Insights to nanoscale dynamics. From nanoparticle motion to atomic movement

DTU Nanolab is pleased to invite all interested parties to welcome our Professor, Thomas Willum Hansen.

His inaugural lecture will take place on:
Friday, 11 March 2022 from 14:00 to 15:00
Anker Engelunds Vej 1,
Building 101, Meetingroom 1
2800 Kgs. Lyngby,

The lecture is followed by a reception from 15:00

Materials’ properties are strongly dependent on their atomic configuration. As an example, chemical reactions rates are highly influenced by the atomic configuration at the surface of nanoparticle-based catalysts. Indirect methods for studying such dependence and determining the detailed structure of materials are plenty. However, direct visualization and mapping of the atomic configuration of individual nanoparticles require high-end electron microscopy enabling imaging and identification of individual atoms and their surroundings.

It is possible to directly image the dynamic nature of individual catalytic nanoparticles using in situ electron microscopy with Ångström spatial and millisecond temporal resolution under conditions approaching working conditions.

What if we could apply machine assisted methods for acquiring and analyzing the vast amount of data necessary for tracking the surface dynamics of nanoparticles stimulated by elevated temperature and gas exposure, and thereby get fast tracked towards insight in the structure property relationship?

We are looking forward to celebrate Thomas and meet all of you.

Best Regards

Jörg Hübner, Director, DTU Nanolab
The performance of functional materials is largely dictated by their surface structures and how these changes over time. This does not only imply the degradation materials over time, but also short time scale atomic displacements responsible for the specific functionality. State-of-the-art analytical techniques can provide a view of these structural changes.

In this inaugural lecture, Thomas Hansen will look back at how electron microscopy has explored the structure and dynamics of nanostructured materials such as catalysts and 2-dimensional materials and where the field is headed.

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