Mechanistic Studies on Rhodium and Iridium Homogeneous Catalysts

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The catalysis field began in the nineteenth century with the work on hetereogeneous platinum group metals. This background influences the first homogeneous platinum metal catalysts, where rhodium and iridium have been key elements on the understanding of homogeneous catalysts.

Precise determination of the mechanism of a catalytic process is essential in order to control the selectivity outcome. We will discuss the catalytic activity of a set of rhodium and iridium complexes with N-heterocyclic carbene (NHC) ligands in some specific homogeneous reactions. The high steric hindrance and powerful electron-donor capacity of the bulky NHC´s used, along with ancillary N-donor ligands, seems to be determinant to get selective transformations and to facilitate valuable information about the mechanism of the mentioned reactions