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| Altri autori (Persone)  | TogniAntonio<br>HayashiTamio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| Soggetti                | Ferrocene<br>Organoiron compounds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Lingua di pubblicazione | Inglese                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Nota di contenuto       | Ferrocenes; Preface; Contents; List of Contributors; List of Abbreviations; Part 1. Homogeneous Catalysis; 1 1,1'-Bis (diphenylphosphino)ferrocene - Coordination Chemistry, Organic Syntheses, and Catalysis; 1.1 Introduction; 1.2 Preparation and Complexation; 1.3 Structural Properties; 1.3.1 Modes of Coordination; 1.3.2 Geometrical Distortions; 1.4 Spectroscopic Characteristics; 1.4.1 Techniques; 1.4.1.1 <sup>31</sup> P NMR Spectroscopy; 1.4.1.2 <sup>1</sup> H NMR Spectroscopy; 1.4.1.3 Mossbauer Spectroscopy; 1.4.2 NMR Fluxionality; 1.5 Catalysis; 1.5.1 Cross Coupling<br>1.5.1.1 Organic Electrophile and Organometallic Coupling<br>1.5.1.2 Arylation and Vinylation of Alkenes; 1.5.1.3 Carbonylation and Carbonylative Coupling; 1.5.1.4 Nucleophilic Substitution; 1.5.1.5 Polycondensation and Polymerization; 1.5.2 Olefin Functionalization; 1.5.2.1 Hydroformylation; 1.5.2.2 Hydrogenation and Reduction; 1.5.2.3 Hydroboration and Hydrosilylation; 1.5.2.4 Isomerization; 1.6 |

Cluster Complexes; 1.7 Electrochemistry; 1.8 Biomedical Applications; 1.9 Summary; References; 2 Asymmetric Catalysis with Chiral Ferrocenylphosphine Ligands; 2.1 Introduction 2.2 Preparation of Chiral Ferrocenylphosphines 2.3 Structure of Chiral Ferrocenylphosphines and their Transition-Metal Complexes; 2.4 Catalytic Asymmetric Reactions with Chiral Ferrocenylphosphine Ligands; 2.4.1 Cross-Coupling of Organometallics with Halides; 2.4.2 Allylic Substitution Reactions via  $\eta^5$ -Allyl Complexes; 2.4.3 Hydrogenation of Olefins and Ketones; 2.4.4 Hydrosilylation of Olefins and Ketones; 2.4.5 Aldol Reaction of  $\alpha$ -Isocyanocarboxylates; 2.4.6 Others; References; 3 Enantioselective Addition of Dialkylzinc to Aldehydes Catalyzed by Chiral Ferrocenyl Aminoalcohols 3.1 Introduction 3.2 Chiral Ferrocenylzincs Bearing an Aminoethanol Auxiliary [12]; 3.2.1 Synthesis of the Catalysts; 3.2.2 Addition of Diethylzinc to Benzaldehyde; 3.3 N-(1-Ferrocenylalkyl)-N-alkylnorephedrine [13]; 3.3.1 Synthesis of the Catalysts; 3.3.2 Addition of Diethylzinc to Aldehydes; 3.4 Chiral Polymers Bearing N-Ferrocenylmethylephedrine [14]; 3.4.1 Synthesis of the Catalysts; 3.4.2 Addition of Diethylzinc to Benzaldehyde; 3.5 Chiral 1,2-Disubstituted Ferrocenyl Aminoalcohols [15]; 3.5.1 Synthesis of the Catalysts; 3.5.2 Addition of Dialkylzinc to Aldehydes 3.5.3 Addition of Dialkylzincs to o-Phthalaldehyde: A Facile Synthesis of Optically Active 3-Alkylphthalides [16] 3.5.4 Enantio- and Diastereoselective Addition of Diethylzinc to Racemic  $\alpha$ -Thio- and  $\alpha$ -Selenoaldehydes [17]; 3.6 Summary; References; Part 2. Organic Synthesis - Selected Aspects; 4 Chiral Ferrocene Derivatives. An Introduction; 4.1 Central and Planar Chirality in Metallocenes; 4.2  $\alpha$ -Ferrocenylalkyl Carbocations; 4.2.1 Structure and Stability; 4.2.2 Stereochemistry; 4.3 Central Chiral Ferrocene Derivatives; 4.3.1 Syntheses; 4.3.1.1 By Resolution; 4.3.1.2 By Asymmetric Synthesis 4.3.1.3 From the Chiral Pool

## Sommario/riassunto

With applications ranging from asymmetric catalysis to magnetic materials, ferrocene is one of the most versatile building blocks in synthesis. This book captures the multidisciplinary nature of ferrocene research, including topics such as ferrocene-containing polymers, ferrocene-containing thermotropic liquid crystals, chiral ferrocene derivatives, and ferrocene-containing charge-transfer materials. In addition, the reader will find\* valuable information for planning syntheses\* over 70 tables, making relevant data available at a glance \* carefully selected references, provi