Professur für Chemische und Thermische Verfahrenstechnik
Campus Straubing für Biotechnologie und Nachhaltigkeit
Technische Universität München

Theoretical Bachelor-, Master thesis, Scientific Internship

Model-based multi-objective optimization of a semi-batch bioreactor

Description

At the Chemical Process Engineering group of the TUM, Campus Straubing the model based optimization of a semi-batch bioreactor is carried out using the Python-based, open-source optimization modeling language Pyomo.

The main tasks of the offered project are to implement the kinetic equations and material balances of a reaction pathway in a pre-prepared Pyomo code and then use Pyomo to produce Pareto frontiers. The results are going to be compared with the results of a different reaction pathway used to produce the same product. Finally, conclusions will be drawn for which of the two pathways is more appropriate for the production of the wanted product.

Requirements

Programming experience and good knowledge of the English language are required. Knowledge in any of the following areas is appreciated: mathematical modelling, reaction engineering, enzyme kinetics.

To start

Immediately

Technical University of Munich

TUM Campus Straubing
Leandros Paschalidis, M. Sc.
Schulgasse 16, 94315 Straubing
Raum: 2.A07
Tel. +49 (0) 9421 187-292
leandros.paschalidis@tum.de
www.cs.tum.de
www.tum.de