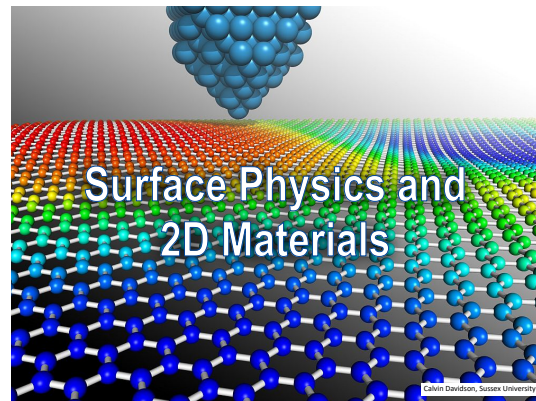


## Lecture „Surface physics and 2D materials“ (module no. 12720)

### Content

This lecture series will provide an introduction into the surface physics of crystalline materials. Fundamental concepts will be covered along with state-of-the-art experimental methods that are used to characterize the discussed phenomena and materials properties. Special emphasis will be put on graphene, a single atomic layer from elemental carbon, as well as other so-called two dimensional materials, which exhibit fascinating materials characteristics and stimulate tremendous interest in current nanoscience research.



### Syllabus

- experimental requirements
- morphology and structure of surfaces
- thermodynamics of surfaces
- adsorption and diffusion at surfaces
- nucleation and thin-film growth
- electronic properties of surfaces
- optical and magnetic properties of surfaces
- preparation and characterization of two-dimensional materials
- structural and electronic properties of two-dimensional materials

### Extent

- 4 hours (lecture) + 2 hours (exercises) per week
- 6 credit points

### Requirements (strongly recommended):

- General Physics 3 (quantum physics, atomic and molecular physics)
- General Physics 4 (solid state physics)

### Recommended reading

- Martin Henzler & Wolfgang Göpel, „Oberflächenphysik des Festkörpers“
- Harald Ibach, „Physics of Surfaces and Interfaces“
- Hans Lüth, „Solid Surfaces, Interfaces and Thin Films“
- Kurt W. Kolasinski, „Surface Science – Foundations of Catalysis and Nanoscience“
- Andrew Zangwill, „Physics at Surfaces“
- D. P. Woodruff & T. A. Delchar, „Modern Techniques of Surface Science“

### Contact

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