

Master Thesis / Diploma Thesis

Systematic Modelling of Separation Processes in Biorefineries with the Aid of Topologies & Ontologies



BACKGROUND:

Biorefineries require a particularly high degree of interdisciplinarity to cope with the challenges in research and development. Correspondingly, biorefinery models have to be built on the concepts and expertise of several scientific fields like biology, chemistry, engineering and physics. This can be achieved by compiling a portfolio of fundamental equations, relations and definitions for biorefinery modelling – a so-called ontology. Combining such an ontology with a graph-based abstraction of the process (a topology) enables fast as well as reliable model design even for complex systems. The thesis aims for the unit model design of one of the separation processes utilised in biorefineries such as membrane filtration, decanter centrifugation, extraction or evaporation. If required, the DBFZ has a bench-scale plant installed for every of the mentioned processes. Advanced skills in mathematical modelling and graph theory are beneficial but not essential: The modelling methodology will be taught and discussed at length during the duration of the thesis project.

YOUR TASKS:

- Mathematical modelling of established separation processes
- Validation and model fitting
- Presentation and discussion of the results

YOU HAVE:

- An advanced state of engineering studies in process, chemical or environmental engineering, or alike
- A solid technical comprehension as well as structured, independent and accurate approaches
- Basic knowledge in linear algebra, mathematical modelling and calculus

WE OFFER:

- A good introduction to the topic as well as competent and motivated support in the processing of the tasks
- A family-friendly, modern working environment in a collegial working atmosphere
- Good public transport connections
- The thesis can optionally be linked with a stay abroad at the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway

BEGINNING:

permanently open call

DURATION:

6 – 9 months

PROCESSING LOCATION:

Deutsches Biomasseforschungszentrum, Torgauer Straße 116, 04347 Leipzig

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APPLICATION DOCUMENTS:

Please submit your compelling application (in a single attachment, preferably as pdf, max. 5 MB)

e-Mail: bewerbung@dbfz.de

For an encrypted transmission of your application you can use the upload form Cryptshare.

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