UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Introduction to Plasma Boundary in Fusion Devices

2526-2-113R-06

Title

Introduction to Plasma Boundary in Fusion Devices

Teacher(s)

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Language

English

Short description

Man-made plasmas almost always involve interaction with the solid-state, for example, electrodes or the walls of a containing vessel. In magnetically confined fusion devices, the physics of the boundary is of primary importance because it defines the rules for the power exhaust problem.
The latest is one of the most critical challenges for the realization of a commercial fusion power plant. The lecture will provide an introduction to the physics of the plasma boundary in fusion devices, focusing on the tokamak concept. After shortly discussing the transport in plasmas, a simple model of the plasma boundary will be sketched and compared to experimental data. An extension of the model will then offer the possibility to discuss possible

solutions to the “exhaust problem”.
Finally, a review of the latest and most important investigations on boundary and divertor physics will be reviewed.
No pre-requites are required, except basic concepts of electromagnetism.

CFU / Hours

2 CFU / 16 hours

Teaching period

June - July 2026

Sustainable Development Goals

AFFORDABLE AND CLEAN ENERGY