

Solid State Spectroscopy

Spectroscopy is crucial for the understanding of novel materials. This lecture gives an introduction into some of the methods that have been established over the last years. The contents of this lecture are:

- Electromagnetic waves
- Light sources (black body, diode, laser, synchrotron)
- Spectral analysis of light (monochromator, spectrometer, photomultiplier, semiconductor detectors)
- Model dielectric functions (e.g. linear response model)
- Optical spectroscopy (absorption, infrared spectroscopy, Raman)
- Applications of group theory to optical spectroscopy
- Photoelectron spectroscopy (UV and X-Rays, electron detectors, angle-resolved photoemission)

Literature:

Hans Kuzmany „Solid State Spectroscopy“ Springer Verlag 2009

***„Solid state spectroscopy“ is a specialized course for the specialization in Condensed Matter Physics
2 hours per week / 3 credit points***

Recommended background:

basic principles of quantum mechanics and condensed matter physics

time & location : WED 14.00-15.30 Room 0.01 in the new theory building (ETP)

First lecture: WED, 21.10.

Questions and applications should be sent to Prof. Alexander Grüneis (grueneis@ph2.uni-koeln.de)

<http://www.ph2.uni-koeln.de/580.html>