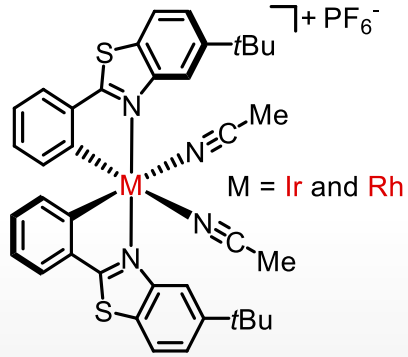
Overview: Chiral-at-Metal Catalysts Developed in Our Laboratory



(Light-activatable) chiral Lewis acids

Nature **2014**, *515*, 100

Acc. Chem. Res. **2017**, *50*, 320

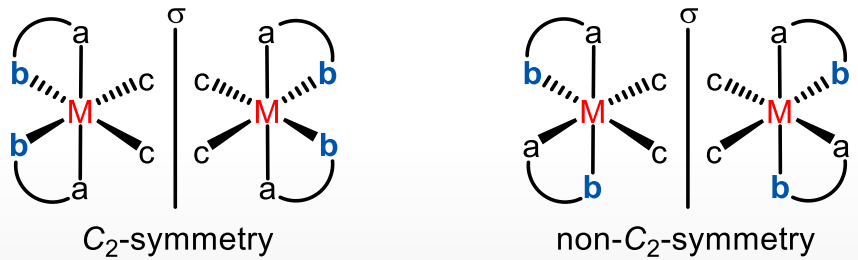
Acc. Chem. Res. **2019**, *52*, 833

Electricity-driven asymmetric catalysis

Nat. Catal. **2019**, *2*, 34

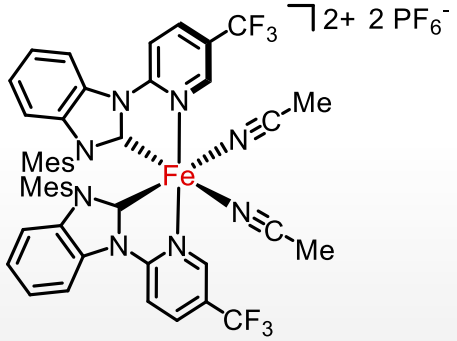
Nat. Catal. **2023**, *6*, 1186

achiral ligands



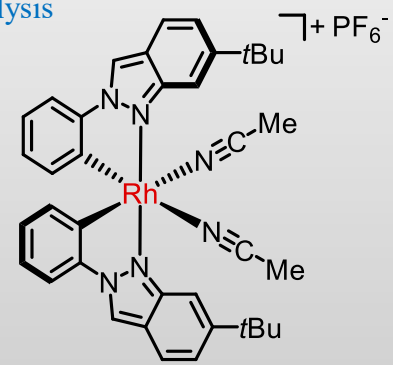
ab = inert bidentate ligand, b = strong σ-donor, c = labile ligand

stereogenic metal



Hetero-Diels-Alder reactions

JACS **2019**, *141*, 4569; *OM* **2022**, *41*, 3852

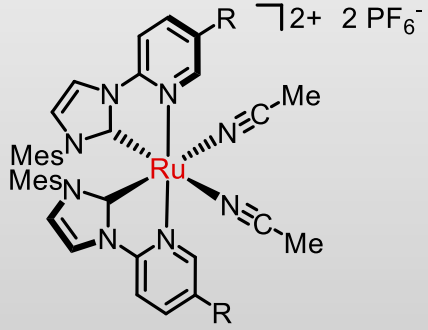


Photoredox cyanoalkylations

Chem. Eur. J. **2019**, *25*, 15333

Photoderacemization

JACS **2021**, *143*, 13393



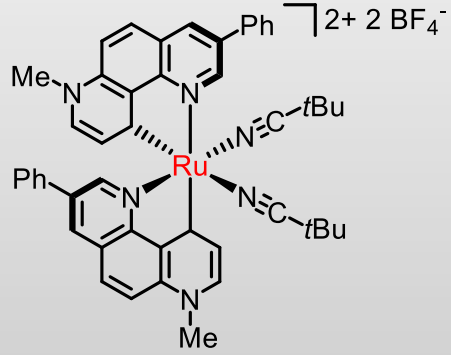
Alkynylation of CF_3 ketones

JACS **2017**, *139*, 4322

Enantioselective C-H amination

ACIE **2019**, *58*, 1088; *Chem. Sci.* **2019**, *10*, 3202

Chem **2020**, *6*, 2024; *Nat. Chem.* **2022**, *14*, 566



Enantioselective C-H amidation

JACS **2019**, *141*, 19048

See also our recent review on chiral-at-metal catalysts: *Chem. Soc. Rev.* **2025**, *54*, 1986