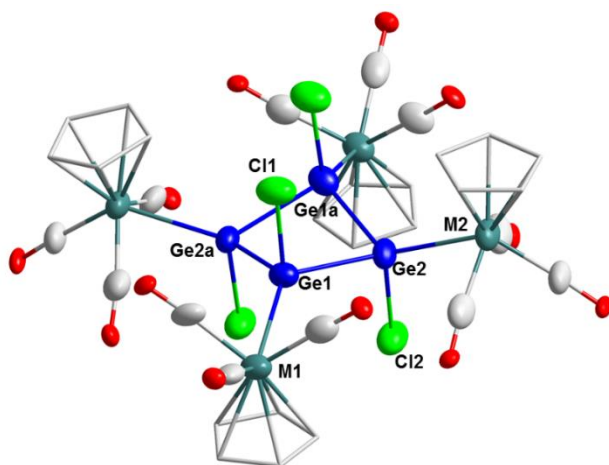


# [GeCIMCp(CO)<sub>3</sub>]<sub>4</sub> (M= Cr, Mo, W): A series of transition metal substituted four-membered cyclogermanes.<sup>[1]</sup>

*Lars Preiing; Claudio Schrenk; Andreas Schnepf;*

*Prof. Dr. Andreas Schnepf, Eberhard Karls Universitaet Tuebingen, Auf der Morgenstelle 18, Tuebingen, Germany*

Mixed substituted cyclogermanes with the general composition [GeXR]<sub>4</sub> (X= Cl, Br) are considered as synthetic intermediates on the way to bigger polyhedral clusters such as octagermacubanes.<sup>[2]</sup> However, there are only a few examples of such compounds stabilized by bulky substituents of group 14 Elements, e. g. -C(Me)<sub>3</sub>, -Si(SiMe<sub>3</sub>)<sub>3</sub> or -Ge(SiMe<sub>3</sub>)<sub>3</sub>.<sup>[3-5]</sup> The only known four-membered cyclogermane stabilized by transition metal based substituents is [GeBrMn(CO)<sub>5</sub>]<sub>4</sub> (1). Compound 1 was prepared by our group using a metastable Ge|Br-solution and NaMn(CO)<sub>5</sub>.<sup>[6]</sup> Other cyclogermanes are synthesized using germaniumtetrachloride or mixed substituted dichlorogermanes (GeCl<sub>2</sub>R<sub>2</sub>, GeCl<sub>2</sub>RR'), as well as, germaniumdichloride as the germanium halide source.<sup>[3-5]</sup>



**Figure 1. Molecular structure of [GeCIMCp(CO)<sub>3</sub>]<sub>4</sub> (M= Cr, Mo, W) 2-4 without hydrogen atoms. All atoms, except the carbon atoms of the Cp ligands, are shown with thermal ellipsoids set at 50% propability.**

Here we present a series of transition metal substituted four-membered cyclogermanes [GeCIMCp(CO)<sub>3</sub>]<sub>4</sub> (M= Cr, Mo, W) (2-4). Compounds 2-4 can be easily synthesized in moderate to good yield using germaniumdichloride. The syntheses are presented together with the molecular structures and further investigations.

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