

# UniCat Colloquium

## PROF. DR. RUTH GSCHWIND

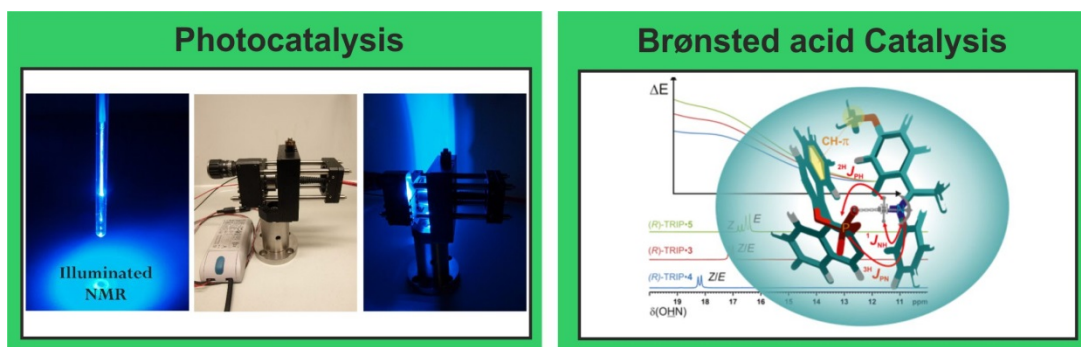
Institut für Organische Chemie, Universität Regensburg

### *Intermediates and Interactions in Photo- and Organocatalysis*

The detection and characterization of intermediates in catalytic reactions and the understanding of their key intermolecular interactions is crucial for the rational optimization of reaction conditions. However, in many rapidly expanding fields of asymmetric catalysis, mechanistic studies as well as structural investigations on intermediates or intermolecular interactions are scarce compared to new synthetic applications.

In this talk I will present our recent results in the field of photocatalysis and Brønsted acid catalysis. First our LED based NMR illumination device for mechanistic studies on photocatalytic reactions will be introduced. Next applications to photocatalytic reactions show that NMR spectroscopy allow for new mechanistic insights regarding one- versus two-electron processes or proton transfer mechanisms, which are complementary i.e. usually inaccessible to UV/Vis studies.

In the field of Brønsted acid catalysis the first detailed ion pair structures of chiral phosphoric acids will be presented. Combining NMR data and theoretical calculations the intermolecular interaction pattern and the hydrogen bond properties are used to explain the great success of this class of catalysts. Last but not least we merge illumination and Brønsted acid catalysis and present the DTS-hv method (decrypting transition states by light), the first experimental access to the active transition states in Brønsted acid catalysis.



**Wednesday, May 03, 2017 at 5:15 PM**

TU Berlin, Institute of Chemistry  
Straße des 17. Juni 115, 10623 Berlin

Building C, Lecture Hall C 264

**Prof. Dr. Schwarz (TUB)**

Organizer

Coffee and cake will be served 30 minutes before the lecture. Guests are cordially invited to attend!  
Prof. Dr. Matthias Driess - Chair of the Cluster of Excellence UniCat - [www.unicat.tu-berlin.de](http://www.unicat.tu-berlin.de)