

# Physikalisches Kolloquium Universität Kiel Wintersemester 2019/2020

**Dienstag, 28. Januar 2020**

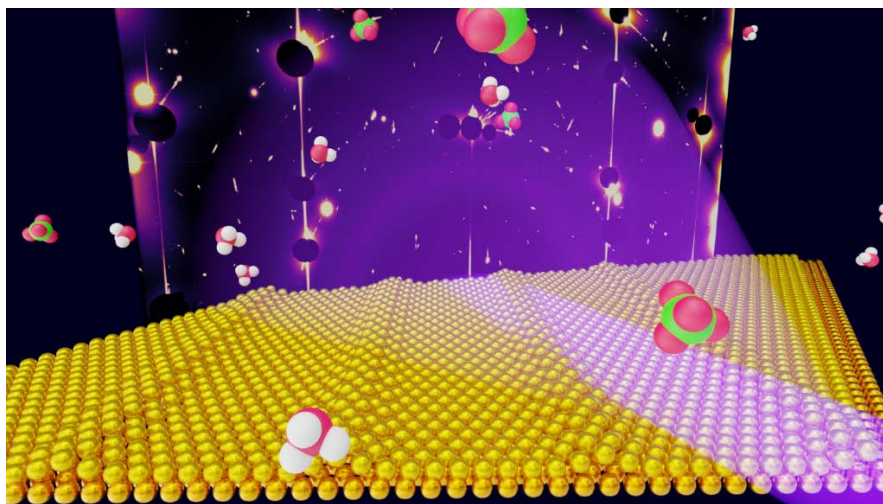
**Edvin Lundgren**

(Physics institute at Lund University, Sweden)

## **Operando high energy surface x-ray diffraction studies of model catalysts and electrodes**

Catalysis is an important process and is widely applied on an industrial scale for a large number of applications in either gas or in liquid phase. Industrial catalysts are complex materials, and as a consequence the gas/liquid-surface interaction between simplified single crystal surfaces and molecules in controlled environments has been studied for decades. We have in recent years explored the possibilities to perform experiments at conditions closer to those of a technical catalyst, in particular at elevated pressures and in an electrolyte. In this contribution, recent results using High Energy Surface X-Ray Diffraction (HESXRD) [1] combined with other in situ techniques [2-4] will be presented. Armed with structural knowledge from ultra-high vacuum experiments, the gas or electrolyte induced structures can be identified, and related to changes in the reactivity. The strength and weaknesses of the experimental techniques will be discussed.

- [1] J. Gustafson et al; Science **343** (2014) 758.
- [2] S. Blomberg et al; Phys. Rev. Lett. **110** (2013) 117601.
- [3] J. Zetterberg et al; Nat. Comm. **6** (2015) 7076.
- [4] W. Linpé et al; Submitted



Der Vortrag beginnt um **16:15 Uhr** im **Hans-Geiger-Hörsaal (LS13-R.52)** des Physikzentrums.

Ab **16:00 Uhr** werden **Kaffee** und **Tee** angeboten

**Bitte Becher mitbringen!**

Prof. Dr. Magnussen

Prof. O. Magnussen  
für die Dozenten der Physik