

# Physics of Surfaces and Nanostructures (E/A) - Surfaces

Degree - M.Sc. in Physics (PO von 2014)

<b>Module</b>	<b>Elective Advanced Lectures: BCGS Courses</b>
<i>Module No.</i>	physics70d

<b>Course</b>	<b>Physics of Surfaces and Nanostructures (E/A)</b>
<i>Course No.</i>	Surfaces

Category	Type	Teaching			Semester
		Language	hours	CP	
Elective	Lecture	English	2	3	WT

## Requirements for Participation:

**Preparation:** Basic knowledge of solid state physics

**Form of Testing and Examination:** Oral examination

**Length of Course:** 1 semester

## Aims of the Course:

Understanding of fundamental concepts in surface and nanostructure science

Knowledge of basic fields and important applications

## Contents of the Course:

The lecture introduces to modern topics of surface and nanostructure physics. Basic concepts are illustrated with examples and the link to technical applications is emphasised. Topics covered are

- surface structure and defects,
- adsorption and heterogeneous catalysis,
- surface thermodynamics and energetics
- surface electronic structure and quantum dots,
- magnetism at surfaces
- epitaxy and thin film processes,
- oxide films
- ion beam processes at surfaces,
- clusters,
- graphene

**Recommended Literature:**

Michely: Skriptum (available during the course)

H. Ibach: Physics of Surfaces and Interfaces (Springer, Berlin 2006)

K. Oura et al: Surface Science - an introduction (Springer, Berlin 2003)

M. Prutton: Introduction to Surface Physics (Oxford University Press, 1994)

H. Lüth: Solid Surfaces, Interfaces and Thin Films, (Springer, Berlin 2001)

M. Henzler/ W. Göpel: Oberflächenphysik des Festkörpers (Teubner, Stuttgart 1994)