

1. Record Nr.	UNINA9910827425303321
Titolo	Conjugated polyelectrolytes : fundamentals and applications // edited by Bin Liu and Guillermo C. Bazan
Pubbl/distr/stampa	Weinheim an der Bergstrasse, Germany, : Wiley-VCH Verlag, c2013
ISBN	9783527655724 3527655727 9783527655700 3527655700 9783527655731 3527655735
Edizione	[1st ed.]
Descrizione fisica	1 online resource (440 p.)
Altri autori (Persone)	LiuBin BazanGuillermo C
Disciplina	541.372
Soggetti	Polyelectrolytes Conjugated 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 at the end of each chapters and index.
Nota di contenuto	Conjugated Polyelectrolytes; Contents; Preface; List of Contributors; 1 Design and Synthesis of Conjugated Polyelectrolytes; 1.1 Introduction; 1.2 Poly(arylene)s; 1.2.1 Polythiophenes; 1.2.1.1 Anionic Polythiophenes; 1.2.1.2 Cationic Polythiophenes; 1.2.1.3 Zwitterionic Polythiophenes; 1.2.2 Poly(p-phenylene)s; 1.2.2.1 Anionic Poly(p-phenylene)s; 1.2.2.2 Cationic Poly(p-phenylene)s; 1.2.3 Poly(fluorene)s; 1.2.3.1 Cationic Poly(fluorene)s; 1.2.3.2 Anionic Poly(fluorene)s; 1.2.3.3 Zwitterionic Poly(fluorene)s; 1.3 Poly(arylene ethynylene)s; 1.3.1 Poly(phenylene ethynylene)s 1.3.1.1 Anionic Poly(phenylene ethynylene)s1.3.1.2 Cationic Poly(phenylene ethynylene)s; 1.3.2 Poly(fluorene ethynylene)s; 1.3.2.1 Cationic Poly(fluorene ethynylene)s; 1.3.2.2 Anionic Poly(fluorene ethynylene)s; 1.4 Poly(arylene vinylene)s; 1.4.1 Poly(phenylene vinylene)s; 1.4.1.1 Anionic Poly(phenylene vinylene)s; 1.4.1.2 Cationic Poly(phenylene vinylene)s; 1.4.2 Poly(fluorene vinylene)s; 1.4.2.1 Cationic

Poly(fluorene vinylene)s; 1.4.2.2 Anionic Poly(fluorene vinylene)s; 1.5 Conclusion; References; 2 All-Conjugated Rod-Rod Diblock Copolymers Containing Conjugated Polyelectrolyte Blocks 2.1 Introduction 2.2 All-Conjugated, Cationic Polyfluorene-b-Polythiophene Diblock Copolymers; 2.2.1 Synthesis; 2.2.2 Optical Properties; 2.2.3 Aggregation Behavior of Cationic PF-b-PT Diblock Copolymers; 2.2.4 Atomic Force Microscopy; 2.2.4.1 Confocal Microscopy; 2.2.4.2 Complexation with Anionic Surfactants; 2.2.4.3 Complexation with DNA; 2.2.4.4 Incorporation of PF2/6-b-P3TMAHT into Organic Electronic Devices; 2.3 All-Conjugated Cationic Polyfluorene-b-Polyfluorene Diblock Copolymers; 2.3.1 Synthesis; 2.3.2 Optical Properties; 2.3.3 Atomic Force Microscopy; 2.4 Conclusion; Acknowledgments References 3 Ionically Functionalized Polyacetylenes; 3.1 Introduction; 3.2 Polymers from Ionically Functionalized Cyclooctatetraenes; 3.2.1 Synthesis and General Properties; 3.2.2 Electrochemistry; 3.2.2.1 Electrochemical Doping; 3.2.2.2 The Donnan Potential; 3.2.2.3 Internal Compensation; 3.2.3 Polyelectrolyte-Mediated and Self-Limiting Electrochemistry; 3.2.4 Junctions; 3.2.4.1 In situ Electrochemical Manipulation and the Tunable Diode; 3.2.4.2 Internally Compensated p-n Junctions; 3.2.4.3 Undoped Ionic Junctions; 3.3 Polymers from Ionically Functionalized Acetylenes 3.3.1 General Properties and Synthetic Approaches 3.3.2 Polymer Chain Structure; 3.3.3 Poly(IA)s with Extended Conjugations; 3.4 Summary; Acknowledgment; References; 4 Aggregation Properties of Conjugated Polyelectrolytes; 4.1 Introduction; 4.2 Aggregation: from Disordered Clusters to Structured Vesicles; 4.3 Experimental Studies on Aggregation; 4.3.1 What Scattering Techniques Tell Us; 4.3.2 Microscopy Studies in Solution and Films; 4.3.3 Spectroscopic and Photophysical Studies; 4.3.4 Aggregation as Seen by Electrical Conductivity and NMR Spectroscopy; 4.3.5 Molecular Dynamics Simulations 4.4 Conjugated Polyelectrolyte Aggregation in Solution

Sommario/riassunto

This is the first monograph to specifically focus on fundamentals and applications of polyelectrolytes, a class of molecules that gained substantial interest due to their unique combination of properties. Combining both features of organic semiconductors and polyelectrolytes, they offer a broad field for fundamental research as well as applications to analytical chemistry, optical imaging, and optoelectronic devices. The initial chapters introduce readers to the synthesis, optical and electrical properties of various conjugated polyelectrolytes. This is followed by chapters on the applica