Chiral phosphoric acids have become one of the most versatile types of chiral Brønsted acid catalysts identified to date and have been applied to a broad range of enantioselective transformations. In my continuing efforts to broaden the scope of enantioselective catalysis by 1, activation of oxygenated functional groups other than imines and related functional groups is our recent research interest (eq. 1 and 2). To expand the scope of chiral Brønsted acid catalysis, recently a novel chiral bis-phosphoric acid 2 was developed as a highly active and efficient enantioselective catalyst (eq. 3). On the other hand, intense interest has been devoted to the development of chiral uncharged organosuperbase catalysts during the past decade. In an effort to expand the scope of chiral Brønsted base catalysis, development of much stronger organosuperbase is highly demanded. We hence designed a pseudo C2-symmetric bis(guanidino)iminophosphorane 3 as a novel family of chiral organosuperbases (eq. 4). In my presentation, I would like to introduce recent progress of enantioselective catalysis using these chiral Brønsted acid catalysts (1 and 2) and base catalysts (3).

References


Date: 13th March 2014 (Thursday)
Time: 4:00pm – 5:30pm
Venue: NTU SPMS CBC Building Level 2, Conference Room
Host: Professor Loh Teck Peng