

1. Record Nr.	UNINA9910456159103321
Autore	Pu Lin <1965->
Titolo	1,1'-binaphthyl-based chiral materials [[electronic resource]] : our journey // Lin Pu
Pubbl/distr/stampa	London, : Imperial College Press, c2010
ISBN	1-282-75993-0 9786612759932 1-84816-412-2
Descrizione fisica	1 online resource (346 p.)
Disciplina	547
Soggetti	Chirality Asymmetric synthesis Molecular theory Electronic books.
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	Preface; Contents; References; 1. Introduction About 1,1'-Binaphthyls; References; 2. Main Chain Chiral-Conjugated Polymers; 2.1. Introduction About Chiral-Conjugated Polymers; 2.2. Binaphthyl-Based Polyarylenevinylenes; 2.3. Binaphthyl-Based Polyarylenes; 2.4. Binaphthyl-Based Polyaryleneethynylenes; 2.5. Binaphthyl-Thiophene Copolymers; 2.5.1. Copolymerization of Binaphthyl and Oligothiophene Monomers; 2.5.2. Electroluminescence Study; 2.6. Copolymers of BINAM and Thiophene-Containing Conjugated Linkers; 2.7. Polybinaphthyls Without Conjugated Linkers 2.7.1. Using Nickel Complexes to Promote Polymerization212.7.2. Synthesis of the Binaphthyl-Based Polydendrimers by Using Ni Complexes to Promote Polymerization23; 2.7.3. Using the Suzuki Coupling Reaction for Polymerization21b; 2.7.4. Electroluminescence Study of the Polybinaphthyls26; 2.8. Propeller-Like Polybinaphthyls; 2.8.1. Synthesis of the Propeller-Like Polymers Derived from BINOL27, 28; 2.8.2. Synthesis of the Propeller-Like Polymers Derived from BINAM31; 2.8.3. Study of the Non-linear Optical Properties of the Propeller-Like Polymers32; 2.9. Dipole-Oriented Propeller-Like

Polymers

2.10. Binaphthyl-Based Polysalophens
2.11. Helical Ladder Polybinaphthyls; References;
3. Polybinaphthyls in Asymmetric Catalysis;
3.1. Introduction about Chiral Polymers in Asymmetric Catalysis;
3.2. Synthesis of Major-Groove Poly(BINOL)s;
3.2.1. Synthesis of Polybinaphthyls with Various Protecting Groups;
3.2.2. Hydrolysis of the Polybinaphthyls to Generate Poly(BINOL)s;
3.2.3. Synthesis of Poly(BINOL)s Containing Alkyl-Substituted Phenylene Linkers;
3.3. Application of the Major-Groove Poly(BINOL)s to Catalyze the Mukaiyama Aldol Reaction
3.4. Application of the Major-Groove Poly(BINOL)s to Catalyze the Hetero-Diels-Alder Reaction
3.5. Using the Ti(IV) Complex of the Major-Groove Poly(BINOL) to Catalyze the Diethylzinc Addition to Aldehydes;
3.6. Synthesis of the Minor-Groove Poly(BINOL)s;
3.7. Application of the Major- and Minor-Groove Poly(BINOL)s to Catalyze the Asymmetric Organozinc Addition to Aldehydes;
3.7.1. Asymmetric Diethylzinc Addition to Aldehydes Catalyzed by the Poly(BINOL)s;
3.7.2. Study of the Reactions of the Minor-Groove Poly(BINOL) and a Few Monomeric BINOL Derivatives with Diethylzinc
3.7.3. Synthesis of the Monomeric Model Compound of the Minor-Groove Poly(BINOL) to Catalyze the Dialkylzinc Addition to Aldehydes
3.7.4. Converting the Highly Enantioselective Mono (BINOL) Catalyst to a Highly Enantioselective Poly(BINOL) Catalyst for the Asymmetric Organozinc Additions
3.8. Asymmetric Reduction of Prochiral Ketones Catalyzed by the Chiral BINOL Monomer and Polymer Catalysts;
3.9. Asymmetric Epoxidation of α,β -Unsaturated Ketones Catalyzed by the Minor- and Major-Groove Poly(BINOL)s
3.9.1. Asymmetric Epoxidation of α,β -Unsaturated Ketones in the Presence of a Stoichiometric Amount of the Major-Groove Poly(BINOL)s, Diethylzinc and Oxygen

Sommario/riassunto

Chiral materials have been studied in the Department of Chemistry at the University of Virginia for applications in areas like asymmetric catalysis, enantioselective fluorescent sensing, and optical/electrical materials. Optically active 1,1'-binaphthyl molecules are used to build novel chiral polymers, dendrimers, macrocycles, and acyclic molecules. 1,1'-Binaphthyl molecules are chosen because of their remarkably stable chiral configuration as well as their high asymmetric inductions in many processes. In this book, both the fundamental knowledge about the 1,1'-binaphthyl molecules and the sy