

# INORGANIC CHEMISTRY SEMINAR



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## In How Far Can We Make Nanoparticles Mimic Molecules?

**Abstract:** The past decades have witnessed remarkable success in the synthesis of inorganic nanoparticles with interesting optical, electronic, or magnetic properties. Realizing the enormous potential of nanoparticles in such as energy, biomedical, and optoelectronic fields requires the organization of these particles into larger or hierarchically ordered structures with defined macroscopic properties. Inspired by molecular self-assembly into structures with astonishing complexities and functions in living organisms or synthetic systems, we and others are striving to achieve programmable self-assembly of nanoparticles as “molecule equivalents”. The ability to do so holds great promises to manipulate matter at nanoscale scale and to exploit the emergent properties of nanoparticle ensembles. However, unmet challenges still remain at this frontier. In this talk, I will present our efforts to develop nanoparticles that can mimic conventional molecules to assemble into hierarchical structures with programmable architectures, and to understand the similarity and differences between these nanoparticles and molecules. I will also briefly discuss the potential application of the assembled structures in cancer imaging and therapy.

**Wednesday, March 30, 2016**  
**Cram Conference Room, 3440 Mol Sci**  
**4:30 pm**