

GDCh-Kolloquium am Institut für Chemie neuer
Materialien der Universität Osnabrück

20. Juni 2017 um 17.15 h, Raum 32 / 107

**Frustrated Lewis Pairs Based on Aluminium and
Phosphorus Atoms - Bifunctional Coordination
and Activation of Polar Compounds**

Werner Uhl

Institut für Anorganische und Analytische Chemie, Univer-
sität Münster

Abstract

The Al/P based frustrated Lewis pair (FLP, **1**) is obtained by hydroalumination of the corresponding alkynylphosphine. It is an excellent starting compound for the activation of various substrates and an efficient ambiphilic ligand for the coordination of bifunctional substrates. The reaction with azides led to the formation of adducts (**2**) which featured four-membered AlCPN heterocycles and azide groups in terminal positions. Heating of **2** resulted in release of dinitrogen and the formation of nitrene adducts **3** in which the electron sextet species nitrene is captured by the Lewis basic phosphorus and Lewis acidic aluminium atoms. α,β -Unsaturated carbonyl compounds afforded heterocycles such as **4** which bears an allene type ligand. Transmetalation yielded Grignard type reagents, which allowed the synthesis of modified FLPs with weaker Lewis acidic gallium or indium atoms. A gold complex was obtained with a new diphosphorus-indium FLP.

