Explorations into Unprecedented Catalysts and Reactions

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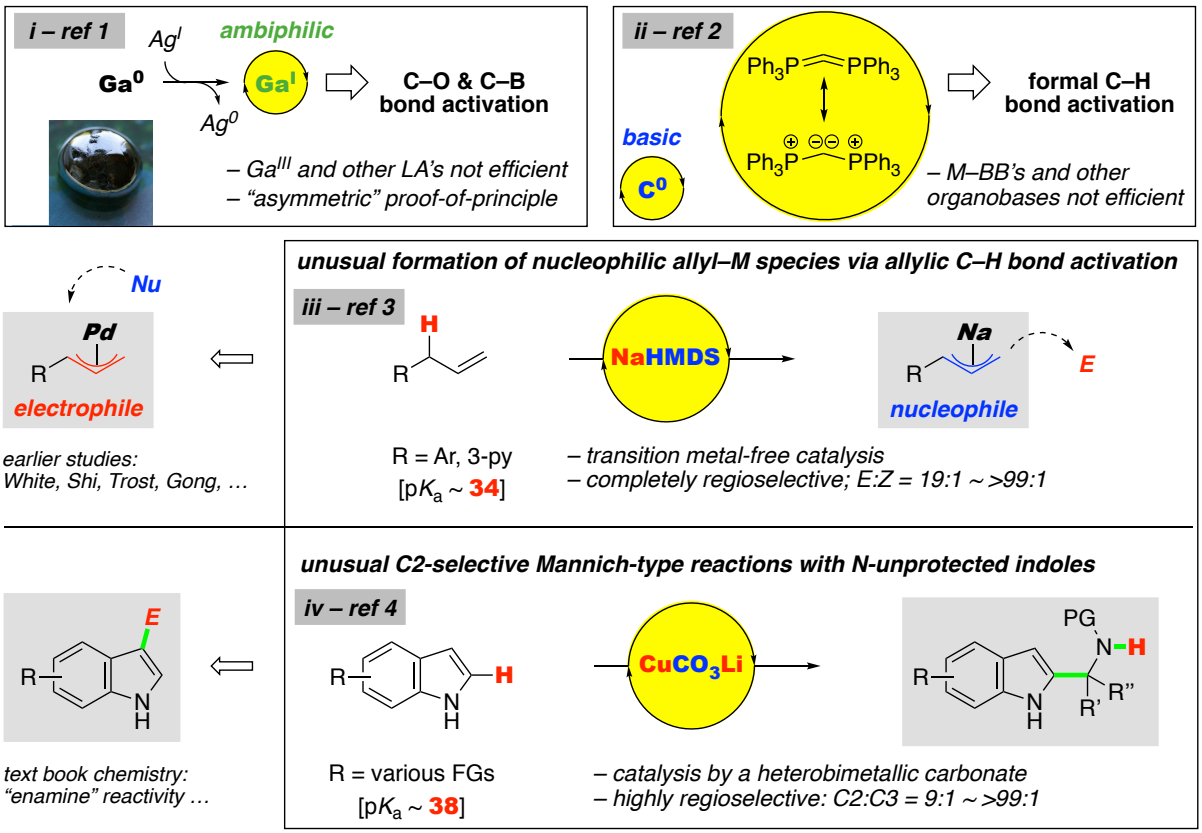
The seminar summarizes the development of new low-oxidation state catalysts in synthesis: a potentially ambiphilic Ga(I) species formed *in situ* from gallium metal (Scheme **1–*i***);[1] a basic C(0) species, i.e., a carbodiphosphorane (Scheme **1–*ii***).[2] In addition, the functionalization of challenging C–H bonds by non-precious metal–base catalysts will be detailed: the sodium amide-triggered allylic C(sp^3)–H bond activation of aromatic alkenes (pK_a ~ 34; Scheme **1–*iii***);[3] the copper(I)/lithium carbonate-catalyzed C2-selective Mannich-type reactions with various *N*-unprotected indoles (pK_a ~ 38; Scheme **1–*iv***).[4]



References

[1] Qin, B.; Schneider, U. *J. Am. Chem. Soc.* **2016**, *138*, 13119–13122.

[2] Richards, J.; Kossen, H.; Bao, W.; Schneider, U. *J. Am. Chem. Soc.* (under review).

[3] Bao, W.; Kossen, H.; Schneider, U. *J. Am. Chem. Soc.* **2017**, *139*, 4362–4365.

[4] Richards, J.; Schneider, U. *J. Am. Chem. Soc.* (under review).

Uwe Schneider was born in Würzburg, Germany, and studied Chemistry in Germany as well as in France. He received a Ph.D. degree in Organic Chemistry at IRCOF, France, with Professor Pannecoucke and Professor Quirion (2003). Next, he did his ERATO postdoctoral work with Professor Shu Kobayashi at the University of Tokyo, before being appointed as an Assistant Professor at the University of Tokyo (2007). Subsequently, he moved to the University of Edinburgh, UK, to become a Lecturer (2011). His research interests include the development of both new catalysts and new reactions.