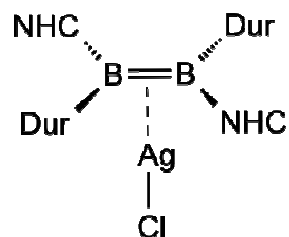
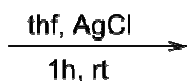
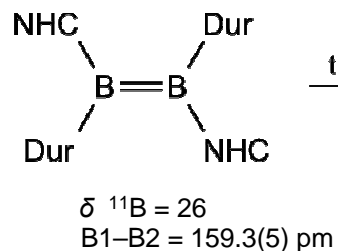
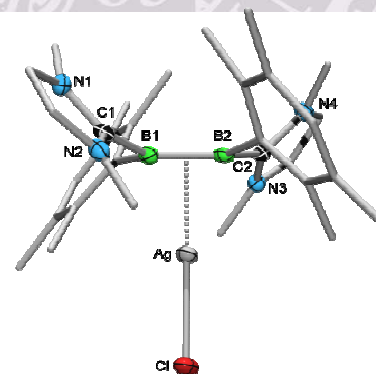


# Coordination of Base-stabilized Diborenes to Transition Metals

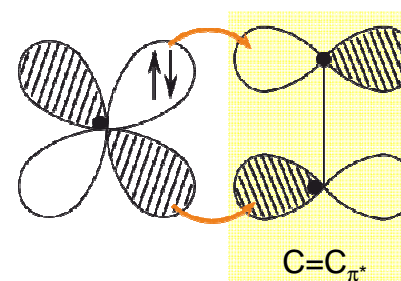
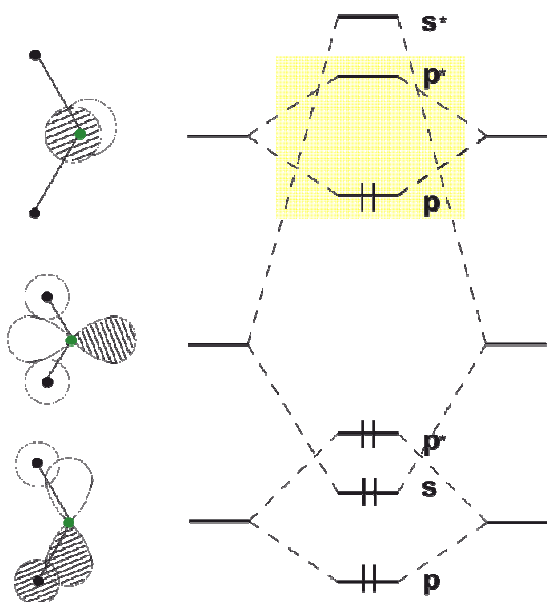
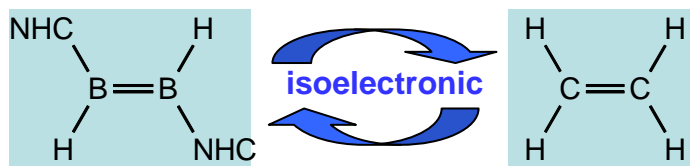


$\delta^{11}\text{B} = 18$ ,  
 yellow solid,  
 100% conversion (NMR)

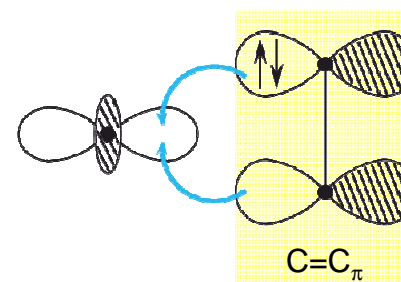


$\text{B1-B2} = 164.8(2)$ ,  
 $\text{Ag-B1} = 231.6(4)$ ,  
 $\text{Ag-B2} = 236.3(3) \text{ pm}$

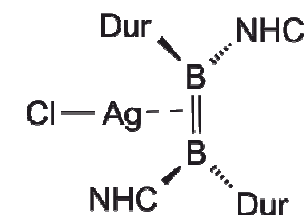
*Angew. Chem. Int. Ed.*  
 2012, 51, 9931.



metal-to-ligand  $\pi$ -backbond



ligand-to-metal  $\sigma$ -bond



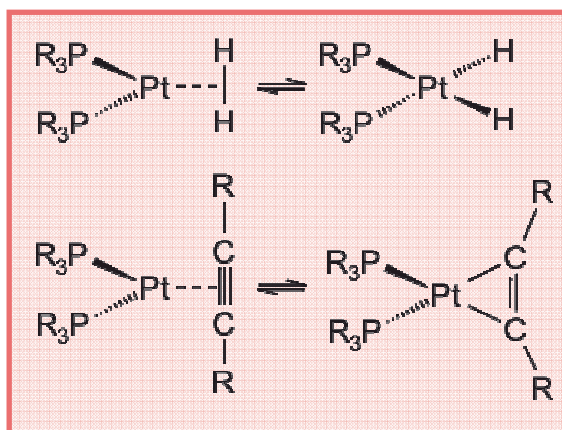
$\pi$ -backbonding into  
 $\text{B}=\text{B}_{\pi^*}$  orbital



