Organocatalysis is considered by many to be an attractive, and potential “green” alternative to traditional metal-based catalysis. This research specifically seeks to develop new reaction methodologies that utilize chiral phosphoric acids as functional asymmetric organocatalysts for synthetically useful transformations. A second major direction is to utilize chiral phosphates as ligands for metal catalysis. In this presentation several new reaction methodologies that utilize chiral phosphoric acids or chiral phosphate metal complexes will be described and discussed. Our initial discoveries and our most recent developments that allow for the asymmetric allylation and propargylation of aldehydes will be highlighted. In addition new Diels-Alder and Hetero-Diels-Alder developments will also be introduced. Mechanistic efforts will be discussed, and will focus on computational analysis and NMR experiments.

Date: 15th March 2013 (Friday)
Time: 2:30pm – 4:00pm
Venue: NTU SPMS CBC Building Level 2, Conference Room
Host: Asst Professor Robin Chi