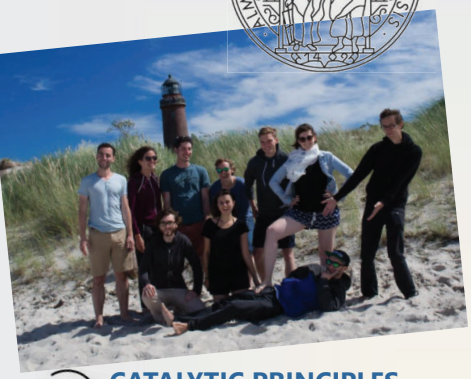
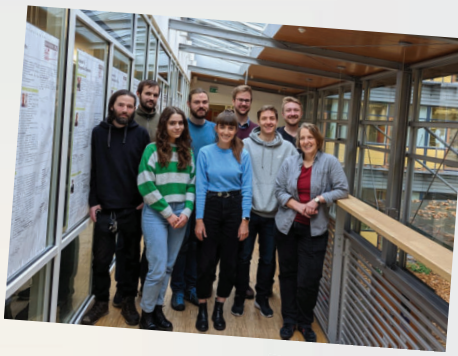
UNIVERSITÄT LEIPZIG

ZEITLER GROUP
Institute of Organic Chemistry

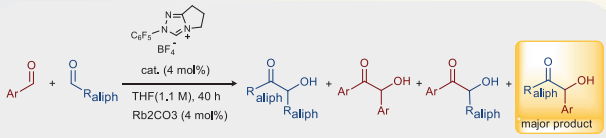


Catalysis for Organic Synthesis
using **nature** as a blueprint

CATALYTIC PRINCIPLES ● REACTION COURSE ● CATALYST DESIGN ● PROCESS REGULATION

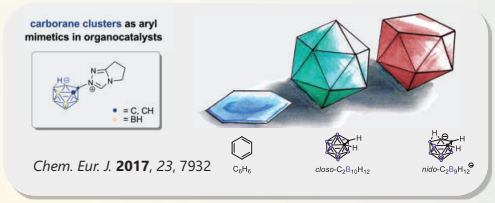


CATALYTIC PRINCIPLES
using *N*-Heterocyclic Carbenes (NHCs)
Cross Acyloin Reactions

