In modern polymer science a variety of polymerization methods for the direct synthesis of polymers bearing functional groups are known. However, there is still a large number of functional groups that may either completely prevent polymerization or lead to side reactions. Post-polymerization modification, also known as polymer-analogous modification, is an alternative approach to overcome these limitations. It is based on the polymerization of monomers with functional groups that are inert towards the polymerization conditions but allow a quantitative conversion in a subsequent reaction step yielding a broad range of other functional groups. Thus, diverse libraries of functional polymers with identical average degrees of polymerization but variable side chain functionality may easily be generated.

Filling the gap for a book dealing with synthetic strategies and recent developments, this volume provides a comprehensive and up-to-date overview of the field of post-polymerization modification.

As such, the international team of expert authors covers a wide range of topics, including new synthetic techniques utilizing different reactive groups for post-polymerization modifications with examples ranging from modification of biomimetic and biological polymers to modification of surfaces.

With its guidelines this is an indispensable and interdisciplinary reference for scientists working in both academic and industrial polymer research.
About the Author

Patrick Theato is Associate Professor for polymer chemistry at the University of Hamburg. He studied chemistry at Mainz (Germany) and Amherst (USA), and received his Ph.D. in 2001 from the University of Mainz with Prof. R. Zentel. After postdoctoral research with Prof. D.Y. Yoon (Seoul National University, Korea) and Prof. C.W. Frank (Stanford University, USA), he joined the University of Mainz as a young faculty member and completed his Habilitation in 2007. From 2009 to 2012 he held a joint appointment with the School of Chemical and Biological Engineering at Seoul National University within the World Class University program. In 2011 he accepted a prize senior lectureship at the University of Sheffield, UK. Shortly after he moved to University of Hamburg, Germany. He serves as an Editorial Advisory Board Member of "Macromolecules". His current research interests include the defined synthesis of reactive polymers, block copolymers, design of multi stimuli-responsive polymers, versatile functionalization of interfaces, hybrid polymers, polymers for electronics and templating of polymers.

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