Masterarbeit Nr.:
Aufgabenstellung für die Masterarbeit von:

TITLE: **Propagation enhancement and emission reduction behavior of laminar reactivity-stratified ammonia/hydrogen flames**

Description

Ammonia (NH_3) combustion is a promising solution to mitigate climate change and provide environmentally friendly energy generation. In order to cope with the low reactivity of ammonia, reactivity stratification with hydrogen (H_2) addition is a potentially feasible technology to enhance NH_3 combustion performance. The objective of this thesis is to elucidate the response of the flame speed and emission formation (NO and N_2O) of reactivity-stratified NH_3/H_2 flames through manipulation of the reactivity gradient and Temperature-Pressure condition. All the simulations should be done with the DNS solver DINO, which is developed by our group. This thesis requires the student to: 1) get acquainted with the subject by reading the available literature on the topic; 2) carry out simulations of laminar reactivity-stratified NH_3/H_2 flames; 3) document and analyze the obtained results.

Prerequisites

--Self-motivation
--Good knowledge of combustion
--Good computer programming skills (Python/Fortran)
--First practical experience of Computational Fluid Dynamics

Supervision:
Dr. Cheng Chi
Cheng.chi@ovgu.de
Room 110, building 14
Dr. Wei Guan
Prof. Dominique Thévenin