## PARADIGMS OF COOPERATIVE VS. NON-COOPERATIVE LIGANDS IN METAL PINCER COMPLEXES IN (DE)HYDROGENATION REACTIONS

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In our studies, we found on the one hand that catalysts with non-cooperative pincer ligands, like P(NMe)P, are active for dehydrogenation reactions, but on the other hand and in strong contrast cooperative ligands, like P(NH)P, are crucial for hydrogenation reactions. [1-3] Additionally, the choice of solvent has a strong influence on the product selectivity in certain cases. For example under polar protic conditions nitriles are converted into primary amines and under non-polar non-protic conditions nitriles are converted into homo-coupled imines, likewise nitriles can be coupled with amines to form unsymmetrical secondary imines. [2] Moreover, the amination of alcohols with NH<sub>3</sub> using catalysts with non-cooperative ligands are much superior to cooperative ligands. [3]

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<sup>[2]</sup> J.-H. Choi, M. H. G. Prechtl, Chemcatchem 2015, 7, 1023-1028.

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