Polymer Program

INSTITUTE OF MATERIALS SCIENCE

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Functional Poly(cyclooctenes) with Applications at the Intersection of Sustainability and Polymer Science

Abstract:

The ring-opening metathesis polymerization (ROMP) of cyclooctenes yields polymers with structures that are difficult or near impossible to prepare by other means. This is especially true when carrying out ROMP in the presence of a chain transfer agent. These new structures lead to materials with numerous potential applications in the benefit of sustainability. Using monomer design, vanishingly low catalyst loadings, new functional chain transfer agents, and by taking advantage of functional group incorporation, we have developed strategies to such materials that benefit from the versatile and highly efficient nature of ruthenium-catalyzed ROMP. In this presentation, I will discuss both some historical foundations and recent work in this area. Topics will include the preparation of telechelic polymers, sequence specific polymers, new barrier materials, and polymer compatibilization for recycling