UE Solid state physics II

Level
Baccalaureate +4

ECTS
3 credits

Component
UFR PhITEM (physique, ingénierie, terre, environnement, mécanique)

Semester
Printemps

- **Teaching language(s):** English
- **Open to exchange students:** Yes
- **Code d'export Apogée:** PAX8NQAA

Presentation

Description

Goal: This solid-state physics class is the follow up of Solid-State Physics I. It goes one step further in the description of solid properties, including light-matter interactions (polarons, polaritons), effects of magnetic field (Landau levels, Fermi surfaces) and new states of matter (introduction to superconductivity and magnetic order).

Content:

- Review of electronic band structures.
- Effects of interactions: plasmons, polarons and polaritons.
- Effects of magnetic field: Landau levels, probe of Fermi surfaces, quantum Hall effect.
- New states of matter : superconductivity, magnetic phases, spin Hamiltonians, magnons.

Bibliography:

Introduction to solid state physics, 8th edition, Charles Kittel
Solid state physics, Neil Ashcroft and David Mermin

Course parts

UE Solid state physics II - CM	Lectures (CM)	24h

Period : Semester 8

Useful info

Campus

- Grenoble - Saint-Martin d'Hères
- Grenoble - University campus