MAX-PLANCK-GESELLSCHAFT

MAX-PLANCK INSTITUT FÜR CHEMISCHE ENERGIEKONVERSION

Master or Bachelor Thesis

catalysis | process intensification | *in situ* analytics

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 students interested in conducting research in the field of catalysis and reaction engineering. Bachelor and Master students as well as researchers are most welcome.

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:

Carbon monoxide is a valuable building block for a variety of basic and fine chemicals. Therefore, homogeneous catalyzed carbonylation processes are of high interest to industry and academia. A deep understanding of the catalytic systems is essential for exploiting the full potential of the valuable catalysts. In the context of this project, the dependence of catalyst performance on various reaction conditions and disturbance factors is investigated to unravel pathways of catalyst activity and deactivation.

What is waiting for you?

- high pressure reactions in steel autoclaves
- reaction optimizations, e.g. using Design of Experiments (DoE)
- *in situ* IR / NMR spectroscopy and data evaluation
- various analytical techniques: GC-FID, GC-MS, HPLC, NMR
- a fun and friendly international work environment at an excellent research institution

Requirements:

- interest and motivation to work in the field of homogeneous catalysis
- a level of English that is sufficient for communication with your international colleagues and understanding scientific literature

If this project has caught your interest, do not hesitate to contact me!

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