# JEFFREY I. ZINK INORGANIC CHEMISTRY SEMINAR SERIES

## Prof. Megan Fieser

Department of Chemistry, University of Southern California

### "Development of Catalytic Strategies for Advances in Polymer Sustainability"

**Abstract:** As we strive to support our busy and demanding lifestyles, our dependence on disposable plastics has led to a global environmental crisis. The high stability of plastics to an array of conditions that was once highlighted as a value for commercialization has now become a serious flaw. Addressing this crisis is going to require collective efforts to recycle or upcycle the commercial products already produced at large scale and to develop more degradable or recyclable replacements. The Fieser group strives to achieve these ends through two research thrusts. In our polymerization thrust, rare earth metal catalysts are being developed for the synthesis of degradable plastics through the perfectly alternating copolymerization of epoxides and cyclic anhydrides and the block copolymerization of 1,3-dienes with cyclic esters. Using a host of complementary techniques, we demonstrate the development of efficient synthetic methods, thorough characterization of physical properties of the resulting polymers, and proof-of-concepts for future recycling processes. In our depolymerization thrust, we are exploring environmentally-friendly catalytic methods for the dechlorination of polyvinyl chloride, with an emphasis on establishing control over product selectivity. Using both inorganic and organic catalyst systems, we show facile tunability of the organic polymer product for potential assimilation to varying applications. Recent advances from both research thrusts will be discussed.

**Meet the Speaker**
**2:00 p.m. | YH 3064**

**Wednesday, November 30th, 2022**

**4:00 p.m. | YH4222 - Collaboratory**
**Yoo Seminar & Conference Hall**

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