

Abstract

Most chemical processes are 2-electron processes. How can cheap first row metals (3d metals – Elements Sc-Zn) which typically undergo radical chemistry ($\text{Fe}^{\text{II/III}}$, $\text{Co}^{\text{II/III}}$, or $\text{Cu}^{\text{I/II}}$) perform 2-electron chemistry? Can 4d metals (Elements Y-Cd) and 5d metals (Elements La-Hg) participate in communication when they typically perform isolated 2-electron chemistry? What does 4d/5d interactions tell us about 3d cooperativity?