

In-situ studies of model catalysts

E. Lundgren

University of Lund, Institute of Physics, Department of Synchrotron Radiation Research, Lund, Sweden

Most catalytic oxidation reactions occur on a surface in an oxidizing environment. It is therefore expected that the surface of a catalyst promoting an oxidation reaction will be affected by the oxygen. In this contribution we present atomic scale characterization studies of oxygen induced surface structures for relevant oxidation catalysts such as Pd and Rh at elevated oxygen pressures. Using this knowledge, we are able to understand the surface structure of the active model catalyst during reaction conditions. Examples using in-situ Surface X-Ray Diffraction and High Pressure XPS will be presented, probing the surfaces of model single crystals and nanoparticles during the catalytic oxidation of CO and CH₄ at relevant conditions.