



Universiteit
Leiden
The Netherlands

Operando SXRD : a new view on catalysis

Ackermann, M.D.

Citation

Ackermann, M. D. (2007, November 13). *Operando SXR*D : a new view on catalysis.
Retrieved from <https://hdl.handle.net/1887/12493>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/12493>

Note: To cite this publication please use the final published version (if applicable).

**Stellingen behorende bij het proefschrift
'Operando SXRD: A new view on catalysis'**

Results of surface science experiments performed in low-temperature and low-pressure conditions can in general not be extrapolated to realistic working conditions for catalysts: Although the same chemical potential can be reached, the effect of kinetic barriers will completely change the outcome of the experiments. (*this thesis, chapter 1*)

According to the different surface structures and reaction rates found in our experiments, at least three different reaction mechanisms and pathways should be found for CO oxidation on Pt. (*this thesis, chapters 2 and 3*)

No coupled differential equations are necessary to explain self sustained reaction oscillations, as long as the bistability of the system corresponds to two independent reaction mechanisms. (*this thesis, chapter 5*)

The reactor shape and size play a very important role in the period, shape and size of self-sustained reaction oscillations. (*this thesis, chapter 5*)

Since the discovery of surface oxides, there is no experimental evidence left supporting the existence of 'sub-surface oxygen'.

Coherence in the X-Ray beam is a mixed blessing in Surface X-Ray Diffraction experiments.

As soon as one needs beam attenuators at the anti-phase point of a crystal truncation rod, one should accelerate the scanning procedure, or leave the synchrotron for other experiments. (*E. Vlieg, private communication*)

In most Surface X-Ray Diffraction experiments, almost all photons are 'lost' somewhere between the sample and the detector.

As 'noise' commonly has a well-determined origin, understanding the source and nature of the noise in ones experiments is crucial to the interpretation of the experimental data.

When faced with a problem or question during a synchrotron based experiment, one should always keep in mind that changing major experimental parameters or starting new experiments between the hours of 2 am. and 7 am. is almost always a bad idea. (*S. Ferrer, private communication*)

Every scientific experiment should be performed with the outline of a figure for a publication or presentation already in mind. (*Bas Hendriksen, private communication*)

Vrienden zijn de mensen van wie, wanneer ze op je hart gaan staan, je slechts opmerkt dat ze fluwelen voeten hebben.