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(Acylamino)acrylates; 1.3.1.4 Asymmetric Hydrogenation of Enol Esters; 1.3.1.5 Asymmetric Hydrogenation of Unsaturated Acids and Esters; 1.3.2 Hydrogenation of Ketones; 1.3.2.1 Hydrogenation of Functionalized Ketones 1.3.2.2 Hydrogenation of Unfunctionalized Ketones 1.3.3 Asymmetric Hydrogenation of Imines; 1.3.3.1 Acyclic N-Alkylimines; 1.3.3.2 C=N-X Substrates; 1.4 Conclusion; 1.5 References; 2 Rhodium-Catalyzed Hydroborations and Related Reactions; 2.1 Introduction; 2.2 General Advances in Catalytic Hydroboration; 2.3 Advances in Asymmetric Hydroboration; 2.3.1 Diphosphine Ligands; 2.3.2 Phosphinamine and Related Ligands; 2.3.3 Transformations of the Initial Boronate Ester; 2.4 Catalytic Diboration of Alkenes; 2.5 Summary and Conclusions; 2.6 References

3 Rhodium(I)-Catalyzed Asymmetric Addition of Organometallic Reagents to Electron-Deficient Olefins 3.1 Introduction; 3.2 Addition of Organoboron Reagents to  $\alpha,\beta$ -Unsaturated Ketones; 3.3 Mechanism; 3.4 Addition of Organoboron Reagents to Other Electron-Deficient Olefins; 3.5 Addition of Organotin and -silicon Reagents; 3.6 New Aspects of Addition of Organoboron and -titanium Reagents; 3.7 Outlook; 3.8 References; 4 Recent Advances in Rhodium(I)-Catalyzed Asymmetric Olefin Isomerization and Hydroacylation Reactions; 4.1 Rhodium(I)-Catalyzed Asymmetric Isomerization of Olefins 4.1.1 Allylic Amines 4.1.2 Allylic Ethers; 4.1.3 Allylic Alcohols; 4.1.4 Summary; 4.2 Rhodium(I)-Catalyzed Asymmetric Hydroacylation of Olefins and Alkynes with Aldehydes; 4.2.1 Cyclopentanones; 4.2.2 Cyclopentenones; 4.2.3 Summary; 4.3 References; 5 Stereoselective Rhodium(I)-Catalyzed Hydroformylation and Silylformylation Reactions and their Application to Organic Synthesis; 5.1 Introduction; 5.2 Hydroformylation; 5.2.1 Diastereoselective Hydroformylation of Chiral Alkene Substrates; 5.2.2 Hydroformylation of Organomercurials; 5.2.3 Directed Diastereo- and Regioselective Hydroformylation 5.2.4 Applications in Natural Product Synthesis

## Sommario/riassunto

Rhodium has proven to be an extremely useful metal due to its ability to catalyze an array of synthetic transformations, with quite often-unique selectivity. Hydrogenation, C-H activation, allylic substitution, and numerous other reactions are catalyzed by this metal, which presumably accounts for the dramatic increase in the number of articles that have recently emerged on the topic. P. Andrew Evans, the editor of this much-needed book, has assembled an internationally renowned team to present the first comprehensive coverage of this important area. The book features contributions