



Glenn T. Seaborg Center Seminar

Oxo ligand functionalization in the uranyl ion

Trevor W. Hayton

*University of California, Santa Barbara
Department of Chemistry and Biochemistry*

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4:00 - 5:00 pm

Building 70A, Room 3377

The reduction of uranyl (UO_2^{2+}) to U(IV) is relevant to both the speciation of uranium in the environment and the geological storage of spent nuclear fuel. Several recent studies on uranyl reduction suggest that this process occurs in a step-wise fashion, transiently generating the unstable pentavalent uranyl ion (UO_2^+). Our laboratory is exploring the synthesis and reactivity of pentavalent uranyl, in particular the reactivity of its two oxo ligands, in an attempt to model the microbial reduction of UO_2^{2+} . We are also exploring the stability of the U(VI) and U(V) oxidation states, as a function of ligand environment, and we have synthesized a series of uranium alkoxide, amide and alkyl complexes to support these efforts.