Metal-ligand Cooperative X–H Bond Cleavage/Formation in Homogeneous and Heterogeneous Catalysis

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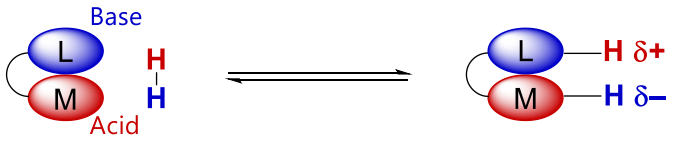
In the last 30 years, metal-ligand cooperative H–H bond cleavage has been extensively studied. In most cases, the ligand acts as Lewis base, and the metal acts as Lewis acid, which results in heterolytic cleavage of dihydrogen into a proton on the ligand and a hydride on the metal. Here in this presentation, the use of heterolytic cleavage of H_2 will be discussed in CpOH/metal catalyzed hydrogenolysis of C–O single bonds.[1] Furthermore, the concept will be extended to heterogeneous catalysis for hydrogenolysis of C–O single bonds.[2] Homogeneous catalysis with metal-ligand cooperative other X–H bond cleavage by CpOH/metal species will be also discussed.[3,4]



References

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