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Structures, properties and dynamics of uranyl peroxide cage clusters

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Since their discovery more than 10 years ago, the family of uranyl peroxide cage clusters has grown to more than 60 published members. These clusters, with diameters in the range of 1.5 to 4 nm, are soluble macro anions in water where they can persist for at least several years. This presentation will provide a brief overview of the structures of this family of polyoxometalate clusters, and then will focus on research conducted over the past two years that emphasizes cluster dynamics and solubility in solution, cluster fate under intense gamma irradiation, and the thermodynamic properties of these clusters. Potential applications in the nuclear fuel cycle will be discussed.

Primary author: Prof. BURNS, Peter (University of Notre Dame)

Presenter: Prof. BURNS, Peter (University of Notre Dame)

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