

Condensed Matter Physics I - CondMatter I

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

<i>Module</i>	Specialization: Experimental Physics
<i>Module No.</i>	physics61a

<i>Course</i>	Condensed Matter Physics I
<i>Course No.</i>	CondMatter I

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+1	6	WT

Requirements for Participation:

Preparation: Basic knowledge in condensed matter physics and quantum mechanics

Form of Testing and Examination: Oral or written examination

Length of Course: 2 semesters

Aims of the Course: Comprehensive introduction to the basic principles of solid state physics and to some experimental methods. Examples of current research will be discussed.

Contents of the Course:

The entire course (Condensed Matter I & II, given in 2 semesters) covers the following topics:

Crystal structure and binding

Reciprocal space

Lattice dynamics and thermal properties

Electronic structure (free-electron gas, Fermi surface, band structure)

Semiconductors and metals

Transport properties

Dielectric function and screening

Superconductivity

Magnetism

Recommended Literature:

Skriptum (available during the course)

Ashcroft/Mermin: Solid State Physics

Kittel: Introduction to Solid State Physics

Ibach/Lüth: Festkörperphysik

