

Supramolecular Anion Coordination and Water Patterns

Kristin Bowman-James
Department of Chemistry
University of Kansas

Anion coordination is still an emerging field in supramolecular chemistry. Unlike metal ions, anions are mostly polyatomic, charge-diffuse, and frequently multiply-charged species. Their peripheries are generally highly electronegative atoms with strong attractions for surrounding cations and hydrophilic solvents. These characteristics provide major challenges to chemists, especially in targeting anions in the environmental remediation and understanding the functions of anions in biological applications. Our group uses chelating and macrocyclic ligands for trapping anions of all different sizes from the smallest, fluoride, to the largest, *myo*-inositol hexaphosphate. As part of our studies, we have also developed pseudo-anion channels consisting of macrocyclic walls for studying anion solvation patterns. This presentation will highlight findings from urea- and amide-based chelates and macrocycles for trapping oxo anions as single ions, clusters, and solvated anion streams, the latter in pseudo-macrocyclic channels.

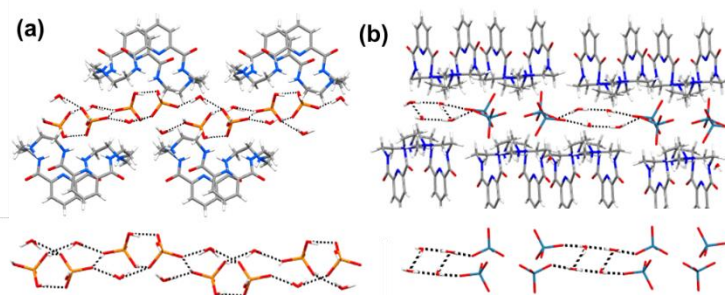


Figure. Macrocyclic channels of (a) phosphate and (b) perrhenate water streams.