

UniCat Colloquium

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Lecturer: **Prof. Dr. Heinz Berke**, Institute of Inorganic Chemistry, ACI-University of Zürich, Switzerland

Title: **Metal-Induced and Metal-Free Hydrogenations**

Abstract: In contrast to Wilkinson type hydrogenation catalyses, which split the hydrogen molecule by formal homolysis, the so-called „Ionic Hydrogenations“ (synonymic are „Bifunctional Catalysis“ and „Protonic/Hydridic Reactivity“) proceed via formal heterolytic cleavage of the H₂ molecule into H⁻ and H⁺. H⁻ and H⁺ do not appear in free form, but are bound to a Lewis acid and a base. The Lewis acid can be a main group or a transition metal center. Subsequent to H₂ splitting stoichiometric or catalytic ionic hydrogenations comprise H atom transfer steps onto the unsaturated substrate. The concerted H⁻ and H⁺ transfer is mechanistically an interesting elementary step and is the crucial step of various catalytic, also industrial applications. It constitutes the “all-in-one” process of transfer hydrogenation transferring hydrogen directly from a hydrogen donor to a hydrogen acceptor. Alternatively, H⁻ and H⁺ may be transferred to an unsaturated substrate in a consecutive fashion. For all the mechanistically distinguished categories of ionic hydrogenations typical catalytic and stoichiometric examples are presented from our own research.

Date: **Wednesday, 16 December 2009**

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

Location: **TU Berlin
Institute of Chemistry, Building C
Straße des 17. Juni 115, 10623 Berlin
room C 243**

Organiser: Prof. Dr. Matthias Driess (TUB)

Coffee and tea will be served thirty minutes prior to the lecture start.
Guests are cordially invited to attend!

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