

Institut de Minéralogie et de Physique des Milieux Condensés
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SÉMINAIRE

Mardi 4 juin, 14h

*Salle de conférence, 4ème étage, Tour 22-23
IMPMC, Université P. et M. Curie, 4, Place Jussieu, 75005 Paris*

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FROM CATALYSIS AND PLASMONICS TO QUANTUM-MATERIALS: MINING THE FULL SPECTRUM

Electron energy loss spectroscopy (EELS) is an invaluable technique to study the detailed structure and the chemical state of materials at unprecedented spatial resolution. In today's modern electron microscopes, it is possible to tackle problems requiring the highest energy resolution, down to 60meV, and highest spatial resolution, down to the angstrom level, so that atomic resolved spectroscopy with high spectroscopic sensitivity and resolution can be obtained. This leads to the potential of covering excitation phenomena from the mid-infrared, soft-X-rays and even hard-X-ray regime.

In this presentation, various examples of applications of electron microscopy will be given based on an ultrastable double aberration-corrected and monochromated electron microscope ranging from the detection of low-loss features in plasmonic nanostructures and nanoantennas down to the mid-infrared part of the electron energy loss spectrum to the use of atomic-resolved EELS mapping for the study of interfaces in quantum materials that exhibit orbital ordering and in high-temperature superconductors.