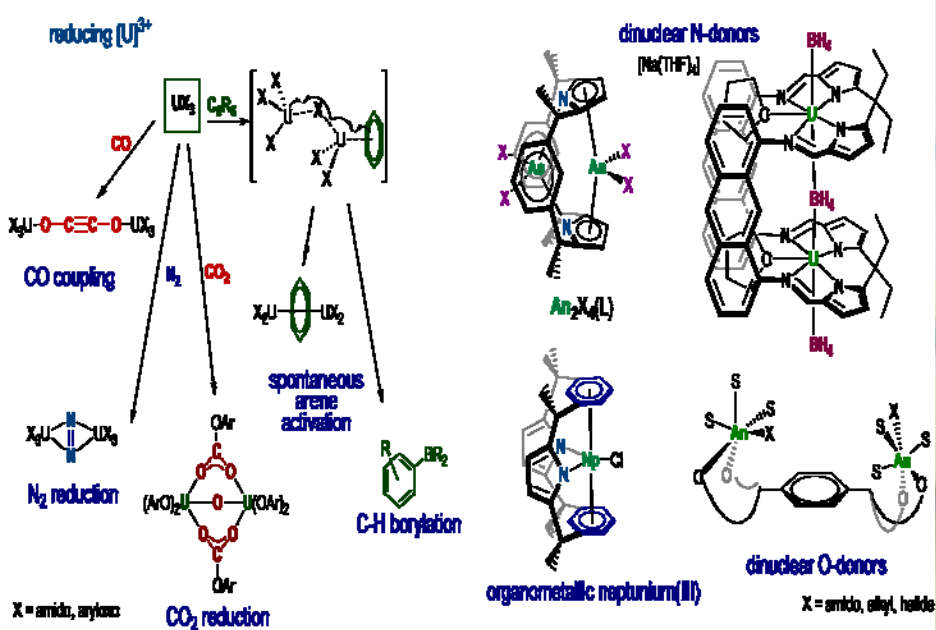


CHEMISTRY COLLOQUIUM

Guest Speakers:
Professor Polly Arnold
University of Edinburgh
EaStCHEM
School of Chemistry

Wednesday, January 30, 12:00pm
Hutchison Hall Room 140
Lander Auditorium
University of Rochester
Department of Chemistry



Title: “f-block complexes for multiple electron reductive activation; two metals are better than one”

Abstract: The activation of small, traditionally inert molecules by metal complexes contributes to our fundamental understanding of metal-ligand bonding and can open up new areas of catalysis. We recently reported the first molecules that combine two strongly reducing U(III) centres in the same molecule, using N-donor macrocycles, and more recently, O-donor platforms. These electron-rich compounds are magnetically complex and pre-organised for multi-electron reductions of small molecules. Work to understand their electronic structures, and their reduction to target new low formal oxidation states, with a focus on Np(II) will be presented. Analyses show significant covalency differences between 4f- and 5f- analogues, showing that fundamental Np organometallic chemistry can provide new insight in f-element bonding theory. We will compare their binding and reductive activation of small molecules and discuss how the favourability of δ -symmetry bonding interactions between the actinide and an aromatic π -system can be used to direct and control reactions.

Host: Professor Michael Neidig, email: Michael.Neidig@rochester.edu

