

Ultrafast Electron Microscopy

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A major challenge of modern materials research is the structural characterization of nanoobjects with high spatial resolution. This is nowadays achieved with electron microscopes that allow imaging and analysis at the atomic level. But images of small objects are normally snapshots that just show the object at a certain time without giving information about their temporal evolution. As our daily experience tells us, objects change their structure and properties the faster, the smaller they are. Objects at the nanoscale may change themselves within nano-, pico-, or even femtoseconds. This ultrashort timescale has not been accessible to electron microscopy hitherto and is now approached by a combination of electron microscopy and ultrafast laser optics. The course will give an introduction into this exciting new field.

Main topics:

1. The interaction of materials with electron and photon beams
2. The principles of transmission electron microscopy
3. Spatial and temporal limits of electron microscopy
4. Ultrashort laser pulses
5. Laser-controlled electron microscopy
6. Applications of ultrafast electron microscopy

Time:

14/02 , 21/02 , 7/03 , 14/03 , 21/03, and 28/03 from 16:00 to 18:00.

Place:

Auditorium, Institut de Physique et Chimie des Matériaux de Strasbourg,
23 rue du Loess, 67034 Strasbourg