UniSysCat Colloquium

Prof. Dr. Douglas Stephan

University of Toronto

Start Time: Wednesday, April 17, 2019 05:15 pm

End Time: Wednesday, April 17, 2019 06:45 pm

Chemistry Building, C264
Technische Universität Berlin, Straße des 17. Juni 115, 10623 Berlin

Expanding the FLP Reactivity Paradigm

Prof. Dr. Douglas Stephan

University of Toronto

Department of Chemistry

We have previously exploited Frustrated Lewis pair (FLP) chemistry for the activation of H_2, hydrogenation catalysis and the capture of small molecules. More recently we have uncovered evidence of both heterolytic and homolytic reactions for select FLPs affording either ionic or radical reaction pathways. The access to radical pathways has been extended to develop novel air stable main group derived radicals as well as one-electron FLP chemistry. Other efforts in expanding this concept, have focused on the activation of strong bonds. Specifically, we are interested in developing reactions of main group systems with N_2 and N_2-surrogates as well as C-f bonds. The latter efforts have led to the discovery of a series of main group Lewis acids that are capable of stoichiometric and catalytic activation of C-F bonds, providing highly selective protocols for $C(sp^2)$-$C(sp^3)$ and $C(sp^3)$-$C(sp^3)$ couplings that are complementary to traditional metal-based protocols for cross coupling. The further potential of these and related main group reagents in synthetic and catalytic synthetic chemistry is considered.

Prof. Dr. Martin Oestreich

Organizer