

Solid State Theory / Computational Physics

Module No.: MN-P-SP-ThSol, MN-P-PN-ThSol, MN-P-WaMa

Version: 10.02.2014 SG

Course: Solid State Theory

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Category	Type	Language	Teaching Hours	CP	Semester
Core Course	Lecture	English	3+1	6	WiSe

Requirements for participation:

Training in theoretical physics at the B.Sc. level, experimental solid state physics

Type of module examinations:

Written or oral examination and one oral examination at the end of the module

Duration of the course:

1 semester

Aims of the course:

This course gives an introduction to the physics of electrons and phonons in solids together with theoretical concepts and techniques as applied to these systems.

Contents of the course:

The physics of solids shows an extremely rich phenomenology. Starting from a quantum theory describing the electrons and atoms in a solid, we investigate, for example, how excitations and associated quasi particles emerge. The lecture covers a broad range of methods and applications with emphasis on experimental and theoretical research directions of the physics department in Cologne.

Recommended literature:

Ashcroft/ Mermin: "Solid State Physics"