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Unifying Concepts in Catalysis

Vortragsankündigung

- im Rahmen des UniCat-Kolloquiums -

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Es spricht: **Prof. Dr. Vojislav Stamenkovic, University of Chicago/ Argonne National Laboratory, Materials Science Division**

Zeit: **Mittwoch, 17.12.2008 17:15 Uhr**

Ort: **TU Berlin**
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Straße des 17. Juni 115
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Thema: **The Design of Nanoscale Catalysts at Solid-Liquid Interfaces**

Abstract: Novel nanomaterials with uniquely reactive surfaces can solve challenging problems in the areas as diverse as clean energy production, energy conversion, energy storage, corrosion, bioengineering, sensors, electronic devices etc. The ultimate goal in the heterogeneous/electro-catalysis would be to *tune the electronic and structural properties of nanoparticles* in order to achieve superior catalytic and stability enhancements**.**

The *material-by-design-approach*, would be used to demonstrate how the knowledge obtained from the well-defined extended surfaces can be employed to create tailor-made nanocluster surfaces with advanced catalytic properties. The surfaces of polycrystalline bimetallic PtM alloys (M=Ni,Co,Fe,V,Ti,Re) as well as Pt_3Ni(hkl) and Pt(hkl) single crystals were characterizaed in ultra-high vacuum chamber by AES, LEIS and UPS before transfer into electrochemical environment.

Enhanced catalytic properties are induced by the second metal, and the mechanism of enhancement may occur through several effects: (1) *Electronic effect*, due to changes in the metallic d-band center position vs. Fermi level; and (2) *Structural effect*, which refers correlation between surface atom arrangements, and/or corrosion-induced dissolution – surface roughening.

Organisator: Prof. Dr. Strasser (TUB)

Gäste sind herzlich willkommen!

Prof. Dr. Matthias Drieß
Sprecher des Exzellenz-Clusters UniCat