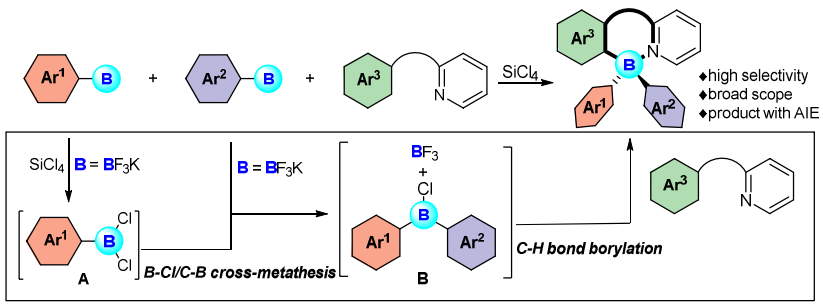
NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE | School of Physical and Mathematical Sciences, College of Science

CBC SEMINAR ANNOUNCEMENT

Professor Song Qiuling
Huaqiao Univeristy, China

Syntheses, Transformations and Applications of Organoboron Compounds

Since 1950's, the reaction and functional transformations of organoboron compounds have made important achievements. Organoboron compounds have been widely used in the synthesis of natural products, drug candidates and large molecules with biological activity, besides, they have also been employed to materials sciences, catalytic chemistry as well as pharmaceutical chemistry.[1] Focusing on the development of simple, efficient, green synthetic methods and new functional molecules, we have developed some reactions involving organoboron compounds,[2] such as B-Cl/C-B cross-metathesis and C-H borylation reaction,[2a] stereospecific 1,4-migration reaction to obtain a stereochemically pure ketoxime,[2b] Pd-catalyzed Suzuki-Miyaura coupling of thioureas or thioamides leading to various amidine salts as well as valuable diaryl ketones[2c] and a new chiral Brønsted acid, generated *in situ* from chiral phosphoric acid boron (CPAB) complex and water, for asymmetric indole reduction.[2d]



Scheme 1. B-Cl/C-B cross-metathesis and C-H borylation reaction

References

1. For an example of review: D. G. Hall, *Boronic Acids: Preparation and Applications in Organic Synthesis Medicine and Materials*, 2nd ed., Wiley-VCH, Weinheim **2011**, pp. 427-477.
2. (a) Kai Yang, Guan Zhang and **Qiuling Song***, *Chem. Sci.* **2018**, *9*, 7666; (b) Kai Yang, Feng Zhang, Tongchang Fang, Guan Zhang and **Qiuling Song*** *Angew. Chem. Int. Ed.* **2019**, *58*, 13421 –13426; (c) Shaoyu Mai, Wendong Li, Yingwei Zhao and **Qiuling Song***, *Nature Commun*. **2019**, in press; (d) Kai Yang, Yixian Lou, Chenglan Wang, Liang-Wen Qi, Tongchang Fang, Feng Zhang, Hetao Xu, Lu Zhou, Wangyang Li, Peiyuan, Yu,* **Qiuling Song***, *Angew. Chem. Int. Ed.* **2019**, *58*, in press, DOI: 10.1002/anie.201913656

Biography

Currently is director of Institute of Next Generation Matter Transformation at Huaqiao University, China. She obtained her B.Sc in Chemistry from Zhengzhou University (China), M.Sc in organometallic chemistry from Peking University (China) and her Ph.D in organic chemistry from Princeton University, USA. Dr. Song was selected as "the Recruitment Program of Global Experts (1000 Talents Plan for Young Experts)" in 2012, and at the end of 2013, she was awarded as "Hundred Talents Plan of Fujian" and was appointed as vice president of Huaqiao University Youth Federation at the same year. In 2014, she was one of attendees to participate "Innovation Capacity of Young Experts" by The Organization Department of Central Committee of CPC, held in Shanghai and Sweden in 2014. Currently her research interests involve C-C bonds and C-H bonds activation and functional transformation, boron chemistry, radical chemistry and fluorine chemistry.

Date: 14th January 2020 (Tuesday)
Time: 2.30pm to 4.00pm
Venue: SPMS Research & Graduate Studies Conference Room
Host: Associate Professor Naohiko Yoshikai