



The Chinese University of Hong Kong
Department of Chemistry
Research Seminar Series

Speaker: Professor Kazuaki Ishihara
 Graduate School of Engineering
 Nagoya University

Title: Rational Design of Amidation and Esterification Catalysts Based on Acid–Base Combination Chemistry

<< Abstract >>

We have studied on rational design of high performance catalysts based on acid–base combination chemistry. In this general lecture, two topics are focused. One is “Boronic Acid Catalysts for Dehydrative Condensation between Carboxylic Acids and Amines.”^{1,2} The other is “Acid–base Combined Catalysts for Esterification (acylation, transesterification, and dehydrative condensation).”^{1,3–6}

References

1. For a review article, see: Ishihara, K. *Tetrahedron* **2009**, *65*, 1085 (*Tetrahedron Report*).
2. For Boronic acid catalysts, see: (a) Ishihara, K.; Ohara, S.; Yamamoto, H. *J. Org. Chem.* **1996**, *61*, 4196. (b) Sakakura, A.; Ohkubo, T.; Yamashita, R.; Akakura, M. Ishihara, K. *Org. Lett.* **2011**, *13*, 892. (c) Yamashita, R.; Sakakura, A.; Ishihara, K. *Org. Lett.* **2013**, *15*, 3654. (d) Lu, Y.; Wang, K.; Ishihara, K. *Asian J. Org. Chem.* **2017**, *6*, 1111. (e) Ishihara, K.; Lu, Y. *Chem. Sci.* **2017**, *7*, 1276. (f) Wang, K.; Lu, Y., Ishihara, K. *Chem Commun.* **2018**, just accepted (DOI: 10.1039/C8CC02558D).
3. For Hf (IV) and Zr(IV) catalysts for dehydrative condensation, see: (a) Ishihara, K.; Ohara, S.; Yamamoto, H. *Science* **2000**, *290*, 1140. (b) Ishihara, K.; Nakayama, M.; Ohara, S.; Yamamoto, H. *Tetrahedron* **2002**, *58*, 8179.
4. For Brønsted acid catalysts for dehydrative condensation, see: (a) Ishihara, K.; Nakagawa, S.; Sakakura, A. *J. Am. Chem. Soc.* **2005**, *127*, 4168. (b) Sakakura, A.; Koshikari, Y.; Ishihara, K. *Tetrahedron Lett.* **2008**, *49*, 5017. (c) Sakakura, A.; Koshikari, Y.; Akakura, M.; Ishihara, K. *Org. Lett.* **2012**, *14*, 30. (d) Koshikari, Y.; Sakakura, A.; Ishihara, K. *Org. Lett.* **2012**, *14*, 3194.
5. For acylation catalysts and asymmetric acylation catalysts, see: (a) Sakakura, A.; Kawajiri, K.; Ohkubo, T.; Kosugi, Y.; Ishihara, K. *J. Am. Chem. Soc.* **2007**, *129*, 14775. (b) Ishihara, K.; Kosugi, Y.; Akakura, M. *J. Am. Chem. Soc.* **2004**, *126*, 12212. (c) Ishihara, K.; Kosugi, Y.; Umemura, S.; Sakakura, A. *Org. Lett.* **2008**, *10*, 3191.
6. For transesterification catalysts, see: (a) Ishihara, K. Niwa, M.; Kosugi, Y. *Org. Lett.* **2008**, *10*, 2187. (b) Hatano, M.; Furuya, Y.; Shimmura, T.; Moriyama, K.; Kamiya, S.; Maki, T.; Ishihara, K. *Org. Lett.* **2011**, *13*, 426. (c) Hatano, M.; Kamiya, S.; Moriyama, K.; Ishihara, K. *Org. Lett.* **2011**, *13*, 430. (d) Hatano, M.; Kamiya, S.; Ishihara, K. *Chem. Commun.* **2012**, *48*, 9465. (e) Hatano, M.; Ishihara, K. *Chem. Commun.* **2013**, *49*, 1983. (f) Hatano, M.; Tabata, Y.; Yoshida, Y.; Toh, K.; Yamashita, K.; Ogura, Y.; Ishihara, K. *Green Chem.* **2018**, *20*, 1193.

Date: May 29, 2018 (Tuesday)

Time: 2:30 p.m.

Venue: L1, Science Centre



ALL ARE WELCOME

Contact Person:
Prof. Y.Y. Yeung