

TABLE OF CONTENTS

Licensing

1: Reactions using Chiral Lewis Acids and Brønsted Acid

- 1.1: Brønsted Acid-Assisted Lewis Acid (BLA)
- 1.2: Lewis Acid-Assisted Lewis Acid (LLA)
- 1.3: LBA Catalysts
- 1.4: Problems + Reference
- 1.5: Chiral Phosphoric Acids (PAs)

2: Asymmetric Carbon-Carbon Bond Forming Reactions

- 2.1: Enantioselective Ene and Cycloaddition Reactions
- 2.2: Enantioselective Alkene Metathesis
- 2.3: Carbometallation and Carbocyclization Reactions
- 2.4: Metal-Catalyzed Asymmetric Conjugate Addition Reactions
- 2.5: Allylic Substitution with Carbon Nucleophiles
- 2.6: Problems and Reference

3: Synthesis via C-H Activation

- 3.1: Reactions with Metal Carbenoid
- 3.2: Reactions With Metal Nitrenoid and Direct C-H Oxidation
- 3.3: Problems and Reference

4: Carbon-Heteroatom Bond-Forming Reactions

- 4.1: Allylic Substitution Reactions
- 4.2: Aza-Claisen Rearrangement and Related Reactions
- 4.3: Hydroamination of Alkenes
- 4.4: Hydroalkoxylation of Allenes
- 4.5: Oxidation Reactions
- 4.6: Aziridination of Alkenes
- 4.7: Amination of Carbonyl Compounds
- 4.8: Boration of Alkenes
- 4.9: Hydrophosphonylation of Imines
- 4.10: Problems and Reference

5: Oxidation Reactions

- 5.1: Oxidation of Alcohols
- 5.2: Epoxidation of Allylic Alcohols
- 5.3: Epoxidation of Unfunctionalized Alkenes
- 5.4: Enantioselective Sulfoxidation
- 5.5: Baeyer-Villiger Oxidation (BVO)
- 5.6: Dihydroxylation, Aminohydroxylation and Aziridination Reactions
- 5.7: Problems and Reference

6: Hydrogenation Reactions

- 6.1: Reactions Carbon-Carbon Double Bonds
- 6.2: Reactions of Ketones
- 6.3: Reactions of Imines (C=N)
- 6.4: Problems and Reference

7: Reactions in Nonconventional Conditions

- 7.1: Reactions in Water
- 7.2: Reactions in Fluorous Solvents
- 7.3: Reactions in Supercritical Fluids (SCFs)
- 7.4: Reactions in Ionic Liquids (IL)
- 7.5: Microwave-Assisted Reactions
- 7.6: Problems and Reference

8: Asymmetric Hydrosilylation and Related Reactions

- 8.1: Hydrosilylation of Alkenes
- 8.2: Hydroboration, Hydroalumination and Hydrostannation of Alkenes
- 8.3: Problems and Reference

9: Carbonylation Reactions

- 9.1: Hydroformylation Reaction
- 9.2: Asymmetric Alkoxycarbonylation and Related Reactions
- 9.3: Co- and Terpolymerization of Alkenes with Carbon Monoxide
- 9.4: Problems and Reference

10: Organocatalysis

- 10.1: Chiral Proline Based Reactions
- 10.2: Alkaloid Based Reactions
- 10.3: Thiourea Based Catalysis
- 10.4: Problems and Reference

11: Enzyme-Catalyzed Asymmetric Reactions

- 11.1: Acylation of Alcohols and Amines
- 11.2: Formation of Carbon-Carbon Bonds
- 11.3: Reduction Reactions
- 11.4: Enantioselective Oxidations
- 11.5: Problems and Reference

12: Solutions

- 12.1: Asymmetric Carbon-Carbon Bond Forming Reactions
- 12.2: Asymmetric Hydrosilylation and Related Reactions
- 12.3: Carbon-Heteroatom Bond-Forming Reactions
- 12.4: Carbonylation Reactions
- 12.5: Enzyme-Catalyzed Asymmetric Reactions
- 12.6: Hydrogenation Reactions
- 12.7: Organocatalysis
- 12.8: Oxidation Reactions
- 12.9: Reactions in Nonconventional Conditions

- [12.10: Reactions Using Chiral Lewis and Brønsted Acids](#)
- [12.11: Synthesis via C-H Activation](#)

[Index](#)

[Index](#)

[Glossary](#)

[Detailed Licensing](#)