

University of Stuttgart

Institute of Combustion and Power Plant Technology

Announcement

Experiments on the optimization of a catalyst for the selective catalytic reduction of NO_x prepared by using a microwave system

**Bachelor Thesis
Student Research
Project**

Background

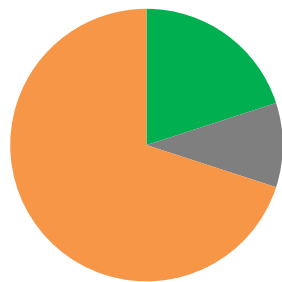
With the use of a catalyst, reactions can be performed more quickly and with less energy. The reason for this is the decrease in the activation energy and the faster establishment of the chemical equilibrium. This is achieved by binding a reactant to the surface of the catalyst and thus stabilizing the transition state. A common method of optimizing these types of catalysts is to tune them with additional metal compounds. Another method is the testing of other support materials in the case of supported catalysts.

Objective

Within this work, a supported catalyst for the selective catalytic reduction of NO_x shall be optimized. The catalysts are prepared by an impregnation method with following calcination in which a microwave system is being used. For these optimizations, literature and previous experiments can be used. The catalysts produced are then tested for their function. Computational design by means of simulations is conceivable in cooperation with other working groups and will be encouraged.

Approach and tasks

1. Literature research
2. Performing impregnation experiments
3. Evaluation and interpretation through tests of the catalytic function
4. Assessment and compilation of the results



■ Literature ■ Theory
■ Experiments

Requirements

- Working independently
- Proper documentation
- Interested in catalysis

Start date: from April 2025

Interested students please contact

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