

Lecture Announcement**Winter Semester 2026/27**

Catalysis

Lecturers:

Prof. Dr.-Ing Markus Gallei

Prof. Dr.-Ing Matthias Faust

**Further information:**Scope and Credits: 2 SWS (3 CP)Lecture: Tuesday – 08:30 a.m. - 10:00 a.m.Start: October 13, 2026Location: Seminar Room I, C4.3**QR-Code Moodle:****Content:**

Catalysis is a key driver of sustainable innovation, enabling cleaner chemical processes with reduced energy consumption and waste. By accelerating reactions efficiently, catalysts open pathways to renewable energy, green fuels, and environmentally friendly materials. This makes catalysis a cornerstone technology for building a more sustainable and resource-efficient future.

The lecture includes the principles and the practices of catalysis and catalysts. The introduction includes an historical overview and examples of homogeneous, heterogeneous and biocatalysis as well as the explanation of the catalytic cycle. The fundamentals of homogeneous and heterogeneous catalysis are deepened within the course. Insights into the synthesis of catalysts and the characterization of catalysts are exemplarily given. An extensive overview regarding important catalytic processes (e.g. automotive exhaust gas conversion, ammonia synthesis, steam reforming, fuel cell...) rounds off the course.

- What is catalysis and what is a catalyst?
- Fundamentals and sustainable applications of catalysis and catalysts
- Catalytic cycles and mechanisms
- Synthesis of catalysts
- Characterization of catalysts and design of catalytic experiments
- Important industrial catalytic processes

Information:

All information about the event will be provided in person, with additional information available on Moodle. After each session, you will also have the opportunity to download the lecture and further content.