

EINLADUNG

zum Vortrag von

Ass.Prof. Dr. Toma Susi

Universität Wien, Physik Nanostrukturierter Materialien

Electron-beam manipulation of single impurity atoms

am

Dienstag, 26. März 2019, 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

Important recent advances in transmission electron microscopy instrumentation and capabilities have made it indispensable for atomic-scale materials characterization down to their chemical structure. At the same time, the availability of two-dimensional materials has provided ideal samples where each individual atom or vacancy can be resolved and chemically identified [1,2]. Recent studies have further revealed the possibility of using the focused electron beam of the scanning transmission electron microscope for the controlled manipulation of structures down to individual atoms [3,4].

Evaluating the full range of future possibilities for this method requires a precise physical understanding of the interactions of relativistic electrons with matter, becoming feasible due to advances both in experimental techniques and in theoretical models [5]. Precision measurements of irradiation damage in materials with varying dielectric properties are starting to emerge, and will provide much needed experimental guidance for theory. Two-dimensional materials offer an ideal model system to develop a general and quantitative understanding of structural changes caused by electron irradiation [6].

- [1] T. Susi *et al.*, 2D Materials 4, 021013 (2017)
- [2] T. Susi *et al.*, ACS Nano 12, 4641-4647 (2018)
- [3] M. Tripathi *et al.*, Nano Lett. 18, 5319–5323 (2018)
- [4] T. Susi *et al.*, 2D Materials 4, 042004 (2017)
- [5] T. Susi *et al.*, Nat. Commun. 7, 13040 (2016)
- [6] T. Susi, J. Meyer, J. Kotakoski, submitted.

CHEMISCH-PHYSIKALISCHE GESELLSCHAFT

c/o Universität Wien, Fakultät für Physik, 1090 Wien, Strudlhofgasse 4/Boltzmannngasse 5, Austria
Generalsekretär: Christl Langstadlinger
Tel.: +43-(0)1-4277/51108 - Mobil: 0664-60277 51108 - E-Mail: christl.langstadlinger@univie.ac.at
ZVR-Zahl: 513907440 - <http://www.cpg.univie.ac.at>
Konto: Bank Austria - IBAN: AT22 1100 0086 4440 8000 - BIC: BKAUATWW