



SEMINAIRE ISMO

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Probing surface plasmons with phase-shaped electron energy loss spectroscopy

Electron energy-loss spectroscopy (EELS) in a scanning transmission electron microscope (STEM) consists in sending fast electrons onto a metallic nano-particle and analyzing the energy losses due to their interaction with a surface plasmon's electric field. Thanks to the very short wavelength of the electrons, this technique enables mapping plasmon resonances well below the light diffraction limit. However, a major drawback of EELS is that, contrary to optical spectroscopies, it is completely blind to plasmons' phase. Nevertheless, thanks to recent experimental developments, it is now possible to shape the phase of electrons in a STEM and create beams with exotic wave-functions (e.g. vortex beams, airy beams).

In this seminar, I will demonstrate that these phase-shaped electrons are promising candidates to overcome the limitation of the standard EELS. Through recent theoretical and experimental developments, I will show that we are now in position to measure plasmons phase and coherence at the nano-scale.

Mardi 23 janvier 2018 à 11 h
Amphithéâtre du bât 520 (3^{ème} étage)
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