

Material Physics



ECTS

4 crédits



Hourly volume

85h

Introducing

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.

Practical info

Location(s)



Toulouse