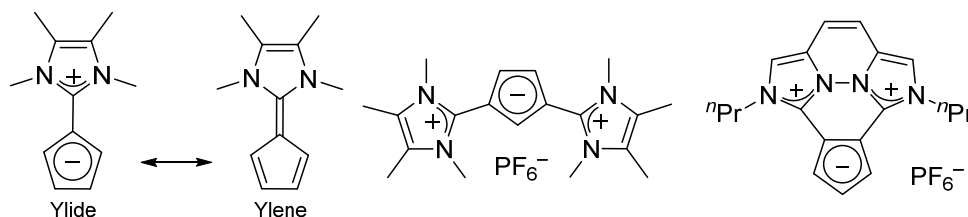


ELUCIDATING THE REACTIVITY OF EARLY TRANSITION METAL COMPLEXES BEARING ELECTRON POOR Cp-LIGANDS

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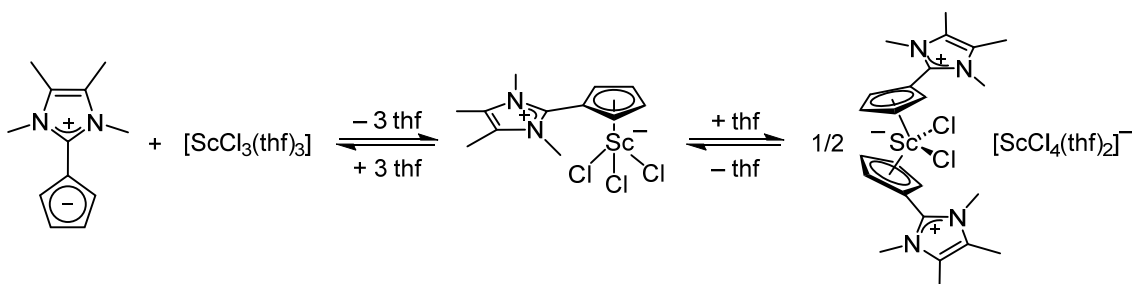
Electron poor Cp-ligands are still a neglected ligand class. We have prepared imidazole-ylidene derived fulvalenes that can be considered π -isoelectronic to sesquifulvalene, and which are better described as imidazolium substituted cyclopentadienides due to their highly ylidic character [1].



Upon substitution with additional imidazolium moieties, we achieved several Cp-ligands whose electron donating character can be adjusted incrementally depending on the number of imidazolium moieties and the coplanarity of the Cp and the imidazolium moieties [2].

The versatility of the ligands lies in the straightforward formation of Cp complexes by mere addition to the metal center, avoiding any salt formation or redox reactions [3].

We have now investigated the formation of Group 3 [4] and Group 4 [5] metal complexes with these (Imi-Cp)-ligands and found the formation of interesting equilibria, which we elucidated by NMR techniques, and which depend strongly on the reaction conditions, e.g. solvent and counter ions.



As the complexes contain electron poorer metal centers than regular Cp complexes, they should be interesting for Lewis-acid catalyzed reactions. Therefore, we investigated (Imi-Cp) titanium complexes in the intramolecular hydroamination of terminal alkenes, whose results will also be discussed in the presentation [5].

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[2] a) F. Mazzotta, G. Zitzer, B. Speiser, D. Kunz, *Chem. Eur. J.* **2020**, *26*, 16291–16305; b) F. Mazzotta, K. W. Törnroos, D. Kunz, *Organometallics* **2020**, *39*, 3590–3601.

[3] D. Schmid, A. Seyboldt, K. Eichele, D. Kunz, *Dalton Trans.* **2017**, *46*, 29–32.

[4] F. Mazzotta, D. Kunz, *Organometallics* **2021**, *40*, 3003–3011.

[5] unpublished results.