

Optics of condensed matter (2 ECTS)

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This course focuses on the interaction of light with condensed matter. The first part is devoted to electromagnetism in matter, and the second to the properties of electrons and photons in condensed matter.

- **Electromagnetism in matter**

- Structure of matter
- Maxwell equations in matter
- Different kinds of polarizability
- Insulators under sinusoidal conditions
- Conductors under sinusoidal conditions

- **Electrons and photons in condensed matter**

- Fermi's golden rule
- From quasi-free electrons to confined electrons
- Absorption and luminescence
- Electroluminescence in semi-conductors