

## Freund Hans-Joachim – Model Studies on Heterogeneous Catalysts at the Atomic Scale: From Supported Metal Particles to Two-dimensional Zeolites

Székfoglaló előadás

### Időpont:

2014. okt. 21. kedd, 11:00

### Szervezi:

MTA Kémiai Tudományok Osztálya

### Helyszín:

MTA Székház, Nagyterem

1051 Budapest, Széchenyi István tér 9.

### Kapcsolattartó:

Antal Zsuzsa

Tel.: +36-1-4116306, e-mail: kemia@titkarsag.mta.hu

## Honorary Member Hans-Joachim Freund

Inaugural Lecture: Resumé

### **MODEL STUDIES ON HETEROGENEOUS CATALYSTS AT THE ATOMIC SCALE: FROM SUPPORTED METAL PARTICLES TO TWO-DIMENSIONAL ZEOLITES**

An understanding of catalysis, and in particular of heterogeneous catalysis, has been based on the investigation of model systems. The enormous success of metal single crystal model surface chemistry, pioneered by physical chemists, is an outstanding example. Increasing the complexity of the models built towards supported nano particles, resembling a real disperse metal catalysis, allows one to catch some of the important aspects of the model that cannot be covered by single crystals alone. One of the more important aspects is the support particle interface. We have developed strategies to prepare such model systems based on single crystalline oxide films which are used as supports for metal and oxide nano particles whose geometric structure, morphology, electronic structure as well as interaction and reaction with molecules from the gas phase may be studied at the atomic level.

After a general introduction to model studies in catalysis, results from different research areas are presented. Some of the results on silica films are also of fundamental physic-chemical interest.