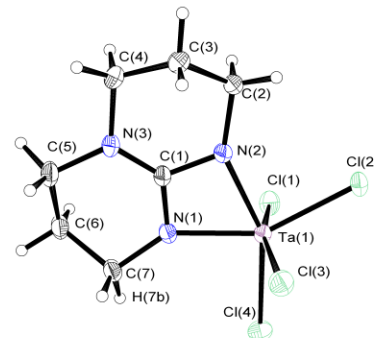


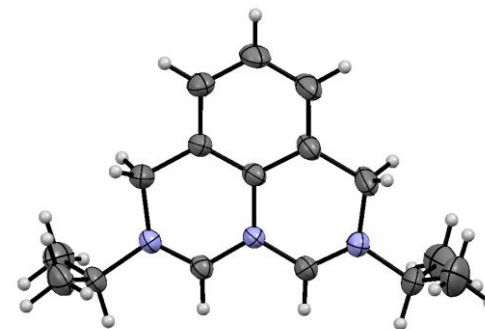
NOVEL N-HETEROBICYCLIC DICARBENES AND C₂-SYMMETRIC BICYCLIC GUANIDINATES AS DINUCLEATING LIGANDS IN TRANSITION METAL CHEMISTRY

Louis Messerle, Department of Chemistry, The University of Iowa

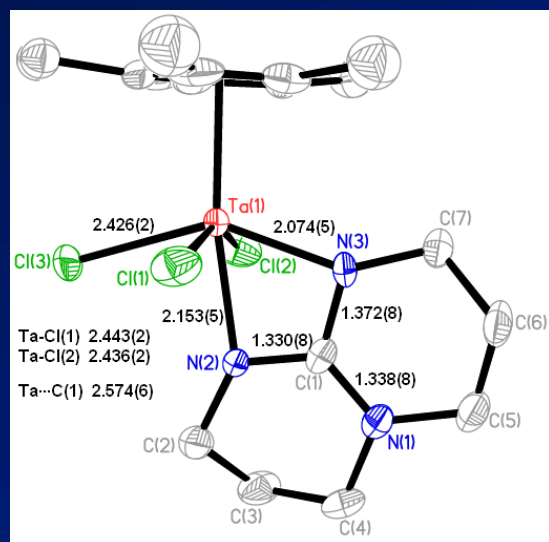
The aim of the research is to synthesize new dinucleating ligands that would support early transition metal-metal multiple bonds that could activate small molecules. Notable outcomes are (1) Ta complexes of the bicyclic guanidinate hpp⁻, (2) alkylated bicyclic guanidates, (3) lithiated N-heterobicyclic dicarbenes via deprotonation of bis(formamidinium) dications, and (4) the first metal-metal multiply-bonded complex with an NHC ligand, via CO substitution.



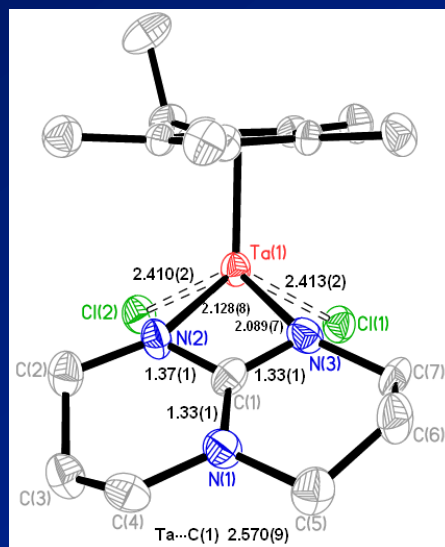
Ta(hpp)Cl₄



dication



Cp^{*}Ta(hpp)Cl₃



Cp^{''}Ta^{IV}(hpp)Cl₂

Cp₂Mo₂(CO)₃(NHC)

