FDITE164 Surface Physics

Topics:

The concept of surfaces, their physical description and importance in materials science.

The atomic structure of clean surfaces.

Surface electronic structures related to the surface crystal system and their derivation from the properties of bulk crystals.

Adsorption of contaminants on surfaces, as well as surface defects.

Models for describing adsorption, desorption and diffusion, their effect on the properties of surfaces.

Creating thin films and atomic structures, creating nanostructures on surfaces.

Basics on vacuum physics and vacuum technology.

Different types of surface examination methods: diffraction methods (LEED, RHEED, GIXRD, TED, PED, AED), electron spectroscopy methods, microscopy methods (SEM, TEM, AFM, STM, optical microscopy).

Literature:

2) K. Oura, V. G. Lifshits, A. A. Saranin, A. V. Zotov, M. Katayama: Surface Science: an introduction, ISBN 3-540-00545-5, 2003