Module: Elective Advanced Lectures: BCGS Courses

Module No.: physics70d

Course: Condensed Matter Physics II (E)

Course No.:

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture	English	3	4	ST

Requirements for Participation:

Preparation:
Basic knowledge in condensed matter physics and quantum mechanics

Form of Testing and Examination:
Oral examination

Length of Course:
2 semesters

Aims of the Course:
Advanced topics in condensed matter physics with examples of current research.

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