



MW1112 Kernfusion

Reaktortechnik

Winter Semester '24/'25

Course MW1112

The course will introduce the fundamentals of nuclear fusion technology and nuclear fusion reactor engineering. After introducing the main nuclear fusion reactions and the physical backgrounds, it will describe the operating principles of existing fusion devices and those under construction with focus on the Tokamak machines. It will also introduce the concepts of future thermonuclear reactors.

An important part of the course is the description of advanced technologies that in several cases are also used in other high-tech engineering fields such as:

- Superconducting Magnets
- Cryogenic Technology
- Plasma Technologies
- High heat flux components
- High power Radiofrequency and Microwave heating
- Neutral Beam Injectors
- Breeding blankets

The aim of the course is to introduce the students to nuclear fusion research and its advanced engineering solutions. At the end of the course, the students will learn how the fusion components are designed and manufactured. The students will learn the potentials and the challenges of this technology as a solution to the future energy demand.

Course presentation Monday 14/10/2024 16:00 on **ZOOM** (details on **MOODLE**)