

EINLADUNG

zum Vortrag
von

Prof. Dr. Klaus Heinz

Lehrstuhl für Festkörperphysik, Universität Erlangen-Nürnberg

Structural Analysis of Surfaces

am

Dienstag, 31. Mai 2011, um 17:30 Uhr

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract:

The knowledge of the crystallographic structure of a surface, i.e. the positions of atoms within a certain slab of a surface, is essential for the quantitative understanding of the surface's physical properties. Hereby, the item "surface" stands for clean and adsorbate covered surfaces as well as interfaces, which are crucial components of nanostructures.

The current status of surface crystallography is reviewed including the limitations involved. Emphasis is on quantitative low-energy diffraction (LEED) but the strength of competing methods as, e.g., photoelectron diffraction (PED) and surface x-ray diffraction (SXR) is also illuminated. Today's state of the art techniques to measure LEED intensity spectra and to retrieve the structure by comparing them with fully dynamical model calculations will be described. This includes the use of the perturbation method TensorLEED combined with structural search routines as well as recent progress made by holographic-type direct methods. It will also be shown that a single method may be unable to resolve the (full) structure or even to get only an idea about the applying structural model. Instead, the application of several methods are usually necessary to solve non-trivial structures, in particular scanning tunneling microscopy (STM) with its real-space information and first-principles methods as density functional theory (DFT). Numerous examples will be given.

CHEMISCH-PHYSIKALISCHE GESELLSCHAFT

c/o Universität Wien, Fakultät für Physik, 1090 Wien, Strudlhofgasse 4/Boltzmannngasse 5, Austria
Tel.: +43-(0)1-4277/51108 - Fax: ++43-(0)1-4277 9511 - E-Mail: Christl.Langstadlinger@univie.ac.at
<http://www.cpg.univie.ac.at>

Konto: Bank Austria Nr. 08644408000 - BLZ 12000 - IBAN: AT22 1100 0086 4440 8000 - BIC: BKAUATWW
Vorsitzender 2010/11: Ao.Univ.Prof. Dr. Peter Mohn, Institut für Angewandte Physik, TU Wien