

UniCat Colloquium

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Lecturer: **Paul J. Chirik**, Department of Chemistry and Chemical Biology, Baker Laboratory, Cornell University, Ithaca, NY, USA

Title: **Catalysis with Iron:
Consequences of Electronic Structure**

Abstract: Transition metal catalyzed reactions have revolutionized the art of chemical synthesis. Unprecedented level of selectivities and new types of bond constructions have made metal-mediated reactions standard in the synthetic organic chemists' toolbox. Often times, these reactions rely on second and third row metals such as Pt, Pd, Rh, and Ir, which are both expensive and toxic. Research in our laboratory has focused on developing environmentally compatible and inexpensive iron catalysts as replacements for precious metals. One of the challenges in this chemistry is controlling unwanted radical chemistry typically associated with first row metals. Introduction of redox-active bis(imino)pyridine ligands has allowed precise control over electronic structure and resulted in iron compounds that are active for olefin hydrogenation, hydrosilylation and various cycloaddition reactions. In certain instances, this control of electronic structure and has enabled new catalytic reactions that are unique to iron.

My lecture will focus on the synthesis of new iron and cobalt catalysts and the physical inorganic spectroscopic tools used to characterize redox-activity. The importance of confining redox events to the chelating ligand rather than the iron center and its impact on catalysis and reactivity will also be discussed.

Date: **Wednesday, 14 October 2009**

Time: **5:15 pm - around 6:45 pm**

Location: **HU Berlin
Institute of Chemistry, Walter-Nernst-Haus
Brook-Taylor-Str. 2, 12489 Berlin
Marie-Curie-Hörsaal 0'06**

Organiser: Prof. Dr. Christian Limberg (HUB)

Guests are cordially invited to attend!

Prof. Dr. Matthias Driess, Chair of the Cluster of Excellence UniCat