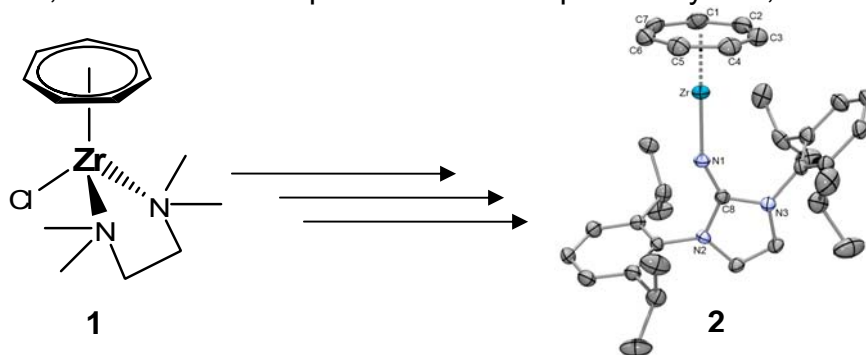


From Cycloheptatrienyl-Allyl Zirconium Complexes to a Cycloheptatrienyl Pogo-Stick Molecule with Imido-Type Reactivity

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The complex $[(\eta^7\text{-C}_7\text{H}_7)\text{ZrCl}(\text{tmeda})]$ (**1**) (tmeda= N,N,N',N'-tetramethylethylene-1,2-diamine) turned out to be a fairly versatile starting-material for the incorporation of monanionic ligands into the cycloheptatrienyl zirconium coordination sphere by a transmetalation reaction. **1** has been used for the synthesis and characterization of half-open trozircenes $[(\eta^7\text{-C}_7\text{H}_7)\text{Zr}(\eta^5\text{-PdI})]$ (PdI= pentadienyl),^[1] several substituted trozircenes $[(\eta^7\text{-C}_7\text{H}_7)\text{Zr}(\eta^5\text{-C}_5\text{H}_4\text{R})]$ ^[2] and also phosphatrozircenes $[(\eta^7\text{-C}_7\text{H}_7)\text{Zr}(\eta^5\text{-C}_4\text{PR}_4)]$.^[3] Therefore, it is possible to extend the chemistry of group 4 cycloheptatrienyl complexes, which has been quite fruitful in the past few years, even more.^[4]



We now wish to report our latest results concerning cycloheptatrienyl-allyl zirconium complexes. Subsequent reactions allowed for the formation of the first cycloheptatrienyl pogo-stick molecule **2**, which has a very short Zr-N bond (1.997 Å). This complex can be regarded as isoelectronic and isolobal to imido-complexes of the type $[(\eta^8\text{-C}_8\text{H}_8)\text{Ti}(\text{NR})]$ (R= ^tBu, 2,6-ⁱPr₂C₆H₃)^[5] and can be expected to undergo typical imido-type reactions such as [2+2] cycloadditions or insertions.^[6] Indeed, the reaction of an appropriate substrate with **2** resulted in a four-membered metallacycle, whereas other substrates simply coordinated to **2**.

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