

## O 72: Invited Talk (Andreas Stierle)

Time: Thursday 14:00–14:45

Location: TRE Phy

**Invited Talk** O 72.1 Thu 14:00 TRE Phy  
**In-situ Study of Nanoparticle Shape Changes under Reaction Conditions** — ●ANDREAS STIERLE — AG Festkörperphysik / Grenzflächen, Universität Siegen, Walter-Flex-Str. 3, D-57072 Siegen, Germany

In the last decades, the adsorption of gas molecules on late 4d transition metal single crystal surfaces and nanoparticles was investigated at pressures close to ultrahigh vacuum employing standard surface science techniques. In practical applications as heterogeneous catalysts or gas sensors these materials are however operating at ambient pressures

which makes an extrapolation from low pressure results very often difficult. During my talk I will demonstrate, that surface sensitive x-ray diffraction represents a very powerful tool allowing *in-situ* monitoring of surfaces and nanoparticles under ambient pressure reaction conditions providing novel insight into structure / reactivity relationships. From the quantitative analysis of the x-ray diffraction data, an atomic scale picture of surfaces and nanoparticles under reaction conditions can be drawn, which I will elucidate for the interaction of O<sub>2</sub> and CO with Pd single crystal and vicinal surfaces, as well as supported Pd nanoparticles on MgO(100) and Al<sub>2</sub>O<sub>3</sub>(0001).