unicat
Unifying Concepts in Catalysis

Special UniCat Colloquium

Presentation of two new Research Group Leaders

Please note updates of events on www.unicat.tu-berlin.de

Lecturer: **Dr. Inez Weidinger**, School II, Department of Chemistry, Physical Chemistry / Biophysical Chemistry, TU Berlin

Title: ***Tailored hybrid supports for probing surface reactions via surface enhanced Raman spectroscopy***

Abstract: The catalytic efficiency of surface-confined reactions sensitively depends on the support material and surface morphology. For a rational design of catalytic supports it is therefore crucial to understand the underlying reaction mechanisms of adsorbates at the specific surface. This requires a highly sensitive in-situ technique which is able to monitor the interfacial processes on a molecular level under ambient conditions. Surface enhanced Raman spectroscopy (SERS) exploits enhanced electrical fields created by the interaction between light and electrons to specifically enhance vibrational signals of molecules in the vicinity of noble metal surfaces. It fulfils the criteria of a structure sensitive analytical tool designed to provide information on *real life* interfacial processes in biological and chemical catalysis. The technique, however, is limited to a very few metal supports among which silver gives by far the best optical performance. Unfortunately this metal plays only a very minor role in catalysis.

To overcome this limitation we develop hybrid systems where nanostructured silver acts only as an optical amplifier for molecules attached to experimentally pertinent surfaces. Optical enhancement of the surface bound molecules is achieved either by attaching functional Ag nanoparticles to the reactive surface or by depositing overlayer island films on top of nanostructured silver electrodes. With these multilayered structures SER spectra of adsorbates could be detected on different metal and metal oxide surfaces that came close to the intensities reached on silver.

In my talk I will demonstrate the different strategies in designing such hybrid supports and point out the benefit of this approach in analysing surface reactions at interfaces with unique catalytic properties.

Lecturer: **Prof. Sabine Enders**, School III, Process Engineering, Chair of Thermodynamics and Thermal Separation Processes, TU Berlin

Title: ***Thermodynamics of Branched and Hyperbranched Polymers***

Date: **Wednesday, April 11, 2012**
Time: **5:15 pm - around 6:45 pm**
Location: **TU Berlin, Institute of Chemistry, Straße des 17. Juni 115, 10623 Berlin Building C, Lecture Hall C 264**

Organiser: **Prof. 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