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Unser Zeichen:
KWT 9

Topic for master's thesis (theoretical)

Development of a tray model and modelling the fluid dynamics inside tray columns

The experimental investigation of absorption and distillation columns is time-consuming and limited in technical realization. A tray model needs to be developed to describe the fluid dynamics and mass transfer inside these columns at different steady state and dynamic operation conditions. An axial segmentation of the tray needs to be carried out for different inlet and outlet conditions. As a column is not a single tray, the coupling of trays is necessary and should be implemented in the model. The model should be used for the validation of experimental data and for the description of unsteady plant operation.

Task description:

- Steady state and dynamic model of a single tray
- Specific literature review regarding inlet and outlet conditions as well as liquid hold up correlations
- Implementation of an axial segmentation along the tray
- Coupling of multiple trays

Desirable skills:

- Experience in modelling of chemical systems
- Basic knowledge in Matlab, Python, or similar software

Start: as of now

Contact persons:

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