LOW-VALENT COBALT-CATALYZED C–C BOND FORMATION THROUGH IMINE-DIRECTED C–H ACTIVATION

This thesis has led to significant advancement of low-valent cobalt catalysis for directed C–H functionalization, especially in terms of the design of catalysts and substrates. The successful development of linear-selective ligands in chapter 2 would hold promise for design and discovery of novel ligands that can not only control the selectivity but also enhance the catalytic activity in various cobalt-catalyzed C–H functionalization reactions. The demonstration of Mg-based catalytic systems, described in Chapter 3, would stimulate not only the use of this reductant in other hydroarylation reactions but also exploration of even more convenient and effective reductants. The power of N–H imine directing group amply demonstrated in Chapter 4–6, deserves further studies from practical and mechanistic points of view.

Date: 20 November 2017
Time: 10.00 AM
Venue: SPMS-LT4, SPMS Level 3
Supervisor: Assoc Prof Naohiko Yoshikai