



universität
wien

Fakultät für Physik

Studienprogrammleitung Physik
ssc-physik.univie.ac.at/

Univ.-Prof. DI Dr. Robin Golser
Strudlhofgasse 4, 1090 Wien

T +43(1) 4277 51600
F +43(1) 4277 9516
robin.golser@univie.ac.at

An alle Mitglieder der
Fakultät für Physik

Wien, am 5. Jänner 2012

Einladung zur Defensio der Dissertation

X-ray Line Profile Analysis in Theory and Experiment

von

Mag. Michael Kerber

Freitag, 13. Jänner 2012, 10:00 Uhr
Josef-Stefan-Hörsaal, 3. Stock, Strudlhofgasse 4, 1090 Wien

The analysis of the line profiles of Bragg reflections informs on the microstructure of crystalline materials: The Bragg reflection of an ideal crystal (infinite and defect-free) is a narrow, delta-function-like peak. In real crystals (finite size and with lattice defects) the reflection is widened. Using physical models, this broadening can be related to the microstructural properties of the samples most notably to (i) the size of the smallest volume in the crystal scattering coherently or (ii) the density and arrangement of dislocations, and the frequency of planar defects.

X-ray Line Profile Analysis (XPA) is an excellent tool for the investigation of nanocrystalline materials. Using synchrotron radiation it even allows to inspect the changes occurring in-situ, i.e. during deformation, etc. In this presentation, the full power of XPA will be demonstrated for data obtained during the tensile deformation of nanocrystalline materials showing a detailed evolution of numerous microstructural parameters.

Prüfungssenat:

Prof. Jenő Gubicza, PhD., Dr. habil., DSc., Eötvös Loránd University, Budapest
Ao. Univ.-Prof. Dr. Gerhard Krexner
Ao. Univ.-Prof. Dr. Michael Zehetbauer
Univ.-Prof. DI Dr. Robin Golser (Vorsitz)