



Technische
Universität
Braunschweig

Institut für Biochemie, Biotechnologie &
Bioinformatik – Abteilung Biochemie



Institute of Energy and
Process Systems Engineering

Model-based Analyses for a Chemo-enzymatic Cascading Process

Nature inspires by very efficient enzyme-catalyzed reaction cascades in living cells, called metabolism, in which an average of 3,000 different enzymes is involved catalyzing from the simplest to very complex organic reactions. The complexity but perfection in operation of the cell metabolism is one of the main justifications that researchers and industries are interested in developing (artificial) enzyme cascades for application in e.g. environmental remediation, drug synthesis and modification, diagnostics, etc. In the past few years, the setup and development of a synthetic cascade strategy toward enantiopure amino alcohols starting from achiral alkenes has been demonstrated successfully at BBT using the exemplary chemo-enzymatic cascade.

In a close collaboration with Prof. Dr. Anett Schallmeyer at BBT, InES offers a Hiwi/Master project focusing strongly on physical-based modeling including: 1) building reaction kinetic model, model discrimination and parameterization, 2) process unit level model, sensitivity analysis and optimization, 3) building up a conceptual approach for a complete synthesis route from material feed to end products.



Requirements

Interest in: Bio-chemical systems and their properties and linkage
Interdisciplinary research and development

Skills: Master study in chemical engineering and related disciplines
Good command in Matlab or Python
English fluency is essential

Contact:

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Offer: Hiwi (40hrs/m) and a potential follow up of master thesis

Starting date: as soon as possible