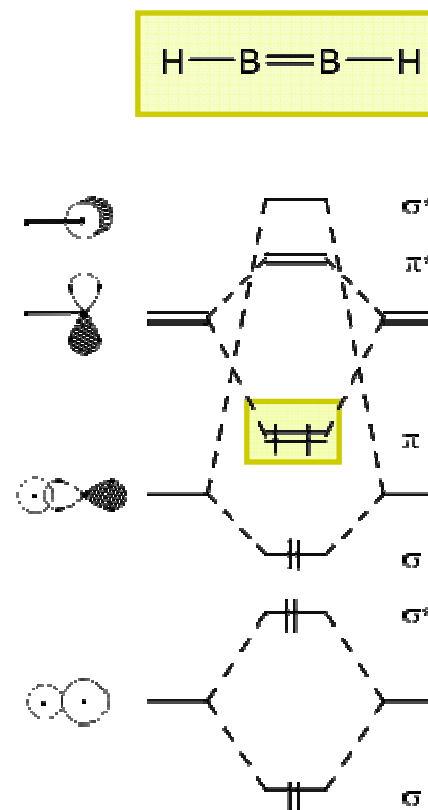
weakening of the B=B  
 bond upon *side-on*  
 coordination



B-B bond lengthens by  
 6 pm

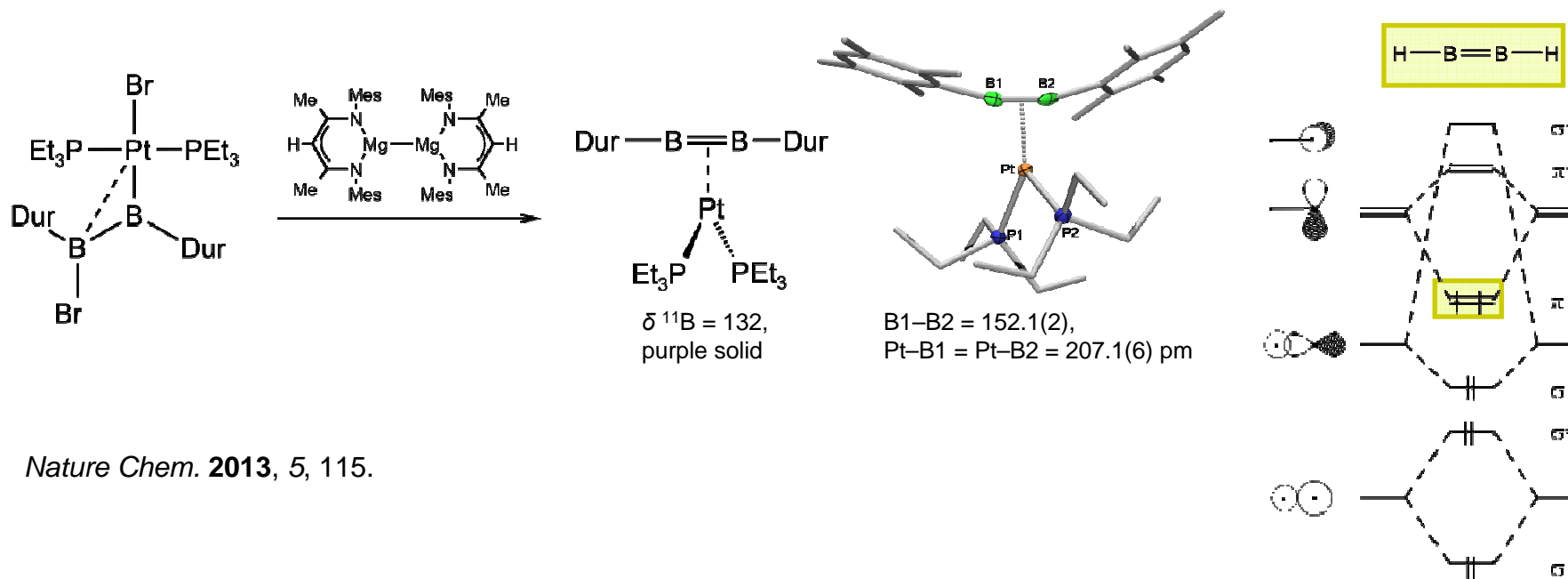


*side-on* coordination of E-E or E=E:  
 -  $\sigma$ -donation from bonding MO  
 -  $\pi$ -backdonation into **antibonding MO**  
 → weakening (ox. add.) of E-E bond  
 activation according to DCD model



*side-on* coordination of B=B:  
 -  $\sigma$ -donation from bonding MO  
 -  $\pi$ -backdonation into **bonding MO**  
 → strengthening of B-B bond

# Diborene Coordination to Platinum: Implications for the DCD-Model



Nature Chem. 2013, 5, 115.

