

## Bachelor's / Master's / Semester Thesis

# Characterization and Modelling of an Innovative Dynamic Crossflow Filtration System

Keywords: Mechanistic Models, Process Optimization, Bioseparation, Circular Economy

### Project Description

This Master's thesis focuses on the advanced application of a Dynamic Crossflow Filter (DCF) with a rotating membrane, which reduces filter cake buildup and handles high viscosities. The DCF is integral to producing vegan mycoproteins from food industry byproducts, specifically separating fungal cells from the cell broth.

The project aims to enhance mechanistic models for better process representation and validate simulations with experiments. These outcomes will support the development of a digital twin for online optimizations in future processes, unlocking the full potential of the DCF in industrial applications.

Additionally, this work will contribute to sustainable food production methods and promote the utilization of byproducts in value-added processes.

### Research objectives

1. Improve and broaden existing mechanistic models for enhanced process representation
2. Validate simulation results with the help of experiments

### Profile

- Structured and independent workflow
- Interest in new technologies
- Advantageous: knowledge in the fields of: modelling, simulation, python etc.
- **Start date:** flexible

