

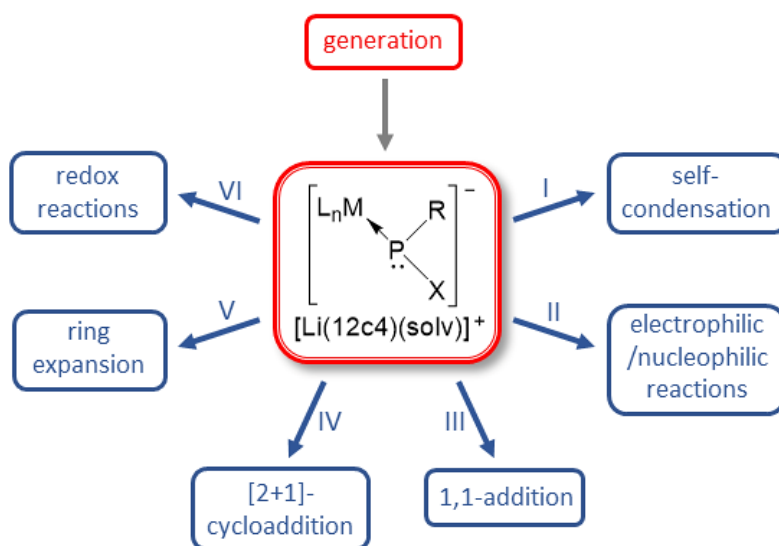
The chemistry of Li/Cl phosphinidenoid metal complexes

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In 2007, we gained first strong evidence for the formation of thermally labile Li/Cl phosphinidenoid metal(0) complexes. Since then, intense studies focused on the steric demand of the P-substituents in combination with metal complexation, a donor solvent and/or the presence of crown ether are necessary pre-requisites for the formation and, especially, the usability of these intermediates as novel P₁ building block. Solution phase NMR spectroscopic, as well as solid state X-ray diffraction studies, revealed the bonding situation, *i.e.* a solvent-separated ion pair structure, and typical ³¹P NMR signatures of the anions, all of which will be addressed in this lecture. The following reactivity patterns of Li/Cl phosphinidenoid complexes will be illustrated: self-condensations (I), electrophilic and nucleophilic reactions (II), 1,1-additions (III), [2+1]-cycloadditions (IV), ring expansions (V) and redox reactions (VI).[1]



Scheme 1. Scope of different reactions of Li/Cl phosphinidenoid complexes.

Acknowledgement

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References

[1] A. Schmer, P. Junker, A. Espinosa Ferao, R. Streubel, *Acc. Chem. Res.* **2021**, DOI: org/10.1021/acs.accounts.1c00017.