

## Workshop

### *"Shining synchrotron light on catalysts - Needs and opportunities for the future"*

October 8<sup>th</sup> 2010 in Karlsruhe, Germany

Catalysis is playing a major role in chemical industries considering that more than 90% of all chemical products have seen at least in one step a catalyst. With the challenges which we presently meet in fossil energy resources and CO<sub>2</sub>-emission, environmental catalysis and pharmaceuticals catalysis is one of the key areas. Rapid catalyst development by a rational approach requires a detailed understanding of their structure, where synchrotron light has significantly contributed in the past and will be even more powerful in the future. This is falling into the new developments also at ANKA with the establishment of a strengthened catalysis focus. During the workshop the needs and opportunities at synchrotron radiation sources will be discussed.

#### **Morning Session 1**

8.30 Welcome (Tilo Baumbach, KIT Karlsruhe and Jan-Dierk Grunwaldt, KIT Karlsruhe)

8.40 – 9.00 Stefan Mangold (KIT, Karlsruhe) "Spectroscopy and related techniques at ANKA"

9.00 - 9.30 Anatoly Frenkel (NLSL, Brookhaven) "Multiple Length Scales in Nanocatalysts Probed in a Single Synchrotron Experiment: The Combined use of XAFS, XRD and DAFS"

9.30 – 10.00 Marc Newton (ESRF, Grenoble) "In situ hard X-ray studies of the dynamic behaviour of heterogeneous catalysts"

10.00 - 10.20 Ursula Bentrup (LIKAT, Rostock) "Online monitoring of molybdate catalyst precursor synthesis and conditioning by coupled X-ray scattering and optical spectroscopic methods"

*10.20 - 10.40 Coffee*

#### **Morning Session 2**

10.40 – 11.10 Moniek Trompp (University of Southampton) 'Molecules in action - Developments in X-ray spectroscopy'

11.10 – 11.40 Anna Puig Molina (Haldor Topsøe, Lyngby) "Synchrotron Radiation for Industrial Catalysis"

11.40 - 12.10 Ronald Frahm (Universität Wuppertal) "State of the art Quick-EXAFS: Applications in Catalysis"

12.10 – 12.30 Olga Safonova (ESRF, Grenoble) "Catalysis at SNBL and SLS"

*12.30 – 13.30 Lunch*

#### **Future Developments**

13.30 - 14.00 Wolfgang Caliebe (HASYLAB, Hamburg) "Hard X-Ray Spectroscopy and Catalysis at DESY - Presence and Future"

14.00 – 14.20 Jan-Dierk Grunwaldt (KIT, Karlsruhe) "Shining X-rays on catalysts at ANKA: Present and Future"

14.20 – 15.00 Discussion on Catalysis activities at ANKA and synchrotrons in general (Stefan Mangold, Matthias Bauer, Jan-Dierk Grunwaldt)

**Meeting site:** The meeting will take place at the Akademie Hotel Karlsruhe (<http://www.akademiehotel-karlsruhe.de/>), Am Rüppurrer Schloß 40, 76199 Karlsruhe

**More info:** <http://anka.iss.kit.edu/english/448.php>

**Admittance fee:** Free of charge, but please register since the number of seats may be limited

**Organized by:** Matthias Bauer, Jan-Dierk Grunwaldt, Stefan Mangold