

ORAL DEFENCE ANNOUNCEMENT



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Development of C-P and N-P Bond Formation Reactions

Palladacycles are traditionally used as chiral resolving agents and chiral templates in asymmetric template promoted protocols for the generation of chiral phosphines. Recently, the catalytic activity of these compounds in asymmetric hydrophosphination for C- and P-chiral phosphine syntheses was also established. The P-H addition protocol to unsaturated double bond is a highly demanding strategy for C*-P bond formation, due to its atom economical nature and the variations of this reaction (C*-P* and O-P* bond formation methods) can lead to the formation of numerous new chiral phosphine products. In this thesis, synthesis strategies are disclosed for novel C*-P, double C-P and N-P* bond formation for C- and P-stereogenic phosphine syntheses using P-H addition strategies. Cyclometalation of the products to obtain optically pure N-C(sp³)-E (E=S,O) type pincer complexes and synthesis of chiral bimetallic palladium complexes were established. Derivatization protocol resulted in the formation of enantioenriched P-chiral diarylphosphinates.

Date:	17 April 2020
Time:	3pm
Venue:	Conference Room, Research & Graduate Studies Office, Level 2, SPMS
Supervisor:	Prof Leung Pak Hing
Co-Supervisor:	Dr Sumod