

Ch 112

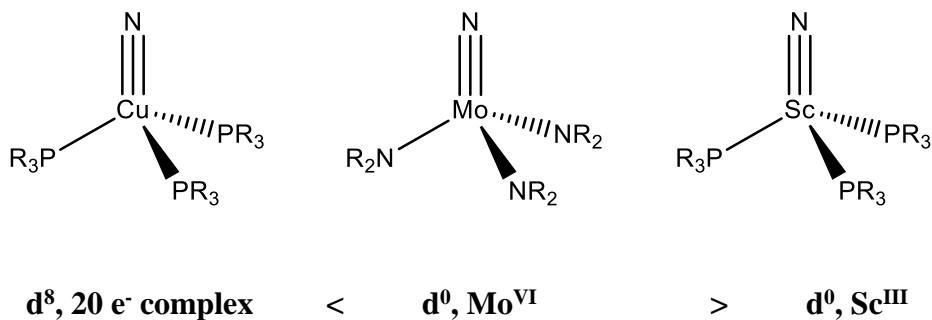
In class exercise

Nov 1, 2016

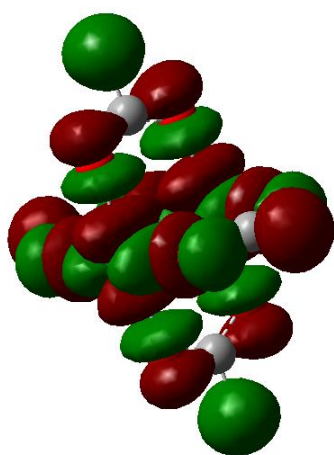
1. Consider end-on binding of dinitrogen to the bent metallocene fragments $[\text{Cp}_2\text{Zr}]$ and $[\text{Cp}_2\text{Zr}]^{2+}$. Which fragment is more likely to bind N_2 ?

Cp_2ZrN_2

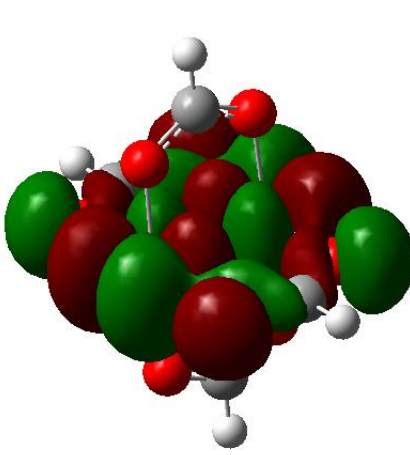
2. Given that Mo(VI) forms very strong bonds with nitrides, such as in the molecule shown below, evaluate the stability of the related Cu and Sc complexes:



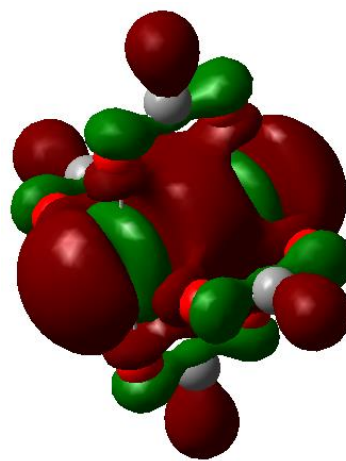
3. Below are calculated molecular orbitals of $\text{Rh}_2(\text{O}_2\text{CH})_4$. Assign each molecular orbital to the type of M-M interaction (σ , σ^* , π ...etc.). Based on the molecular orbital diagram of $\text{Rh}_2(\text{O}_2\text{CH})_4$, determine whether each MO would be filled or not. What is the expected M-M bond order for the Mo analog $\text{Mo}_2(\text{O}_2\text{CH})_4$?



δ , filled



π^* , partly filled



σ , filled

M-M BO for Mo : 4