



TECHNISCHE UNIVERSITÄT
CHEMNITZ

Institut für Physik Physikalisches Kolloquium



Mittwoch, 02.12.2015, um 16:00 Uhr

Ort: Reichenhainer Str. 90;

Zentrales Hörsaal- und Seminargebäude, Raum 2/N013

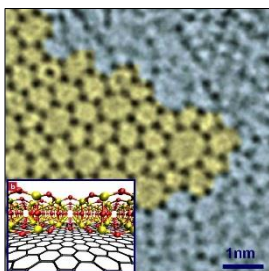
Prof. Dr. Ute Kaiser

Universität Ulm

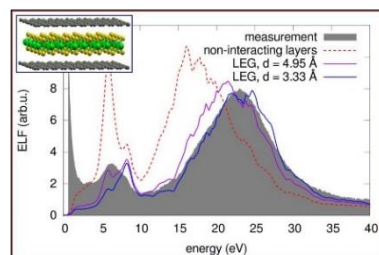
Materialwissenschaftliche Elektronenmikroskopie

Properties of 2D materials via low-voltage high-resolution transmission electron microscopy and spectroscopy

Characterization of low-dimensional materials by analytical and aberration-corrected high-resolution transmission electron microscopy raises unique challenges but also opens unique new possibilities that are different from those of 3-D bulk structures. In this talk, I will discuss some of these aspects on the example of nano-carbons such as graphene and functionalized carbon nanotubes, and two-dimensional chalcogenides. They all remain a particular challenge for high-resolution transmission electron microscopy (HRTEM) because of their intrinsically low contrast and/or high fragility to radiation damage. I will present strategies that reduce knock-on radiation damage as well as damage caused by radiolysis and will present insights to the materials with atomic resolution. On the other hand I will show that the electron beam can be used to modify crystalline 2D materials to their amorphous counterpart and discuss the atomic structure of glass. By momentum-resolved electron energy-loss (EEL) spectroscopy in the low-loss region I will present insights to high-energy plasmons in layered 2D systems composed of graphene and monolayer MoS₂ and compare those to ab initio calculations.



The atomic structure of 2D glass on graphene.



Momentum-resolved EELS of a three-layer heterostructure composed of graphene and MoS₂.

Alle Zuhörer sind ab 15:45 zum Kaffee vor dem Hörsaal eingeladen.



Informationen zum Vortrag erteilt:

Prof. Dr. Michael Hietschold, Tel: 0371 531 - 33203

www.tu-chemnitz.de/physik