Design and synthesis of high-performance transition metal complex catalysts and development of novel environmentally-benign organic reactions

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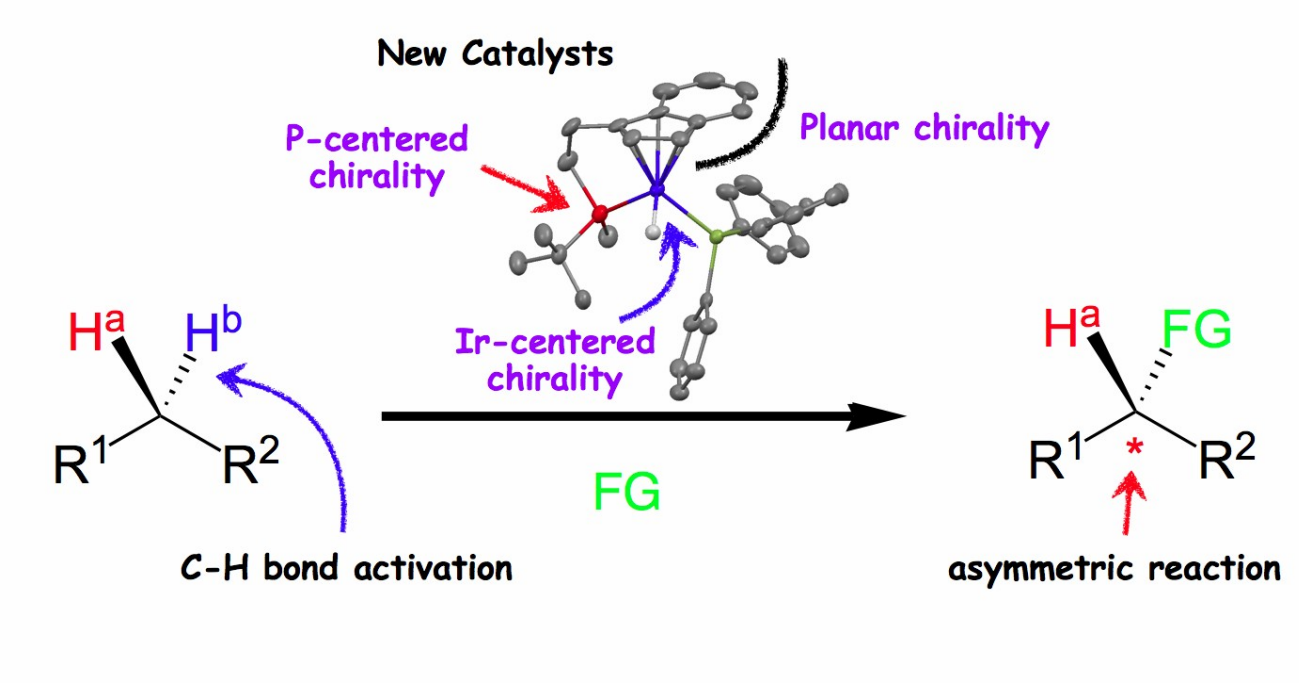

A challenge to develop the asymmetric C-H bond functionalization

The mission of our research is to establish the reaction system including the asymmetric carbon-hydrogen bond activation using transition metal catalysts, which is essential for synthetic organic chemistry in the 21st century to prepare desirable compounds with low environmental load. This system opens the door for the efficient synthesis of target organic molecules with complicated structures but unfortunately the development is halfway. In order to achieve the mission, we planed to use transition metal complexes having a metal-centered chirality, prepared by means of our designed Ind-P ligand, as catalysts. We are currently studying the synthesis and reactivity of transition metal complexes bearing the Ind-P ligand, and the development of asymmetric reactions and C-H bond activations using these complexes.

Keywords : bond activation, asymmetric reaction, iridium complex, metal-centered chirality