Metalloalkyl Radical-Mediated Reactions via Metalloradical Catalysis

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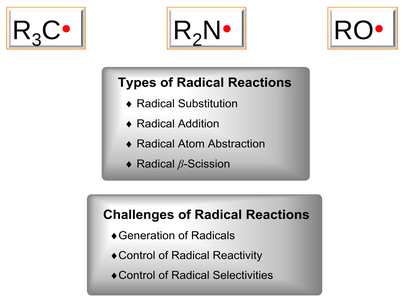
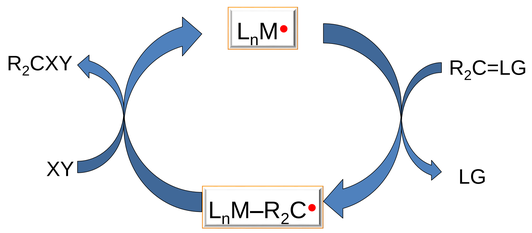
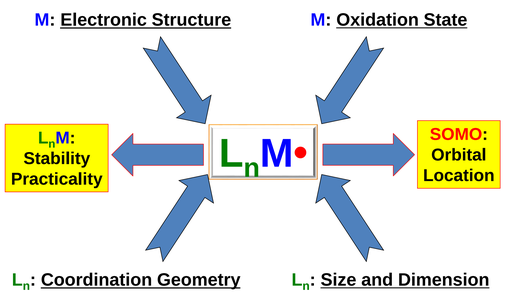
Radical Reactions: Opportunities and Challenges



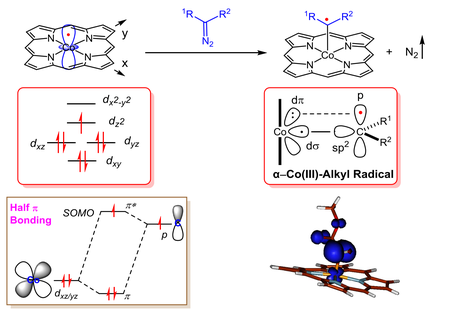
The Concept: Metalloradical Catalysis (MRC)



Design of Metalloradical Catalysts for MRC

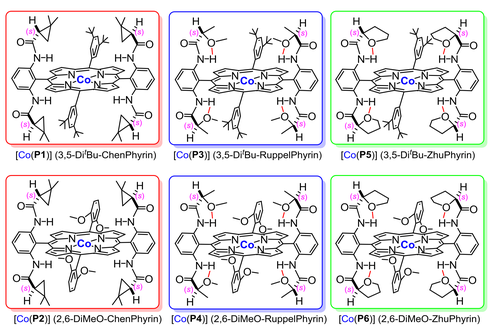


Radical Activation via Co(II)-Based Metalloradical Catalysts

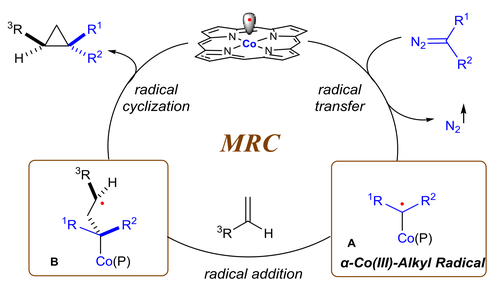


J. Am. Chem. Soc. **2011**, *133*, 8518.

A Toolbox of Catalysts: "Group of Six"

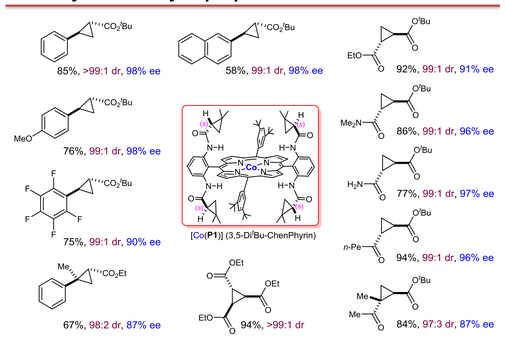


Metalloradical Catalysis for Radical Cyclopropanation



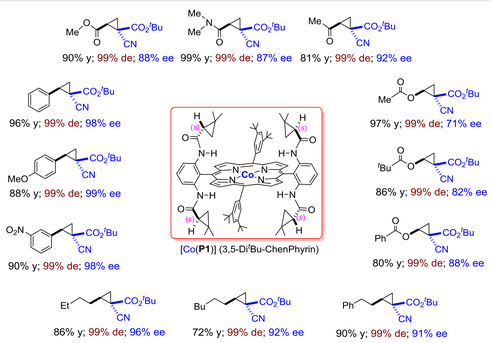
J. Am. Chem. Soc. **2010**, *132*, 10891; *J. Am. Chem. Soc.* **2011**, *133*, 8518.

Asymmetric Cyclopropanation: α-Diazoacetates



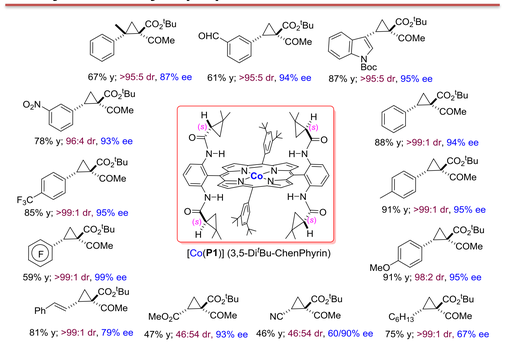
J. Am. Chem. Soc. **2004**, *126*, 14718; *J. Org. Chem.* **2007**, *72*, 5931; *J. Am. Chem. Soc.* **2007**, *129*, 12074.

