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Titolo	Anionic Polymerization : Principles, Practice, Strength, Consequences and Applications / / edited by Nikos Hadjichristidis, Akira Hirao
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Descrizione fisica	1 online resource (1075 p.)
Disciplina	54
Soggetti	Polymers Nanotechnology Chemistry, Physical and theoretical Polymer Sciences Physical Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Schlenk Techniques for Anionic Polymerization -- High Vacuum Techniques for Anionic Polymerization -- Non-Polar Monomers: Styrene and 1,3-Butadiene Derivatives -- Anionic Polymerization of Polar Vinyl Monomers: Vinylpyridines, (Meth)acrylates, (Meth)acrylamides, (Meth)acrylonitrile, Phenyl Vinyl Sulfoxide, Benzofulvene and Other Monomers -- Cyclic Monomers: Epoxides, Lactide, Lactones, Lactams, Cyclic Silicon-containing monomers, Cyclic Carbonates and others -- Ring-opening polymerization of N-carboxyanhydrides for preparation of polypeptides and polypeptide-based hybrid materials with various molecular architectures -- Living Anionic Polymerization of Isocyanates -- Poly(ferrocenylsilanes) with controlled macromolecular architecture by anionic polymerization: Applications in patterning and lithography -- Polymerization Using Phosphazene Bases -- Group Transfer Polymerization of Acrylic Monomers -- Surface Initiated Anionic Polymerization from Nanomaterials -- Block Copolymers by Anionic Polymerization: Recent Synthetic Routes and Developments -- Graft and Comblike Polymers -- Star-Branched Polymers (Star Polymers) -- Synthesis of Dendrimer-like Polymers -- Complex Branched Polymers -- Block Copolymers Containing

Polythiophene Segments -- Block Copolymers and Miktoarm Star-Branched Polymers -- Control of Surface Structure and Dynamics of Polymers Based on Precision Synthesis -- Block Copolymers as Anti-fouling and Fouling Resistant Coatings -- Micellar Structures from Anionically Synthesized Block Copolymers -- Block Copolymers for Self-assembling Lithographic Materials -- Methacrylate-Based Polymers for Industrial Uses -- The Critical Role of Anionic Polymerization for Advances in the Physics of Polyolefins -- Future Remarks.

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#### Sommario/riassunto

This book presents these important facts: a) The mechanism of anionic polymerization, a more than 50-year challenge in polymer chemistry, has now become better understood; b) Precise synthesis of many polymers with novel architectures (triblock, multi-block, graft, exact graft, comb, cyclic, many armed stars with multi-components, dendrimer-like hyper-branched, and their structural mixed (co) polymers, etc.) have been advanced significantly; c) Based on such polymers, new morphological and self-organizing nano-objects and supramolecular assemblies have been created and widely studied and are considered nanodevices in the fields of nanoscience and technology; d) New high-tech and industrial applications for polymeric materials synthesized by anionic polymerization have been proposed. These remarkable developments have taken place in the last 15 years. Anionic polymerization continues to be the only truly living polymerization system (100 % termination free under appropriate conditions) and consequently the only one with unique capabilities in the synthesis of well-defined (i.e., precisely controlled molecular weight, nearly mono-disperse molecular weight distribution, structural and compositional homogeneity) complex macromolecular architectures. This book, with contributions from the world's leading specialists, will be useful for all researchers, including students, working in universities, in research organizations, and in industry.

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