

UE Advanced characterization for nanostructures



Niveau d'étude
Bac +5



ECTS
3 crédits



Composante
UFR PhITEM
(physique,
ingénierie, terre,
environnement,
mécanique)



Période de
l'année
Toute l'année

- > **Langue(s) d'enseignement:** Anglais
- > **Ouvert aux étudiants en échange:** Oui
- > **Code d'export Apogée:** PAX9NPAM

Présentation

Description

This course will be dedicated to advanced characterization techniques of nanostructures. It will cover electron microscopy techniques (electron diffraction, loss spectroscopy, imaging), X ray spectroscopy and scattering techniques and Synchrotron radiation measurements.

Content

X-ray scattering (from single electron to periodic material, anomalous scattering)
Reciprocal space (reminder +
Surface sensitive X-ray scattering
X-ray absorption fine structure
Examples of application : strain and composition determination, *in situ* studies of growth
Introduction to the X-ray synchrotron radiation production (including the forth generation source like the ESRF Extremely Brilliant Source)
Coherent X-ray scattering and X-ray photon correlation spectroscopy
The basis of electron microscopy
Electron diffraction and Electron loss Spectroscopy
Imaging and chemical sensitivity (Transmission Electron Microscopy and Scanning Transmission Electron Microscopy)

Case studies

Heures d'enseignement

UE Advanced characterization for Nanostructures - CM-TD

Cours magistral - Travaux dirigés

24h

Période : Semestre 9

Infos pratiques

Lieu(x) ville

> Grenoble

Campus

> Grenoble - Domaine universitaire