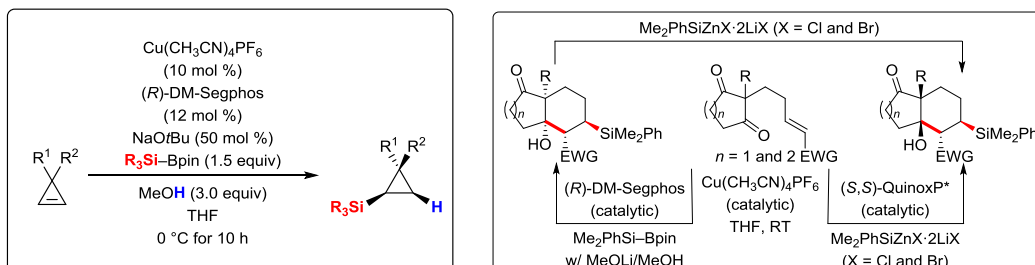


C(vinyl sp^2 , sp^3)-Si bond formation through cross-coupling reactions and asymmetric silyl addition reactions

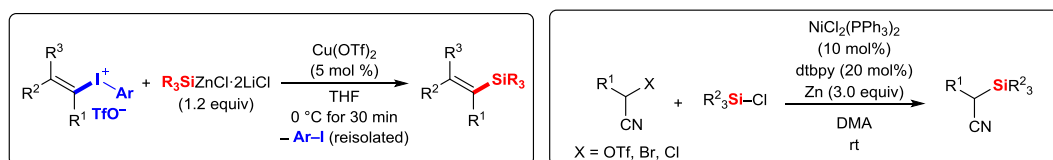
Liangliang Zhang – WS17 batch

Supervisor: Prof. Dr. Martin Oestreich

1. Asymmetric Silyl Addition Reactions



2. Catalytic C–Si (reductive) Cross-Coupling Reactions



My research is dedicated to the development of catalytic C–Si (reductive) cross-coupling reactions and asymmetric silyl addition reactions, we realized a copper-catalyzed C(sp^2)-Si cross-coupling of vinylidonium salts and zinc-based silicon nucleophiles, and a nickel-catalyzed reductive C(sp^3)-Si cross-coupling of alkyl electrophiles and chlorosilanes. Moreover, regarding asymmetric catalysis, we achieved a copper-catalyzed enantio- and diastereoselective addition of silicon nucleophiles to 3,3-disubstituted cyclopropenes, and a copper-catalyzed diastereotopic group-selective intramolecular aldol reactions initiated by enantioselective conjugate silylation (diastereodivergence controlled by the silicon nucleophile).