

| | |
|-------------------------|---|
| 1. Record Nr. | UNINA9910780725203321 |
| 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 |
| 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 Polyaryleneethynlenes; 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 Polymerization21 2.7.2. 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 Polysalophens2.11. 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 Groups5; 3.2.2. Hydrolysis of the Polybinaphthyls to Generate Poly(BINOL)s5; 3.2.3. Synthesis of Poly(BINOL)s Containing Alkyl-Substituted Phenylene Linkers6; 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 Reaction3.5. 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 Aldehydes10b,c3.7.4. Converting the Highly Enantioselective Mono (BINOL) Catalyst to a Highly Enantioselective Poly(BINOL) Catalyst for the Asymmetric Organozinc Additions10; 3.8. Asymmetric Reduction of Prochiral Ketones Catalyzed by the Chiral BINOL Monomer and Polymer Catalysts; 3.9. Asymmetric Epoxidation of , -UnsaturatedKetones Catalyzed by the Minor- and Major-GroovePoly(BINOL)s
3.9.1. Asymmetric Epoxidation of , -Unsaturated Ketonesin the Presence of a Stoichiometric Amount of theMajor-Groove Poly(BINOL)s, Diethylzincand 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
