Development of new reactions with multinuclear active centers

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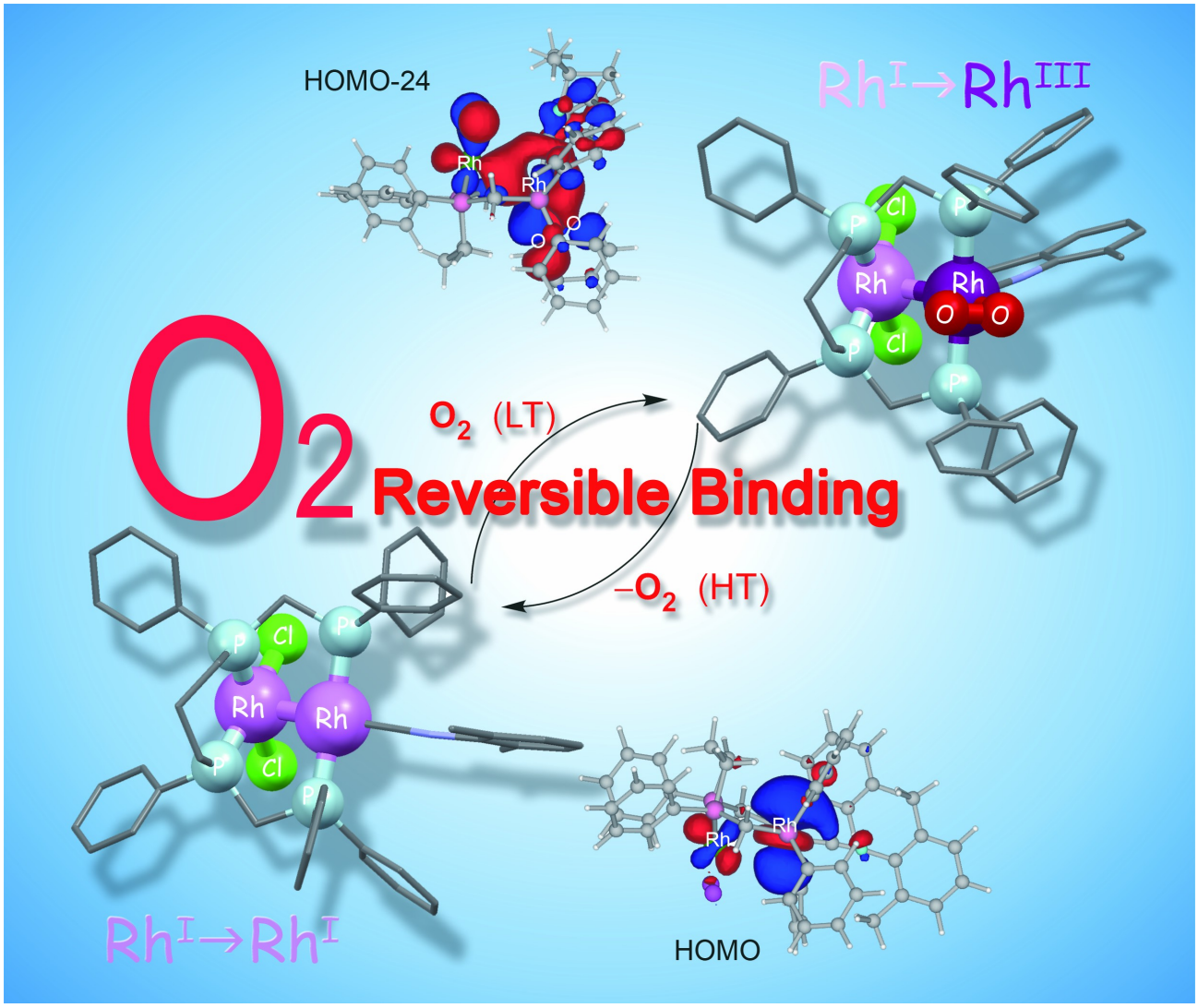

Reversible dioxygen binding on dinuclear rhodium centers

Transition metals have their own unique reactivities and are widely used as catalysts for mass production of medicine, agrichemicals, and electronic materials in the industrial chemistry. However, these catalysts are mononuclear complexes in many cases. In contrast, transition-metal clusters have attracted considerable interest due to their diverse properties such as catalyst, electronic, and magnetic devices induced by synergistic effects between adjacent metal centers, which are not established by mononuclear complexes. Our group has synthesized various homo- and heteromultinuclear structures supported with multidentate phosphine ligands, aiming to develop environmentally benign and energy saving catalytic process. We have recently found reversible dioxygen binding on dinuclear rhodium centers..

Keywords : Organometallic Chemistry, Transition-metal Cluster, Synergistic Effect, Multidentate Ligand