

Dislocations and deformations

Introducing

Description

Plastic deformation and fracture of crystalline materials :

- Brittleness, ductility, plasticity of crystalline materials
- Dislocations : definition, theory of dislocations, interaction, mobility and plasticity.
- Brittle fracture, cleavage.

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts) the relations between defects and dislocations in the atomic structure and some macroscopic mechanical properties of crystals.

The student will be able to describe from a geometric and energetic point of view the dislocations and their interactions, and put them in relations with mechanical properties of the crystalline material : fragility and ductility

Necessary prerequisites

Know how to use tensor notation (seen during anisotropy lectures)

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