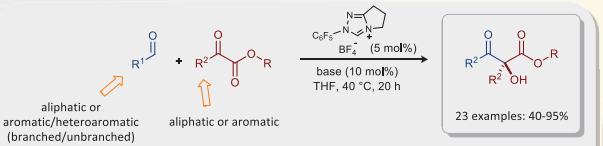


J. Org. Chem. **2011**, *76*, 347

CATALYST DESIGN
for *N*-Heterocyclic Carbenes (NHCs)
Carboranes as Aryl Mimetics

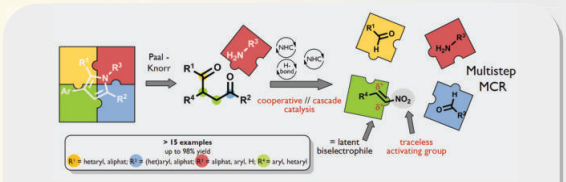


Chem. Eur. J. **2017**, *23*, 7932

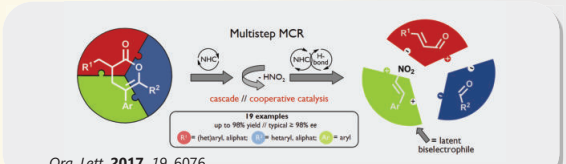


Chem. Sci. **2012**, *3*, 735

REACTION COURSE involving NHCs
Multicatalysis for Multicomponent Reactions

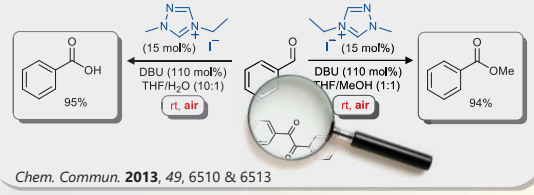


J. Org. Chem. **2017**, *82*, 7796

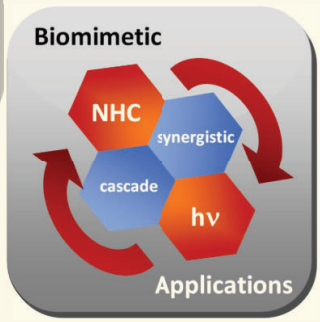


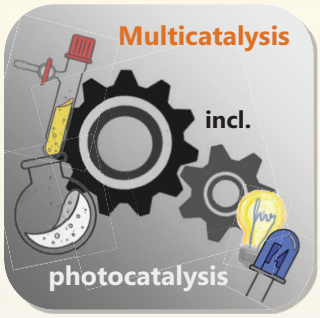
Org. Lett. **2017**, *19*, 6076

NHC-Catalyzed Aerobic Oxidations

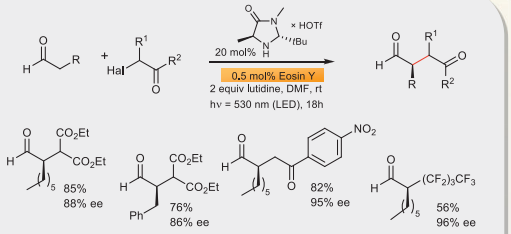


Chem. Commun. **2013**, *49*, 6510 & 6513



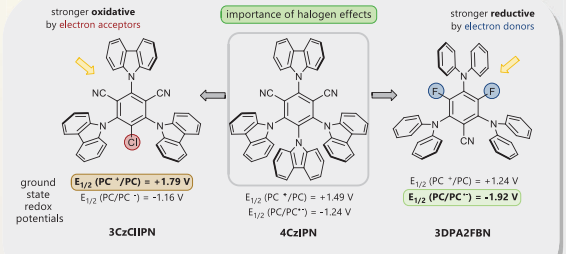


CATALYTIC PRINCIPLES
Photoredox Organocatalysis
Enantioselective α-Alkylation of Aldehydes



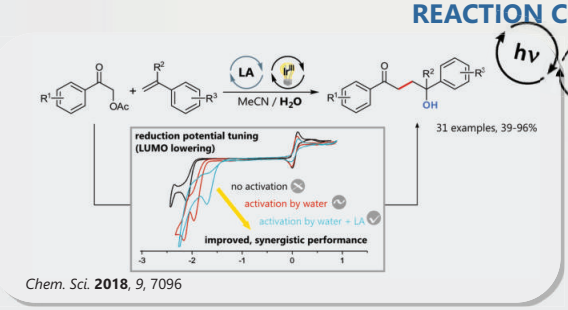
Angew. Chem. Int. Ed. **2011**, *50*, 951

CATALYST DESIGN
for Organic Photocatalysts
Donor-Acceptor Cyanoarenes

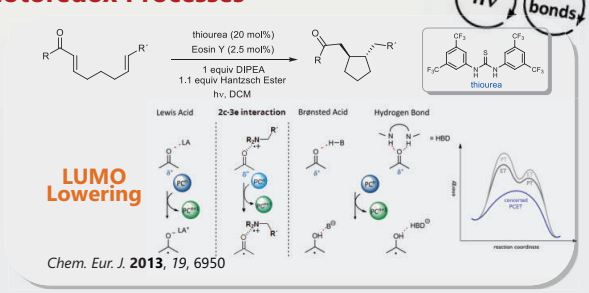


J. Am. Chem. Sci. **2018**, *140*, 15353

REACTION COURSE - MULTICATALYTIC Photoredox Processes



Chem. Sci. **2018**, *9*, 7096



Chem. Eur. J. **2013**, *19*, 6950