Asymmetric Cyclopropanation: α-Cyanodiazoacetates



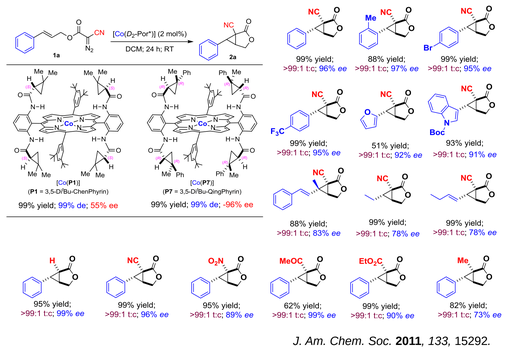
J. Am. Chem. Soc. **2010**, *132*, 12796.

Asymmetric Cyclopropanation: α-Ketodiazoacetates



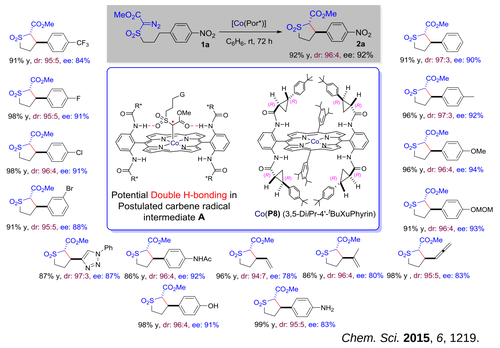
Angew. Chem. Int. Ed. **2013**, *52*, 11857.

Asymmetric Cyclopropanation: Intramolecular Variant



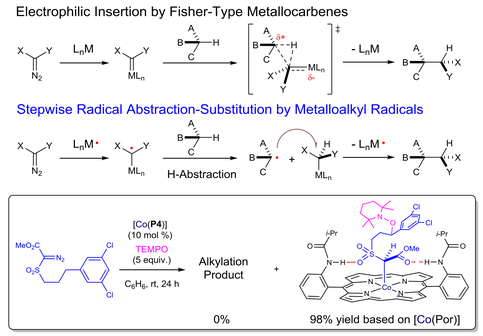
J. Am. Chem. Soc. **2011**, *133*, 15292.

Asymmetric C–H Alkylation with A/A-Substituted Diazos

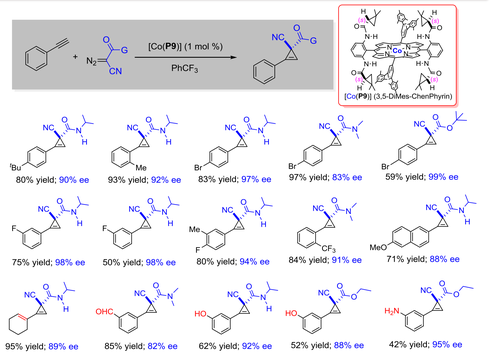


Chem. Sci. **2015**, *6*, 1219.

Metalloradical Catalysis for Radical C–H Alkylation

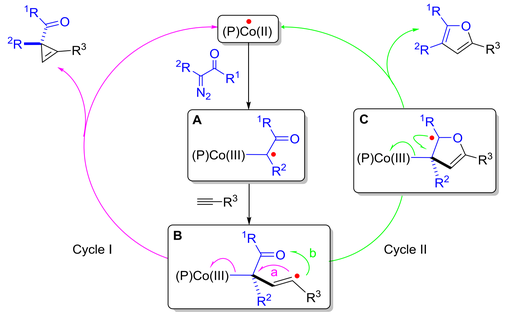


Asymmetric Cyclopropenation of Alkynes



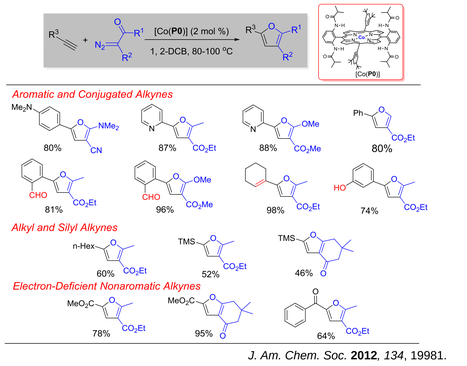
J. Am. Chem. Soc. **2011**, *133*, 3304.

Metalloradical Catalysis (MRC) for Radical Cascade



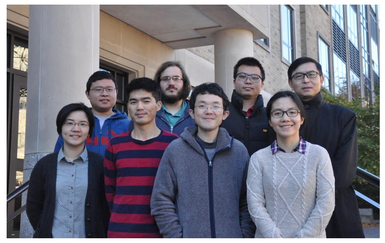
J. Am. Chem. Soc. **2011**, *133*, 3304; *J. Am. Chem. Soc.* **2012**, *134*, 19981.

Radical Furanylation Reactions



J. Am. Chem. Soc. **2012**, *134*, 19981.

Acknowledgments



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