

CHEMISTRY DEPARTMENT SEMINAR

Different Methods in the Reduction of Actinides

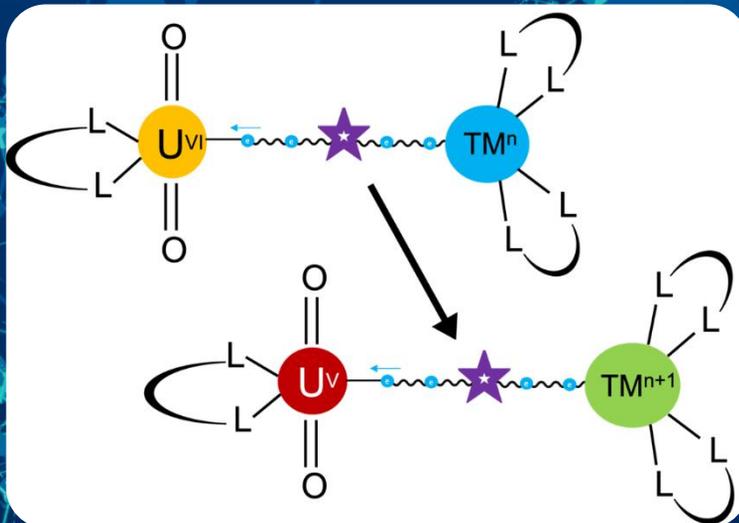
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Knowledge of the available oxidation states of the actinides is critical to the understanding of such fields like the recycling of spent nuclear fuel, the separation of lanthanides and actinides, and an understanding of actinides in the environment. I will briefly discuss my graduate work on the isolation of the rare divalent oxidation state of organometallic uranium and plutonium complexes. Then I will discuss my independent work pursuing the reduction of the high

valent uranyl ion, $(\text{UO}_2)^{2+}$ to the reduced uranyl ion, $(\text{UO}_2)^{1+}$. While $(\text{UO}_2)^{1+}$ is known to be difficult to isolate, recent work has shown the right ligand can stabilize under strongly reducing conditions. Yet, biology is capable of this transformation using the much softer reductant iron. I will discuss our efforts to this end, how it may inform novel methods for remediation of uranium from the environment, including comparisons with the analogous vanadyl ion, $(\text{VO})^{2+}$.



October 07th @12 pm – Lopez 106

Meeting ID: 951 3765 0274

<https://zoom.us/j/95137650274>