Material physics and electromagnetism

ECTS
5 crédits

Hourly volume
74h

Introducing

Description

Objectives

At the end of this module, the student should be able to:
-Describe the main macroscopic properties of materials (mechanical, electrical, thermal, magnetic, optical) and identify their microscopic origins in relation to the structural and electronic arrangement

-Describe the basic theoretical tools and concepts of electromagnetism such as Maxwell's equations, induction phenomena, quasi-stationary regimes in order to consolidate the theoretical foundations of the propagation of electromagnetic waves developed the following year.

- To identify the relevant variables of a problem of magnetostatics, and electromagnetism in variable regime.

- To simplify a real problem in order to be able to calculate useful physical quantities.

- To geometrize in 3D any problem of electromagnetism in static or variable states.

- To extract all the physical properties of an electromagnetic wave from Maxwell's equations.

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