



Univerzita Karlova v Praze, Přírodovědecká fakulta

Department of Chemistry, Faculty of Science, Charles University in Prague
invites for a lecture from the lecture series

Quo Vadis Chemie

Frustrated Lewis Pairs: Principles and Some Recent Results



which will be delivered by

Gerhard Erker

from Westfälische Wilhelms-Universität Münster

**on Monday, April 27, 2015 at 15:00 in lecture hall CH2 at the
Department of Chemistry, Faculty of Science, Charles University
in Prague, Hlavova 8, Praha 2**

Lewis acids and bases usually undergo rapid neutralizing adduct formation. This can be prevented by steric bulk. In this case situations may be encountered where strong Lewis acids and bases are co-existent in solution, which may lead to new cooperative reactions.

The most prominent feature shown by phosphane/borane or amine/borane frustrated Lewis pairs (FLPs) is hydrogen activation. Many FLPs cleave the H_2 molecule, which serves as the basis for the development of metal-free catalytic hydrogenations. However, FLPs undergo a variety of other remarkable reactions. They add to alkenes and alkynes, to carbonyl groups, including CO_2 , and to SO_2 . Intramolecular P/B FLPs have served as templates for the reduction of CO to the formyl borane stage and also react with typical small ligand molecules (isonitriles, carbon monoxide) in a way, which is reminiscent of their coordination behavior to transition metals. This will be demonstrated by the reaction of vicinal P/B FLPs with NO, resulting in the formation of a series of persistent FLPNO nitroxide radicals.

