TECHNISCHE UNIVERSITÄT WIEN
Vienna University of Technology

INSTITUT FÜR ANGEWANDTE PHYSIK
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IAP-SEMINAR

EINLADUNG

Termin: **Dienstag, 8.5.2012 um 16:00 Uhr**
Ort: **Technische Universität Wien,**
Institut für Angewandte Physik,
Seminarraum 134A, Turm B (gelbe Leitfarbe), 5. OG
1040 Wien, Wiedner Hauptstraße 8-10

Vortragender: **Prof. Dr. Hidde H. Brongersma**
ION-TOF GmbH / Eindhoven University of Technology /
Imperial College (London)

Thema: **The Outer Surface, Ultra-thin Films and Interfaces by HS - LEIS**

Kurzfassung

The outermost atoms of a surface largely control processes such as catalysis and layer growth. While analytic tools (such as XPS) probe an average of many atomic layers, LEIS can selectively and quantitatively analyze the atomic composition of the outer atoms. For oxides it is even possible to determine the oxidation states of the cations in the outer atomic layer. Nowadays, LEIS can also be used for non-destructive ("static") high-resolution in-depth analysis down to about 5-10 nm below the surface.

The High-Sensitivity LEIS, that we developed at the Eindhoven University of Technology is the basis of a new generation of LEIS instruments (the Qtac^{100}) developed at ION-TOF. Using imaging and parallel detection techniques the sensitivity of the LEIS technique has been increased by several orders of magnitude. In addition, increased sensitivity for light elements, improved mass resolution for heavier elements and imaging have opened new applications. Since LEIS is rather insensitive to the roughness of a surface, it bridges the gap between highly-dispersed catalysts and model systems.

After an introduction of the technique and its new features, applications will be discussed where valuable quantitative information has been obtained that is impossible (or very difficult) to obtain with other analytic techniques. The new possibilities will be illustrated with applications to the understanding of the performance of catalysts, solid oxide fuel cells, ALD growth of ultra-thin layers and nanoclusters.

Today the focus will be on oxides.

Alle interessierten Kolleginnen und Kollegen sind zu diesem Seminar
(45 min mit anschließender gemeinsamer Diskussion) herzlich eingeladen.

W. Werner e.h.
(Seminar-Chairperson)

H. Störi e.h.
(LVA-Leiter)