

# EINLADUNG

zum Vortrag  
von

**Dr. Matteo Leoni**  
University of Trento,  
Italy

**Microscopy without microscope: accurate  
micro/nanostructure analysis from diffraction data.**

am

**Donnerstag, 22. Jänner 2015 um 14:00**

Technische Universität Wien, Institut für Materialchemie  
Lehartrakt, Seminarraum Lehar 01, 01. Stock  
1060 Wien, Getreidemarkt 9

## Abstract:

Transmission Electron Microscopy is considered the only tool able to provide accurate microstructure information and is always requested to validate any microstructure result at the nanoscale (nanostructure). As a matter of fact, TEM is a local technique and the results it provides can be highly biased or not representative for the whole specimen. Modern diffraction techniques will be presented. The current algorithms and software allow an extraction of the microstructure information from diffraction data and provide the same information that can be obtained from a microscope (size distribution, shape information, quantity of defects), but on the whole specimen. No sample preparation and no visual selection of the particles is needed, making the technique ideal for in situ and operando studies. Whenever possible, the combination of different techniques (the number –sensitive microscope and the volume-sensitive diffraction) is the key for a better understanding of the material behaviour.

**FWF SFB F45 „Functional Oxide Surfaces and Interfaces (FOXSI)“**

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