Brandenburgische Technische Universität Cottbus - Senftenberg

Master thesis / HiWi position: Kinetic investigation of steam reforming using a 1D software tool

Job description

Modelling significantly contributes to a better understanding of numerous scientific problems. In heterogeneous surface chemistry applications, appropriate models may significantly decrease the cost and time of device design and optimization.

In the present project (Turbo Fuel Cell*) a reliable kinetic reaction mechanism has to be optimized to reproduce experimental data of steam reforming of methane over a Ni/Al2O3 catalyst. As a result, the optimized reaction mechanism should be able to predict the experimental results of the variation of numerous inlet parameters such as inlet mass flow, temperature and steam-to-carbon ratio.

*) Hydrogen gained from methane steam reforming (MSR) is used in a MGT-SOFC hybrid system consisting of a recuperated micro gas turbine (MGT) process with an embedded solid oxide fuel cell (SOFC) subsystem.

Your tasks

- Literature research on catalytic fuel reforming,
- Reformer optimization with regard to catalyst composition and dimension using the 1D software tool LOGEcat,
- (Software coding to enhance reactor model, according to your skills).

Your qualification

- Master student in process engineering, chemical engineering, mechanical engineering, environmental engineering, chemistry, Applied mathematics or comparable studies;
- IT knowledge: experienced handling of office software and data processing software (such as gnuplot), coding skills are welcome;
- Knowledge in (surface) chemistry and physics is preferable;
- Interpersonal skills: capacity for independent work, excellent programme achievement, curiosity.

The thesis advertisement is valid immediately. Are you interested? Then please send your CV and motivation letter to Rakhi: rakhi.rakhi@b-tu.de. In case the contact person is sick or out of office, please contact: yvonne.teetzen@b-tu.de.