

**Organization for Cultural Diversity in Science  
Student Seminar**



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**Between Two Laboratories: Developing Inorganic  
Approaches to Polymerization and Bioconjugation**

**Abstract:** During this seminar, I will present a broad overview of three projects completed during my dissertation studies. The initial topic will focus on our discovery that boron-rich clusters of the type  $B_{12}(OCH_2Ar)_{12}$  ( $Ar = Ph$  or  $C_6F_5$ ) can act as powerful photooxidants to carry out visible-light initiated polymerization of electron-rich and -deficient olefins at room temperature. I will also discuss our development of carborane functionalized chain-transfer agents (CTA's) which can be used in reversible addition-fragmentation chain-transfer (RAFT) polymerization to generate polymers of controlled molecular weight. The tunable nature of the carborane-based scaffold appended on the polymer chain end serves as both a tunable spectroscopic probe and affinity label. Lastly, I will discuss our efforts in using well-defined and isolable gold(III) organometallic reagents for cysteine arylation of biomolecules. The final moments of the seminar will focus on topics in diversity within science.

**May 28, 2019  
Young Hall 2033  
3:30 p.m.**