

# Physik der Festkörperoberflächen und Grenzflächen

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## Oberflächenphysik I

Termin:      donnerstags, LS 19 514, 10:15 oder ??

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[www.ieap.uni-kiel.de/surface/ag-berndt](http://www.ieap.uni-kiel.de/surface/ag-berndt)

PDFs auf Physikseiten: Oberflächenphysik I

UID      kiloweise

PWD      Verwaltung

# Contents ... probably

- Geometry
- Methods (diffraction, real space, spectroscopies)
- Electronic structure (surface states, adsorbates)
- Dynamics (surface phonons, diffusion)
- Nucleation and growth
- Molecules at surfaces
- Nanoscience (molecular electronics, spintronics)

# Literature: General

- H. Ibach, *Physics of Surfaces and Interfaces* (Springer, 2006)
- A. Zangwill, *Physics at surfaces* (Cambridge University Press, 1998)
- H. Lüth, *Surfaces and interfaces of sold materials* (Springer, 1995)
- M. Henzler, W. Göpel, *Oberflächenphysik des Festkörpers* (Teubner, 1994)
- G. Ertl, J. Küppers, *Low energy electrons and surface chemistry* (VCH 1974)
- Jörg Kröger, *Physics of surfaces and interfaces*, Lecture notes, CAU Kiel (now: TU Ilmenau)
  
- G. A. Somorjai, Y. Li, *Surface Chemistry and Catalysis* (Wiley, 2010)
- K. Christmann, *Introduction to Surface Physical Chemistry* (Steinkopff, Springer)
- A. Adamson, A. Gast, *Physical Chemistry of Surfaces* (Wiley 1997)
- R. Hoffmann, *Solids and Surfaces: A Chemist's View of Bonding in Extended Structures* (VCH)
  
- J. A. Venables, *Introduction to Surface and Thin Film Processes* (Cambridge, 2000)
- M.C. Desjonquères, D. Spanjaard, *Concepts in surface physics* (Springer, 1996)
- F. Bechstedt, *Principles of Surface Physics* (Springer, 2003)
- A. Gross, *Basic Theoretical Surface Science* (Springer, 2003)
- S.G. Davison, M. Stęślicka, *Basic Theory of Surface States* (Clarendon, Oxford, 1996)

# Books you already read ...

- H. Ibach and H. Lüth, *Solid-State Physics* (Springer, Berlin, 2003)
- N.W. Ashcroft and N.D. Mermin, *Solid State Physics* (Saunders, New York, 1976)
- C. Kittel, *Introduction to Solid State Physics* (Wiley, 2005)
- Bergmann, Schaefer, *Lehrbuch der Experimentalphysik Band 6: Festkörper* (Walter de Gruyter, Berlin, 2005)

# Techniques

- H. Kuzmany, *Solid-State Spectroscopy* (Springer, Berlin, 1998)
- K. Oura et al., *Surface science* (Springer, 2003)
- D.P. Woodruff, T.A. Delchar, *Modern techniques of surface science* (Cambridge University Press, 1994)
- D.J. O'Connor et al., *Surface analysis methods in materials science* (Springer, 2003)
- L. G. Feldman et al., "Fundamentals of Surface and Thin Film Analysis"
- J. T. Yates Jr., *Experimental innovations in surface science* (AIP Press, 1998)
- W. Umrath, *Grundlagen der Vakuumtechnik* (Leybold, 1997)
  
- J.H. Moore et al., *Building scientific apparatus* (Perseus, 1991)