

Master Thesis

homogeneous catalysis | *operando* spectroscopy | catalyst deactivation

Our group:

The Multiphase Catalysis Group in the department of Molecular Catalysis at the Max Planck Institute for Chemical Energy Conversion (MPI CEC) is currently looking for a master student interested in conducting research in the field of catalysis and reaction engineering.

Our research is focused on green chemistry, catalysis and process intensification. We work at the interface between chemistry and engineering and therefore offer a very versatile work environment. Projects include the development of new reactions, design of suitable catalysts, and scale-up of processes into continuously operated miniplants.

Your thesis:

Catalyst deactivation is often an insufficiently understood aspect in homogeneous catalysis. In our group we have developed a unique miniplant setup utilizing *operando* spectroscopy, with the help of which we are investigating processes that are degrading catalysts at a molecular level and developing strategies to improve catalyst stability and lifetime.

In this specific project, ligand-centered deactivation processes will be investigated. It will be your task to plan and conduct experiments on the miniplant to collect *operando* spectroscopic data and subsequently work on the data analysis and evaluation.

We offer:

- A green and sustainable chemistry related project
- Training and working with high pressure reactors and a unique miniplant setup
- Various analytical techniques and data evaluation (NMR, IR, GC, HPLC, ICP, ...)
- A fun and friendly international work environment at an excellent research institution with state-of-the-art equipment and laboratories
- A HiWi contract and salary for six months

Requirements:

- Interest and motivation to work in the field of homogeneous catalysis and *operando* spectroscopy
- Enrolled in a Master's degree programme in Chemistry or comparable
- Previous experience with NMR and IR spectroscopy and evaluation of spectroscopic data are appreciated
- A level of English that is sufficient for communication with your international colleagues and understanding scientific literature

If this description sounds like you and you are in for doing your thesis with us, do not hesitate to contact me with a short description of your background and interests and why you want to join the team.

