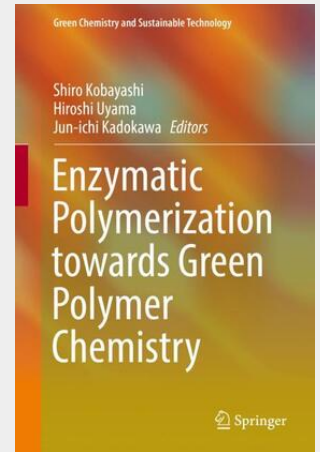


Enzymatic Polymerization towards Green Polymer Chemistry

This book comprehensively covers researches on enzymatic polymerization and related enzymatic approaches to produce well-defined polymers, which is valuable and promising for conducting green polymer chemistry. It consists of twelve chapters, including the following topics: - The three classes of enzymes, oxidoreductases, transferases and hydrolases, have been employed as catalysts for enzymatic polymerization and modification; - Well-defined polysaccharides are produced by enzymatic polymerization catalyzed by hydrolases and transferases; Hydrolase-catalyzed polycondensation and ring-opening polymerization are disclosed to produce a variety of polyesters; - Polyesters are synthesized by in-vivo acyltransferase catalysis produced by microorganisms; - Enzymatic polymerization catalyzed by appropriate enzymes also produces polypeptides and other polymers; - Poly(aromatic)s are obtained by enzymatic polymerization catalyzed by oxidoreductases and their model complexes; - Such enzymes also induce oxidative polymerization of vinyl monomers; - Enzymatic modification of polymers is achieved to produce functionalized polymeric materials; - The enzymatic polymerization is a green process with non-toxic catalysts, high catalyst efficiency, green solvents and renewable starting materials, and minimal by-products; - Moreover, renewable resources like biomass are potentially employed as a starting substrate, producing useful polymeric materials. This book is not only educative to young polymer chemists like graduate students but also suggestive to industrial researchers, showing the importance of the future direction of polymer synthesis for maintaining a sustainable society.

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