

Master Thesis / Research Internship

homogeneous catalysis | tandem catalysis | methanol economy

New Tandem Reaction: "Methanolation" of olefins

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:

Green methanol will play a pivotal role in the sustainable transformation of the chemical industry as it can not only act as an energy molecule or hydrogen carrier but also as a C1 building block. In our group we developed a system to utilize methanol as an *in-situ* synthesis gas source ($\text{CO} + 2\text{H}_2$). In a tandem reaction system consisting of two molecular catalysts we consume the produced synthesis gas in a 100% atom economic manner in the hydroformylation of olefins to the C1 elongated alcohols.

In this specific project, it will be your task to foster the understanding of this patented reaction system and widen its applicability to more complex olefins of relevance to the fine chemical and pharmaceutical industry.

We offer:

- A green and sustainable chemistry related project
- Training and working with high pressure reactors
- Various analytical techniques and data evaluation (NMR, GC, 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 in case of a master thesis

Requirements:

- Interest, motivation and ideally some experience in the field of homogeneous catalysis
- Interest and motivation to work with pressure reactors
- 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.

