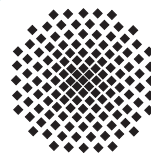


Stuttgarter Physikalisches Kolloquium

Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme
Fachbereich Physik, Universität Stuttgart

Ansprechpartner: Andreas Schnyder
E-Mail: A.Schnyder@fkf.mpg.de
Telefon: 0711 689-1553



Dienstag, 26. November 2019

16.15 Uhr

Hörsaal 2D5

Stuttgarter Max-Planck-Institute, Heisenbergstraße 1, 70569 Stuttgart-Büsnau

An Atomic-Scale View at Oxide Surfaces

Ulrike Diebold

Institute of Applied Physics, TU Wien, Vienna, Austria

Abstract

Our understanding of metal oxides has benefitted tremendously from the application of surface science techniques. Particularly useful has been Scanning Probe Microscopy, which allows to directly inspect, and even manipulate, atomic-size defects and defect-related surface chemistry. Equally important has been the development of suitable model systems, i.e., (ultra)thin films and well-prepared oxide single crystals that allow a reliable experimental and theoretical modeling with crisp and unequivocal insights into fundamental processes and mechanisms.

In the talk, recent developments in the field will be illustrated by examples including our group's recent research results on binary and ternary metal oxides [1-4]. Emphasis will be laid on giving an overview of different aspects, such as the importance of the relationship between bulk and surface defects [5], the opportunities and the challenges of extending surface science to more complex materials and to high-pressure and aqueous environments [6].

- [1]. R. Bliem, et al., *Science*, **346**, 1212 (2014)
- [2]. D. Halwidl, et al., *Nature Mater.*, **15**, 450 (2016)
- [3]. M. Setvin, et al., *Proc. Natl. Acad. Sci.*, **114**, E2556 (2017)
- [4]. M. Setvin, et al., *Science*, **359**, 572 (2018)
- [5]. M. Setvin, et al., *Chem. Soc. Rev.* **46**, 1772 (2017)
- [6]. J. Balajka, et al., *Science* **361**, 786 (2018)