

Advanced topics in condensed matter

(Acronym: PHY-VFATCM)

Lectures on: **Wednesdays, 16:15-17:45**

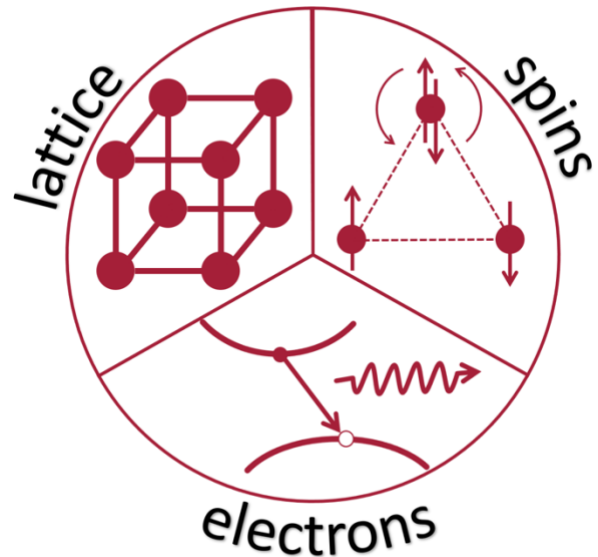
Auditorium: **C9A03 (in person)**

First lecture: October 16th, 2024

Lecturers: Dr. Ivan Zaluzhnyy
Prof. Dr. Dr. h.c. Frank Schreiber

Language: English

Credit: 3 ECTS



Synopsis

The series of lectures will present advanced topics in condensed matter physics. It will be complementary to “BM KoMa” (basic module condensed matter). The course can be taken in parallel with or subsequent to “BM KoMa”.

We will introduce each topic with a brief revision of the basics and explore it in depth. We will cover theoretical concepts as well as experimental methods. All blocks from “BM KoMa” will be covered, i.e. Block I (structures and their dynamics), Block II (electrons) and Block III (ordering phenomena and phase transitions, including e.g. magnetism).

The course will be useful for bachelor, master and PhD students.

Selected keywords

- Crystal structures and scattering of X-rays and neutrons
- Lattice dynamics and inelastic scattering of neutrons from phonons
- Determination of electron band structure using photoelectron spectroscopy
- Linear response theory and optical properties
- Ordering phenomena
- Phase transitions

Link at group homepage

www.soft-matter.uni-tuebingen.de/vorlesung_ws24_atcoma.html