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**The Influence of 4,4'-Dipyridyl on the Topology of U-Carboxylate Systems.** Lauren A. Borkowski, Christopher L. Cahill, The George Washington Univ., Washington, DC 20052.

There is interest in uranium oxide chemistry for several reasons including the predictable crystal chemistry of the  $\text{UO}_2^{2+}$  moiety.  $\text{UO}_2^{2+}$  is a linear triatomic molecule consisting of a central uranium atom that is triply bonded to two oxygen atoms. This arrangement allows for coordination of ligands orthogonal to the terminal oxygen groups in the  $\text{UO}_2^{2+}$  ion, and hence the formation of square, pentagonal and hexagonal bipyramidal geometries. The coordination of the  $\text{UO}_2^{2+}$  ion with flexible difunctional carboxylic acids has been well established, both in the literature and by our group, yet the introduction of an additional rigid ligand to these systems has not been explored. Using this methodology, a new family of structures was synthesized by reacting uranium oxynitrate with flexible aliphatic acids and a rigid ligand (4,4'-dipyridyl) under hydrothermal conditions. In these materials, the dipyridyl behaves in one of three manners: ligand, charge balancing cation, and/or templating species. Presented will be synthesis and structural systematics of three novel uranium containing structures that highlight these roles: 1  $(\text{UO}_2(\text{C}_6\text{H}_8\text{O}_4)(\text{C}_{10}\text{H}_8\text{N}_2))$ ; 2  $((\text{UO}_2)_2(\text{C}_3\text{H}_6\text{O}_4)_3 \cdot (\text{C}_{10}\text{H}_{10}\text{N}_2)(\text{H}_2\text{O})_2)$  and 3  $((\text{UO}_2)_2(\text{C}_7\text{H}_{10}\text{O}_4)_2(\text{C}_7\text{H}_{11}\text{O}_4)_2 \cdot (\text{C}_{10}\text{H}_8\text{N}_2)(\text{C}_{10}\text{H}_{10}\text{N}_2)(\text{H}_2\text{O})_2)$ .