By incorporating a boron atom into ring system with the electronegative nitrogen atom, several B,N-containing aromatic molecules have been dramatically developed. In the first part of this thesis, we report a new member of azaborole family, namely, 1,4,2-diazaborole. X-ray diffraction analysis and computational studies demonstrate their aromatic property. The reactivity towards MeOTf and selectfluor, as well as, a series of skeletal transformation of 1,4,2-diazaboroles are also presented. The chemistry of main group elements in their low oxidation state has attracted significant research interest nowadays due to their unique reactivity. In the second part, we report a new Ge(0) species supported by an imino-N-heterocyclic carbene, which can be viewed as both a Ge(0) species and an aromatic mesoionic germylene. We also examine the nucleophilic property of Ge(0) species and reveal that the Ge center can act as a donor of two lone pairs.

**ORAL DEFENCE ANNOUNCEMENT**

**SU BOCHAO**

**Studies on the Chemistry of 1,4,2-Diazaborole and Germanium (0) Species**

Date: 26 April 2018 Thursday  
Time: 10 AM  
Venue: SPMS-LT4, Level 3, SPMS  
Supervisor: Assoc Prof Rei Kinjo