

## Einladung zum Kolloquium

Am Donnerstag, dem **24. April 2014, 17:00 Uhr** spricht:

**Herr Professor Dr. Rory Waterman**

Department of Chemistry

University of Vermont

zum Thema:

### **"Zirconium-Catalyzed Heterofunctionalization"**

Zirconium complexes  $(N_3N)ZrX$  ( $N_3N = N(CH_2CH_2NSiMe_3)_3^{3-}$ ; X = anionic ligand) are catalysts for several transformations including dehydrocoupling and hydrophosphination. The latter reaction was initially observed for a limited set of substrates, terminal alkynes and carbodimides. A reinvestigation of the catalysis has shown that using primary phosphine substrates, alkenes and dienes are easily functionalized with high selectivity for either the secondary product (i.e., one P–H addition) or the tertiary product (i.e., two P–H additions). Of particular note is the high relative rate of these reactions at ambient temperature. These transformations appear to occur by an expected insertion of the unsaturated substrate into a Zr–P bond. Zirconium-catalyzed dehydrogenation of amine-borane substrates raised the possibility of an alternative mechanism for heterofunctionalization. Thus, these complexes also catalyze other transformations including hydrogenation, hydrosilation, and hydroboration. Interestingly hydrosilation can be subject to competition with catalytic elimination of silylene ( $SiRR'$ ) for primary or secondary substrates. For these examples, this transformation appears to occur by  $H_2$  (or E–H) addition across a Zr–N bond, a hypothesis supported by both computational and experimental observations.

Ort: Kl. Hörsaal 015, Fakultät für Chemie und Mineralogie, Johannisallee 29, 04103 Leipzig

**Alle Interessenten sind zu diesem Vortrag herzlich eingeladen**

**Prof. Dr. B. Kersting**  
GDCh-Ortsverband

**Prof. Dr. D. Belder**  
Dekan der Fakultät für  
Chemie und Mineralogie

**Die Professoren des**  
Institutes für Anorganische  
Chemie

Nähere Informationen bei Frau Professor Dr. E. Hey-Hawkins, Tel.: 36151

Um 16.15 Uhr findet die traditionelle Vorbesprechung/Kaffeerunde im Institut für Anorganische Chemie, R. 153 statt, zu der herzlich eingeladen wird.