Material Physics

ECTS
4 crédits

Hourly volume
85h

Introducing

Description

Objectives

At the end of this module the student should be able to:
- structurally characterize and orient a crystal: employ of basic X-ray and electron diffraction techniques, then analysis of the results.
- describe dislocations and their interactions from a geometric and energetic point of view, and relate them to the mechanical properties of the crystalline material: fragility and ductility
- calculate and predict electrical, thermal and mechanical effects resulting from electrical, thermal and mechanical solicitations applied to the crystal in particular directions.
- master the piezoelectric effect for applications of sensors and micro-actuators, and acousto-optical and electro-optical effects for applications of filtering, modulation or optical addressing and optoelectronic components.

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

Toulouse

Non-contractual information