

# University of Central Florida

## Department of Chemistry Seminar Series – Fall 2020

### Small molecule activation and catalysis using Lewis acidic boranes

Prof. Rebecca Melen

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Host: Prof. Titel Jurca

October 21 (Wednesday), 2020 10:00 AM – Zoom

Meeting Room: <https://ucf.zoom.us/j/91768172810> Passcode: 156697



As main group chemistry, in particular boron chemistry, has expanded and developed over the past 20 years, one reagent has risen to prominence as well. Tris(pentafluorophenyl)borane,  $B(C_6F_5)_3$ , (commonly known as BCF) has demonstrated extensive applications in a wide variety of chemistry, including borylations, hydrogenations, hydrosilylations, frustrated Lewis pair chemistry, Lewis acid catalysis and more.[1] The high Lewis acidity of  $B(C_6F_5)_3$  is achieved from the electronic effects of its three  $C_6F_5$  rings, rendering it a versatile reagent for a great number of reactions. The talk will show our recent uses of Lewis acidic boranes in organic synthesis and catalysis and will also focus on our latest advances in novel borane and borocation usage.[2]

1. Erker, G. Dalton Trans., 2005, 1883; Melen, R. L. Chem. Commun., 2014, 50, 1161.

2. Wilkins, L. C.; Günther, B. A. R.; Walther, M.; Lawson, J. R.; Wirth, T.; Melen, R. L. Angew. Chem. Int. Ed., 2016, 55, 11292; Khan, I.; Manzotti, M.; Tizzard, G. J.; Coles, S. J.; Melen, R. L.; Morrill, L. C. ACS Catalysis, 2017, 7, 7748; Khan, I.; Reed-Berendt, B. G.; Melen, R. L.; Morrill, L. C. Angew. Chem. Int. Ed., 2018, 57, 12356; Santi, M.; Ould, D. M. C.; Wenz, J.; Soltani, Y.; Melen, R. L.; Wirth, T. Angew. Chem. Int. Ed., 2019, 58, 7861.

#### Bio

Dr. Rebecca Melen studied for her PhD degree at the University of Cambridge (UK). Following Postdoctoral studies in Toronto (Canada) and Heidelberg (Germany), she took up a position at Cardiff University (UK) in 2014 where she is now a Reader (Associate Professor) in Inorganic Chemistry. In 2018, she was awarded an EPSRC early career fellowship and she was the 2019 recipient of the RSC Harrison Meldola Memorial Prize. Her research interests include diverse aspects of main group reactivity and catalysis, including the applications of main group chemistry in organic synthesis.