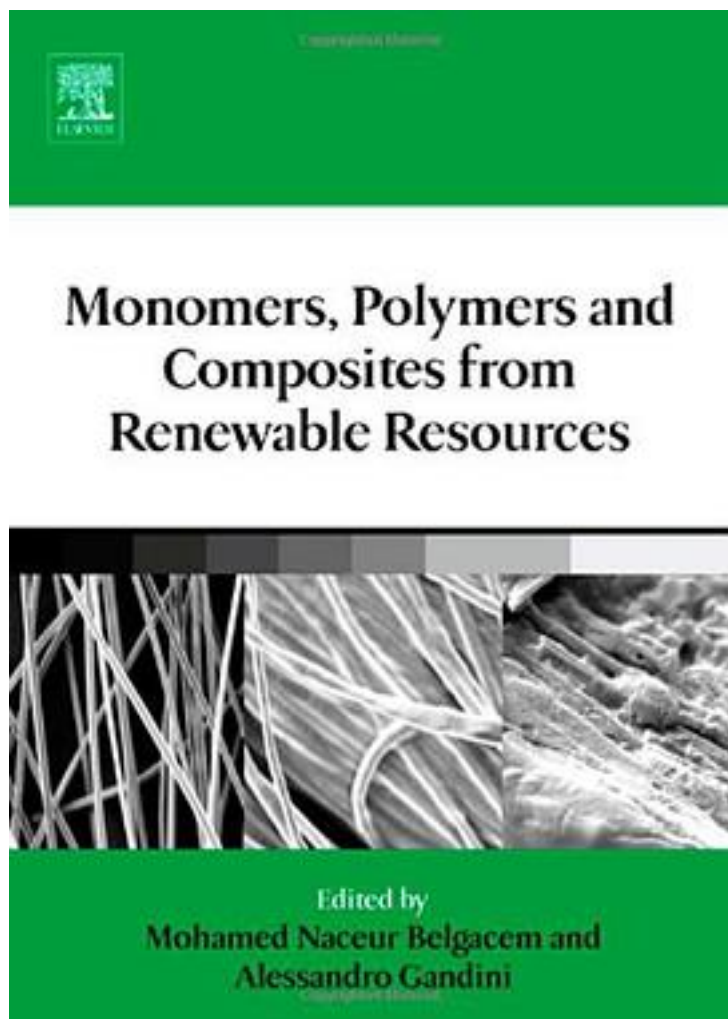


Monomers, Polymers and Composites from Renewable Resources



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The progressive dwindling of fossil resources, coupled with the drastic increase in oil prices, have sparked a feverish activity in search of alternatives based on renewable resources for the production of energy.

Given the predominance of petroleum- and carbon-based chemistry for the manufacture of organic chemical commodities, a similar preoccupation has recently generated numerous initiatives aimed at replacing these fossil sources with renewable counterparts. In particular, major efforts are being conducted in the field of polymer science and technology to prepare macromolecular materials based on renewable resources. The concept of the bio-refinery, viz. the rational exploitation of the vegetable biomass in terms of the separation of its components and their utilisation as such, or after suitable chemical modifications, is thus gaining momentum and considerable financial backing from both the public and private sectors.

This collection of chapters, each one written by internationally recognised experts in the corresponding field, covers in a comprehensive fashion all the major aspects related to the synthesis, characterization and properties of macromolecular materials prepared using renewable resources as such, or after appropriate modifications. Thus, monomers such as terpenes and furans, oligomers like rosin and tannins, and polymers ranging from cellulose to proteins and including macromolecules synthesized by microbes, are discussed with the purpose of showing the extraordinary variety of materials that can be prepared from their intelligent exploitation.

Particular emphasis has been placed on recent advances and imminent perspectives, given the incessantly growing interest that this area is experiencing in both the scientific and technological realms.

- Discusses bio-refining with explicit application to materials
- Replete with examples of applications of the concept of sustainable development
- Presents an impressive variety of novel macromolecular materials

作者介绍:

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