Copolymerization Reactions of Carbon Dioxide and Epoxides

Abstract: Carbon dioxide capture and storage technologies have experienced significant advancements over the last decade. Some of this large surplus of sequestered anthropogenic CO₂ provides opportunities for its utilization as an inexpensive source of chemical carbon. Indeed, in order to maintain a sustainable chemical industry, alternative feedstocks are needed to replace decreasing petroleum supplies and CO₂ can contribute to meeting these needs. Among the processes exhibiting commercial viability are the incorporation of CO₂ into cyclic organic carbonates or polymeric materials. Important among the latter processes is the completely alternating copolymerization of CO₂ and epoxides or oxetanes to afford polycarbonates. A major challenge in this area is to find active, selective catalysts for activating the very stable CO₂ molecule. This presentation will address the development of transition metal catalysts designed to effectively perform these tasks.

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Cram Conference Room, 3440 Mol Sci
3:30 pm