

Shuttle Catalysis – a Conceptual Blueprint for Reversible Functional Group Transfer

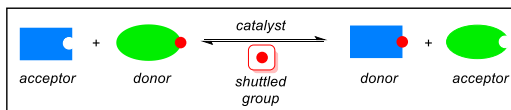
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Catalytic reversible reactions, such as alkene metathesis and transfer hydrogenation, have had an auspicious impact on the molecular sciences. This presentation will describe our efforts to develop related “shuttle catalysis” reactions for the functionalization and defunctionalization of organic compounds.¹⁻⁶ These reactions avoid the use of toxic reagents (e.g. HCN, CO) through the reversible transfer of chemical moieties between organic molecules. Shuttle catalysis has further been employed in the development of novel single bond metathesis reactions that can help to address significant synthetic challenges across the molecular sciences.



Selected References:

(1) Xianjie Fang, Peng Yu, Bill Morandi, *Science* **2016**, *351*, 832. (2) Xianjie Fang, Bastien Cacherat, Bill Morandi, *Nat. Chem.* **2017**, *9*, 1105. (3) Benjamin N. Bhawal, Bill Morandi, *ACS Catal.* **2016**, *6*, 7528. (4) Zhong Lian, Benjamin N. Bhawal, Peng Yu, Bill Morandi, *Science* **2017**, *356*, 1059. (5) Yong Ho Lee, Bill Morandi, *Nat. Chem.* **2018**, *10*, 1016. (6) Benjamin N. Bhawal, Bill Morandi, *Angew. Chem. Int. Ed.* **2019**, *58*, 10074.