Diastereoselective [4+4] Cycloadditions

Significance: Chirik and co-workers report a regio- and diastereoselective iron-catalyzed [4+4]-cycloaddition of 1,3-dienes, leading to various substituted cyclooctadienes in excellent yields.

Comment: Remarkably, with the choice of the iron catalyst, the cycloaddimerization can be controlled in a diastereoselective fashion. Extensive mechanistic studies were performed and catalytically relevant iron complexes were isolated and characterized.