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:

„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