

Integriertes Seminar

Aktuelle Probleme dimensionsreduzierter Festkörper

Ort: Seminarraum 718 (Wilhelm-Klemm-Straße 10)

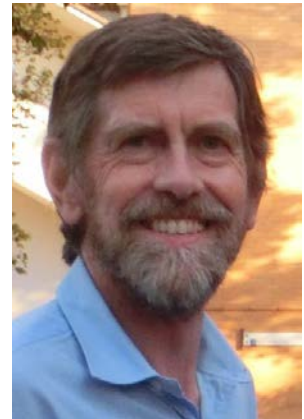
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The quest for quantitative analytical microscopy at atomic resolution

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Modern aberration-corrected electron microscopes are capable of a range of analytical techniques for atomic resolution materials analysis. In scanning transmission electron microscopy (STEM) mode, Z-contrast imaging is routinely used and in recent years has become a quantitative technique, making possible the counting of atoms and, more recently, the three-dimensional imaging of individual dopant atoms within small clusters. New detectors optimized for rapid x-ray collection in STEM enable energy dispersive x-ray (EDX) spectral mapping at the atomic scale. Electron energy loss spectroscopy (EELS) permits the user to collect low-loss and core-loss spectrum images as a function of probe position, providing complementary analytical information to EDX mapping. These techniques are made more powerful when coupled to an understanding of the elastic and inelastic scattering processes underlying the measured signals and substantial progress has been made towards making these techniques quantitative at the atomic scale.



Einladender: Kohl