



Nuclear Fusion Reactor Engineering

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**.

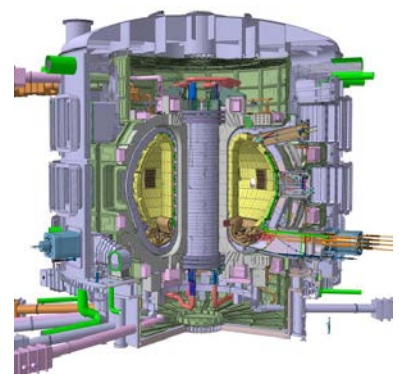
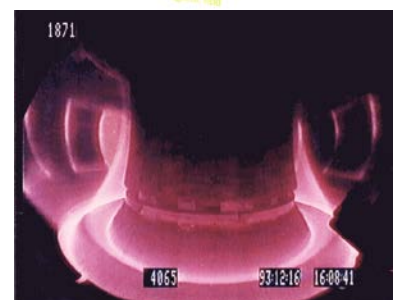
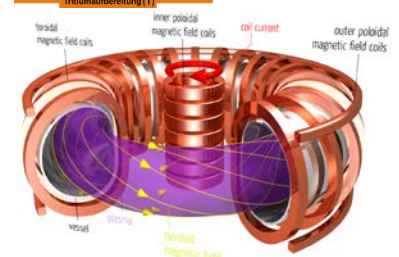
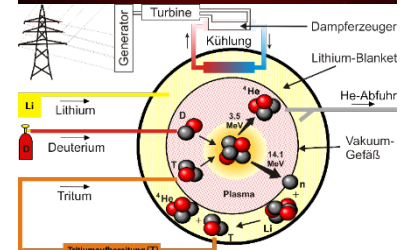
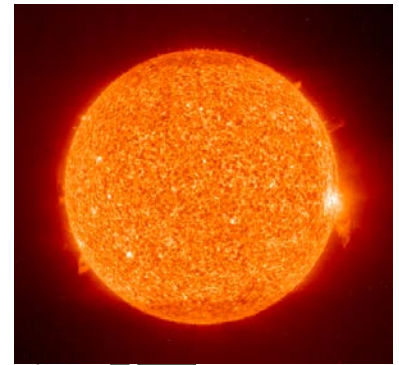
An important part of the course is the description of **advanced technologies** that in several cases are also used in other **high-tech engineering** fields such as:

- **Superconducting Magnets**
- **Cryotechnology**
- **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**.

Note:

The lectures and most course material will be given in English. German can be used also for questions during the lectures and for the written exam.



Course presentation → Monday 25/04/2022 17:00 Room MW 1050