

1. Record Nr.	UNINA9910841419203321
Titolo	Design and synthesis of conjugated polymers [[electronic resource] /] / edited by Mario Leclerc, Jean-Francois Morin
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2010
ISBN	1-282-78382-3 9786612783821 3-527-62978-5 3-527-62979-3
Descrizione fisica	1 online resource (381 p.)
Altri autori (Persone)	LeclercMario <1961-> MorinJean-Franc ois <1978->
Disciplina	620.19 620.19204297
Soggetti	Polymers - Electric properties Polymers
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 and index.
Nota di contenuto	Design and Synthesis of Conjugated Polymers; Contents; Preface; List of Contributors; 1 Synthesis and Functionality of Substituted Polyacetylenes; 1.1 Introduction; 1.2 Polymer Syntheses; 1.2.1 Catalysts; 1.2.2 Polymerization Behaviors; 1.2.3 Polymer Reactions; 1.3 Functional Properties; 1.3.1 Electrical Conductivity and Photoconductivity; 1.3.2 Liquid Crystallinity; 1.3.3 Luminescence; 1.3.4 Fluorescence Sensing; 1.3.5 Patterning and Imaging; 1.3.6 Chromism; 1.3.7 Optical Activity; 1.3.8 Supramolecular Assembly; 1.3.9 Optical Nonlinearity; 1.3.10 Biological Compatibility 1.4 Conclusions and Prospects Acknowledgments; References; 2 Suzuki Polycondensation: A Powerful Tool for Polyarylene Synthesis; 2.1 Introduction; 2.2 General Remarks; 2.3 How to Do an SPC and Aspects of Characterization; 2.3.1 Monomer Purity, Stoichiometry, and Solvents; 2.3.2 Brief Note on Optimization; 2.3.3 Reduced Catalyst Amount and Product Purification; 2.3.4 Molar Mass Determination; 2.4 Methodological Developments; 2.4.1 Boronic Acid/Boronate Monomers; 2.4.2 Boron-Based Ate Complexes; 2.4.3 Halo and Related Monomers;

2.4.4 Catalysts; 2.4.5 Chain Growth SPC
2.4.6 Microwave and Technical Scale Microreactor Applications
2.5 Selected Classes of Polyarylenes and Related Polymers; 2.5.1 Poly(para-phenylene)s; 2.5.2 Polyfluorenes; 2.5.3 Poly(para-meta-phenylene)s; 2.5.4 Shielded Polyarylenes; 2.5.5 Miscellaneous; 2.6 Conclusions and Outlook; Acknowledgments; References; 3 Advanced Functional Regioregular Polythiophenes; 3.1 Introduction; 3.2 Unsubstituted Polythiophene; 3.3 Poly(3-alkylthiophene)s; 3.4 Head-to-Tail Regioregular Poly(3-alkylthiophene)s (rrP3ATs); 3.4.1 Design and Synthesis of rrP3ATs; 3.4.1.1 McCullough Method; 3.4.1.2 Rieke Method
3.4.1.3 GRIM Method
3.4.1.4 Other Methods; 3.4.2 Mechanism of the Nickel-Catalyzed Polymerization; 3.4.3 End Group Functionalization; 3.4.3.1 Postpolymerization End Group Functionalization; 3.4.3.2 In situ End Group Functionalization; 3.4.4 Fundamental Properties of rrP3ATs; 3.4.4.1 UV-vis Absorption; 3.4.4.2 Microstructure and Morphology in Thin Films; 3.4.4.3 Electrical Conductivity; 3.4.5 rrP3ATs in Electronic Devices; 3.4.5.1 rrP3ATs in PLEDs; 3.4.5.2 rrP3ATs in OFETs; 3.4.5.3 rrP3ATs in OPVs; 3.5 Regiosymmetric Poly(alkylthiophene)s
3.5.1 Head-to-Head-, Tail-to-Tail-Coupled Poly(alkylthiophene)s
3.5.2 Regiosymmetric Alkylthiophene-Thiophene Copolymers; 3.6 Regiosymmetric Polythiophenes with (Hetero)aromatic Rings; 3.7 Polythiophene Block Copolymers; 3.7.1 All-Conjugated rrP3AT-Based Block Copolymers; 3.7.2 Conjugated-Nonconjugated rrP3AT-Based Block Copolymers; 3.8 Conclusion; References; 4 Poly(phenylenevinylene)s; 4.1 Introduction; 4.2 Poly(p-phenylenevinylene)s via Polymerization Methods; 4.2.1 Gilch Approach; 4.2.2 The Wessling Method; 4.3 Poly(p-phenylenevinylene)s via Polycondensation
4.3.1 Wittig and Horner-Wadsworth-Emmons Reaction

Sommario/riassunto

This first systematic compilation of synthesis methods for different classes of polymers describes well-tested and reproducible procedures, thus saving time, money and chemicals. Each chapter presents the latest method for a specific class of conjugated polymers with a particular emphasis on the design aspects for organo-electronic applications. In this concise and practically oriented manner, readers are introduced to the strategies of influencing and controlling the polymer properties with respect to their use in the desired device. This style of presentation quickly helps researchers
