Glenn T. Seaborg Center Seminar

Carbon Dioxide Coordination, Activation, and Functionalization at Reactive Uranium Complexes

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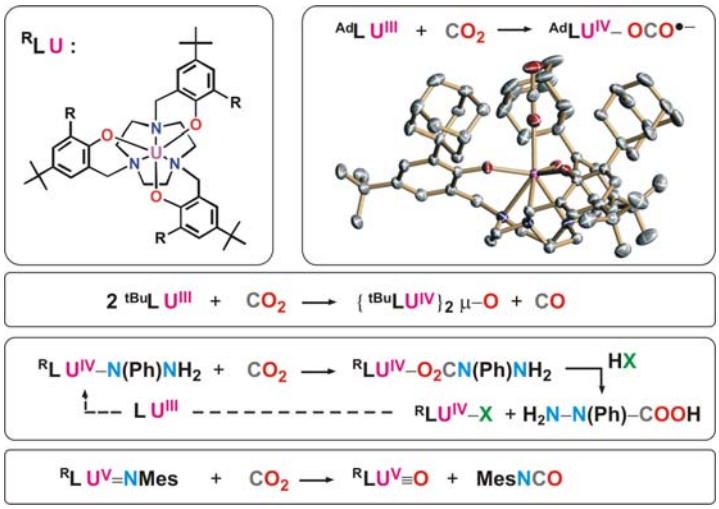
The hexadentate tris-aryloxide triazacyclononane ligand, $(^{t\text{-}Bu}ArO)_3tacn^{3-}$, and its sterically more demanding and protective adamantyl and diamantane derivatives have provided access to reactive coordination compounds of uranium, $[((^{R}ArO)_3tacn)U]$ (R = t-Bu, Ad, Di), in oxidation states III, IV, V, and VI and custom-tailored ligand environments. These complexes display a pronounced reactivity towards small molecules of biological and industrial relevance. In this seminar, reactions are presented that result in carbon dioxide coordination, activation, splitting, and functionalization. It is shown that charge-separated complexes of uranium are particularly reactive species that often lead to unprecedented chemistry.



Literature:

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[3] O.P. Lam, C. Anthon, F.W. Heinemann, J.M. O'Connor, and K. Meyer, *J. Am. Chem. Soc.* **2008**, *130*, 6567 – 6776.
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