

Abstract Submitted  
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**Strong Attractions with Controllable Size between Hydrophilic Inorganic Macroanions and Reversible Supramolecular Formations**

MELISSA KISTLER, Dept of Chemistry, Lehigh University, Bethlehem, PA, ANISH BHATT, GUANG LIU, TIANBO LIU — The polyoxometalate (POM) hydrophilic macroionic solutions, offer a direct connection between traditional fields of simple inorganic ions, colloidal suspensions, polyelectrolytes, particularly proteins and DNAs. Many types of POM macroanions are highly soluble, but undergo reversible self-assembly to form uniform, stable, soft, single-layer vesicle-like “blackberry” structures containing >1000 individual POMs in dilute solutions. Blackberry structures represent a new state of soluble inorganic ions. The driving forces of the POM self-assembly are unlike those of surfactant micelles or colloid aggregates. The POM driving forces are most likely counterion-mediated attraction (like-charge attraction). Blackberry size is controlled by the solvent quality, or the charge density of macroions. Blackberry structures may be analogous to virus shell structures formed by capsid proteins. Unexpected phenomena have been observed in the novel POM systems. References: JACS. 2005, 127, 6942; 2003, 125, 312; 2002, 124, 10942. Nature, 2003, 426, 59. J. Clust. Sci, 2006, 17, 427.

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