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Edited by Nicolay Tsarevsky, Southern Methodist University, USA | Brent Sumerlin, University of Florida, USA

Over the last twenty years, controlled/living radical polymerization (CRP) has revolutionized and revitalized the field of synthetic polymer chemistry. This is the first book to summarise the fundamental aspects of CRP by providing an in-depth history, description, and mechanistic understanding of each of the CRP techniques along with practical details necessary to carry out the reactions. Written by leading experts on the subject, the book provides essential insight into a rapidly growing field that goes beyond a simple literature review of the area making this book an indispensable resource for researchers, instructors, and students in polymer chemistry.

Healable Polymer Systems
Edited by Wayne Hayes, Barnaby W Greenland, University of Reading, UK

Polymers are used in many everyday technologies and their degradation due to environmental exposure has lead to great interest in materials which can heal and repair themselves. In order to design new self healing polymers it’s important to understand the fundamental healing mechanisms behind the material. Healable Polymer Systems will outline the key concepts and mechanisms underpinning the design and processing of healable polymers, and indicate potential directions for progress in the future development and applications of these fascinating and potentially valuable materials. Written by leading experts, the book covers the different techniques for both autonomous healable materials and reheatable or remendable materials developed successfully to date, providing polymer scientists with a compact and readily accessible source of reference for healable polymer systems.
Molecular Design and Applications of Photofunctional Polymers and Materials
Edited by Wai-Yeung Wong, Hong Kong Baptist University, China | Alaa Abd-El-Aziz, University of Prince Edward Island, Canada

Functional organic and organometallic polymers and materials have gained much attention as versatile materials for energy interconversions and optoelectronic/photonic applications, including electrical energy generation in photovoltaic cells and light generation in organic light-emitting diodes, as they offer a low cost, light weight and simple option for device fabrication. This book presents a critical perspective of the current field, with emphasis on fundamental concepts and current applications in optoelectronics, electronics and nanotechnology. With contributions from leading experts in the field, this timely book will provide a valuable contribution to the community enabling new synthetic methods to be developed to produce new materials with specific functional roles.


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Sabu Thomas, Rajisha K.R., Hanna J Maria, Mahatma Gandhi University | Chan Chin Han, MARA University of Technology, Malaysia | Laly A Pothen, Bishop Moore College, India

This comprehensive two volume set covers the synthesis, characterization and applications of natural rubber based blends, interpenetrating polymer networks, composites and nanocomposites. With contributions from established international experts in the field, volume 1 covers different types of natural rubber-based blends and IPNs, whilst volume 2 focuses on natural rubber-based composites and nanocomposites. This is the first book to consolidate the current state-of-the-art information on natural rubber based materials providing a “one stop” reference resource for professionals, researchers, industrial practitioners, graduate students, and senior undergraduates in the fields of polymer science and engineering, materials science, surface science, bioengineering and chemical engineering.

Vol 1 | ISBN 9781849736107 | £220.00 | Vol 2 | ISBN 9781849736312 | £220.00 | Set | ISBN 9781849736428 | £399.00

Renewable Resources for Functional Polymers and Biomaterials Polysaccharides, Proteins and Polyesters
Edited by Peter A Williams, Glyndwr University, UK

This book covers the source, production, structures and properties of some of the most important biomacromolecules with applications in the fields of biotechnology and medicine. Particular attention is given to polysaccharides obtained from botanical, algal, animal and microbial sources; microbial polyesters; the glycoproteins fibronectin and laminin as well as an introduction to nucleic acid polymers and genetic engineering. Aimed at both the biomedical and wider materials science communities, the overview of biopolymers at the graduate and post graduate level will appeal to both academic and industrial scientists who are involved in research and development activities.


Thiol-X Chemistries in Polymer and Materials Science
Edited by Andrew B Lowe, University of New South Wales, Australia | Christopher Bowman, University of Colorado, USA

Thiol-X chemistries are already well established techniques, but it is only recently that they have been exploited for the functionalization and synthesis of polymers and other materials. As such, information on these techniques is scattered across the literature. This is the first book to compile work specifically focussing on the application of thiol-based chemistries in materials design and synthesis. Written by leading experts in the field, the book introduces the various thiol-X chemistries currently available and applications where they have been successfully used, including examples of ‘click’ processes, in polymerizations, polymer synthesis and polymer modification. Short ‘how to’ sections within the chapters also provide general experimental techniques for successfully employing the various chemistries described. A comprehensive resource for postgraduates, academics and industrial practitioners interested in polymer and materials applications.

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