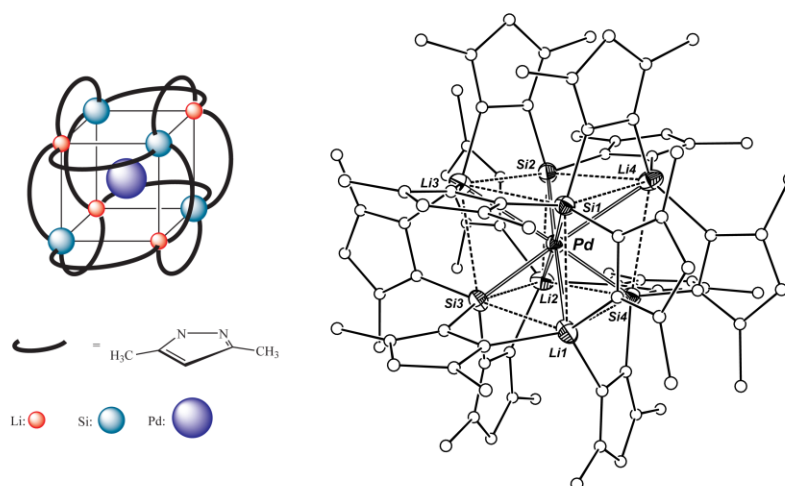


## A New Family of Metal-Centred Heterocubanes

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Alkyl, silyl, and phosphane ligands are amongst the most familiar and ubiquitous ligands in organometallic and coordination chemistry.<sup>[1]</sup> All ligands are related to each other by the isolobal analogy. The implementation of further donor atoms to these entities results in the formation of multifunctional ligands.<sup>[2]</sup> Among these, we are particularly interested in anionic tris(pyrazolyl)methanides<sup>[2]</sup> as well as -silanides.<sup>[3]</sup> Taking advantage of the additional *N*-donor sites, our present studies concern the elucidation of the coordination chemistry of the Si-centred ligand  $[\text{Si}(3,5\text{-Me}_2\text{pz})_3]^-$  (<sup>Me</sup>Tpsd).



To this end, we reacted the lithium salt of the latter with suitable precursor complexes of the late transition metals palladium and platinum, *i.e.*  $[\text{M}(\text{P}^t\text{Bu}_3)_2]$  (with  $\text{M} = \text{Pd}, \text{Pt}$ ). In each case, we were able to isolate very appealing, metal-centred heterocubane structures of the general formula  $[\text{MLi}_4(\text{Me}^-\text{Tpsd})_4]$  (see Figure). Both compounds are composed of a central metal atom, which are coordinated by four anionic, multifunctional <sup>Me</sup>Tpsd ligands. The lithium counter cations are in turn coordinated by the *N*-donors of the pyrazolyl ligands, showing additional contacts to the central metal atoms. The title compounds have been characterised in detail, in particular by various multinuclear NMR methods such as <sup>7</sup>Li, <sup>29</sup>Si HMQC and <sup>7</sup>Li, <sup>195</sup>Pt HMQC.

[1] P. Braunstein, N. M. Boag, *Angew. Chem. Int. Ed.* **2001**, *40*, 2427. [2] I. Kuzu, I. Krummenacher, J. Meyer, F. Armbruster, F. Breher, *Dalton Trans.* **2008**, 5836. [2] Breher and Mountford *et al.* in *Angew. Chem. Int. Ed.* **2004**, *43*, 2521; *Dalton Trans.* **2006**, 1073; *Chem. Eur. J.* **2008**, *14*, 5918; *Chem. Eur. J.* **2009**, *15*, 4350; *Organometallics* **2010**, *29*, 1174. [3] F. Armbruster I. Fernández, F. Breher, *Dalton Trans.* **2009**, 5612; I. Fernández, P. Oña-Burgos, F. Armbruster, I. Krummenacher, F. Breher, *Chem. Commun.* **2009**, 2586.