

# INORGANIC CHEMISTRY SEMINAR



## Dr. Julia Stauber

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### “An Organometallic Approach to the Assembly of Atomically Precise Nanomaterials”

Abstract: There is significant interest in the ability to build atomically precise nanocluster molecules with complex three-dimensional structures resembling the intricate molecular architectures found in natural systems. We have developed a platform to access a class of robust, well-defined, three-dimensional hybrid nanomolecules with high tunability using air-stable, organometallic gold(III) dodecaborate clusters. These clusters serve as templates for further diversification with a wide array of thiol-containing substrates including alkanes, arenes, alcohols, amines, peptides, and sugar molecules. The conjugation reactions proceed rapidly with high chemoselectivity to produce a library of nanocluster assemblies that exhibit high structural stability under biologically relevant conditions due to their full covalency. Glycosylated nanomolecules displayed increased binding affinity to target proteins when compared with the binding of the free sugar molecules, showcasing how this strategy allows for the generation of precise multivalency for molecular recognition.

Wednesday, October 21<sup>st</sup>

Zoom

4:30 p.m. (PDT)