



Master Thesis in Process-, Chemical Engineering

Process-, System optimization and modeling

CHASE is seeking skilled and motivated young scientists willing to work on future proof topics dealing with sustainability and circular economy. You will be part of a multi-disciplinary team and acquire first-hand information on your selected topic and beyond.

We are offering positions for students with a finished BSc degree, in the field of Chemistry, Physics, Mechatronics, Polymer- or Process Engineering, for pursuing their diploma/master thesis, on a part-time basis (10 to 20h/week), limited to 12 months, to strengthen our team at the headquarters in Linz with immediate entry.

CHASE is a European Research and Technology Organization for Chemical Systems Engineering with its headquarters in Austria. We enable companies in the chemical process industry to make their production more energy-efficient, more resource-saving and more sustainable.

In two coordinated master theses, we investigate how process parameters influence bubble formation and distribution in a model system representative of a real-world process. The first thesis covers the design and construction of a setup that allows in-line observation of the relevant geometries (e.g. stirrers and dispersers) and, in parallel, describes the system by a multiphase computational fluid dynamics (CFD) simulation in OpenFOAM to capture the hydrodynamic distribution of the gas phase within the viscous liquid. The second thesis acquires new experimental data on an existing setup to validate and refine the simulation and optimizes the process and its system components. Both theses run in parallel and share a common experimental basis.

We are looking forward to hearing from you: personal@chasecenter.at

Reference number: 036

Application: until 30 November 2026

CHASE your future

You will contribute to the following tasks:

- Development and optimization of an experimental framework linking mixing conditions to bubble formation in a model system.
- Setup and execution of a multiphase CFD simulation of the gas–liquid system in OpenFOAM (e.g. Euler–Euler or volume-of-fluid approach), including turbulence modelling and interphase momentum transfer.
- Validation of the CFD model against the experimental data, and prediction of bubble size distribution and gas hold-up.
- Transfer of the results to the real process via dimensionless scaling.
- Implementation of optical and analytical methods to monitor and characterize the relevant system behavior.
- Analytical characterization of samples and process fractions using gas chromatography (GC), infrared spectroscopy (IR) and thermogravimetric analysis (TGA).
- Participation in project meetings & supporting publication of results in scientific journals.

Your expertise:

- Background in physical/colloid chemistry, particle technology or process engineering.
- Interest in hands-on laboratory experimentation and optical/analytical characterization.
- Skills in computational fluid dynamics or interest in learning it.
- Good analytical and problem-solving skills; independent and structured workflow.
- Effective communication skills in both English and German.

CHASE your career

We are committed to providing a framework for your professional growth:

- Work in a collaborative team, alongside academic professionals to enhance your expertise in chemical- & process engineering, and polymer chemistry.
- Play a key role in advancing sustainable recycling by developing and optimizing cutting-edge depolymerization methods for biopolymers.
- Earn a competitive salary while making impactful contributions to innovative research. The expected monthly salary is EUR 2.658,00 (on a basis of 40h/week).

For further information, please contact:

Gunnar Spiegel, Area Manager – Circular Process Streams
gunnar.spiegel@chasecenter.at

We look forward to receiving your application (cover letter, CV, academic certificates, employment references), including the reference number of the job posting, to the following email address: personal@chasecenter.at

By submitting your application documents, you expressly consent to the transmission of your application documents to the partners involved in CHASE.

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