

Course: Transmission Electron Microscopy: From Chemistry and Materials Science to Biology

Duration: 24 hours

Teacher(s): Vincenzo Amendola

Curriculum: Chemical Sciences

Description:

The course aims at providing an overview of the family of characterization techniques relying on transmission electron microscopy (TEM) and their relevance in various fields of Chemistry, Materials Science and Biological Sciences.

The contents will start with the fundamentals of electronic optics and TEM structure, with special emphasis on the two TEM instruments available at the University of Padova. Then the various imaging and analytical modalities (TEM, HRTEM, BF, DF, SAED, EDX, EELS, STEM, etc.) and types of TEM equipment (standard, cryo, corrected, in situ, etc.) will be discussed with application examples. Practical sessions on software for TEM data analysis and a visit to the TEM facilities of UniPd will be also performed.

At the end of the course, the PhD students will become aware of the technical possibilities made available by modern TEM equipment at UniPd and, in general, in the contemporary scientific panorama, and will develop individual skills for analysis and manipulation of data collected by direct access to the UniPd facilities.

Additional information:

The course will be divided in three 8-hours modules spread over the year.

Whenever possible, international guest speakers will be invited to cover specialized topics.