

Exploring the Synthesis and Characterization of Hetero- and Homometallic Clusters

Seminar

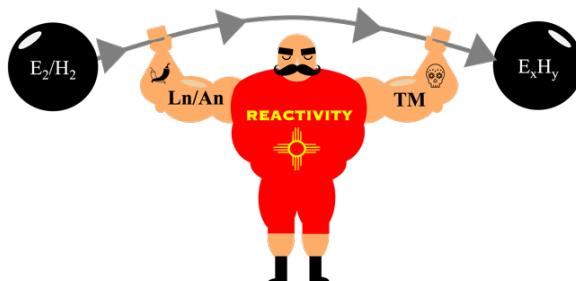
Monday
Feb. 2, 2026

3:00 – 4:00 p.m.

Beaupre Center,
Room 105



Understanding how metals communicate is critical for a fundamental understanding of the elements, as well as pioneering new materials and catalysts. The use of metal clusters also enables the in-depth study of the reduction-oxidation chemistry of these metals. Here, we focus on the electronic structure and reactivity of hetero- and homometallic non-aqueous clusters featuring *f*-elements. Through the reaction of a piano stool $(C_5Me_5)MR_3$ ($M = U, Ti$; $R = Me, Bn$) metal complex with a protic main group substrate based on N, O, or S, clusters with nuclearities ranging from three to six are isolated. Ti-*f* ($f = U, Ce, Nd$) clusters are built through further reactivity followed by reduction. With these results in hand, the spectroscopic, bonding, and reduction-oxidation properties will be further defined. Future efforts will focus on the magnetic properties, as well as small molecule activation. These studies may also uncover new opportunities in multi-electron reduction processes mediated by the *f*-elements.



Prof. Cory Windorff
Department of Chemistry & Biochemistry
New Mexico State University

THE
UNIVERSITY
OF RHODE ISLAND

Department of Chemistry
Spring 2026 Seminar Series

Host: **Dan Huh**
Assistant Professor
danhuh@uri.edu
401-874-5942 (office)
207-286-7691 (mobile)