Glenn T. Seaborg Center Seminar

Gas-Phase Investigations of Uranyl Coordination Chemistry

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4:00 - 5:00 pm
Building 70A, Room 3377

The uranyl molecule (UO_2^{2+}) dominates uranium chemistry under oxidative conditions, which has spurred research investigating its intrinsic chemistry for decades. Experiments in the gas phase offer the possibility of explicitly controlling the extent of solvation, which enables the properties of discrete uranyl complexes to be determined. Experiments used to investigate uranyl chemistry include solvent addition and coordination complex dissociation reactions. The latter category includes infrared multiple photon dissociation, which generates vibrational spectra of individual coordination complexes that are compared with spectra generated using computational methods such as density functional theory. These studies provide another unique view of the properties of the uranyl molecule that complement ongoing condensed-phase and computational research, and augment our overall understanding of uranium chemistry.

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