

HIGHLANDS IN CHEMISTRY SEMINAR SERIES



TODD MARDER

UNIVERSITY OF WÜRZBURG

“Transition Metal Catalyzed Borylation of C-H and C-X Bonds: Synthesis of Aryl and Alkyl Boronates”

OCTOBER 2, 2020

2:30PM

ZOOM

FACULTY HOST:
WEBSTER SANTOS

Aryl- and alkylboronate esters are of great importance in synthesis, as substrates for Suzuki-Miyaura coupling, conjugate additions, and conversion to many functional groups. Newer routes to arylboronates include Pd or Ni-catalyzed cross-coupling reactions of alkoxydiboron or alkoxyborane reagents with aryl halides, and more recently, the selective iridium catalyzed C-H-borylation. The lecture will present some of our work on the Ir-catalyzed borylation of aromatic C-H bonds, applications (e.g., to pyrene chemistry), and our recent development of inexpensive, earth abundant Cu and Zn-catalysts for the borylation of aryl- as well as alkyl halides, and Ni-catalysts for the borylation of aryl fluorides, including novel Rh/Ni dual metal photocatalysis.

References

- [1] Tian, Y.-M.; Guo, X.-N.; Kuntze-Fechner, M. W.; Krummenacher, I.; Braunschweig, H.; Radius, U.; Steffen, A.; Marder, T. B. *J. Am. Chem. Soc.* **2018**, *140*, 17612.
- [2] Mao, L.; Bertermann, R.; Rachor, S. G.; Szabó, K. J.; Marder, T. B. *Org. Lett.*, **2017**, *19*, 6590.
- [3] Mao, L.; Bertermann, R.; Emmert, K.; Szabó, K. J.; Marder, T. B. *Org. Lett.*, **2017**, *19*, 6586.
- [4] Mao, L.; Szabó, K.; Marder, T. B. *Org. Lett.*, **2017**, *19*, 1204.
- [5] Bose, S. K.; Brand, S.; Omoregie, H. O.; Haehnel, M.; Maier, J.; Bringmann, G.; Marder, T. B. *ACS Catal.* **2016**, *6*, 8332.