

***TEM, a complex tool for morphological structural and chemical analysis of
nanomaterials***

Prof. Enrico Mugnaioli

Scientific and technical advancements often require a deep understanding of the materials we are dealing with. Most technological and natural substances are made of micrometric components, whose morphology, texture, chemistry and atomic structure determine the macroscopic properties of the bulk. The transmission electron microscope (TEM) allows for a comprehensive characterization of materials, because this instrument is not just a powerful magnifying tool, but rather a versatile working station able to acquire structural and chemical information from nanoscale volumes combining imaging, ESD spectroscopy and electron diffraction. In this seminar, I will illustrate how we use the TEM of the Center for Instrument Sharing of the University of Pisa (CISUP) for the multifaceted analysis of several classes of materials, among which electronic devices, micro-inclusions in minerals, environmental and heritage samples, and organics.