Bachelor- / Studien- / Masterarbeit

Room Fire - Local Distribution of Oxygen (FDS or fireFoam)

BERGISCHE UNIVERSITÄT WUPPERTAL

Topic

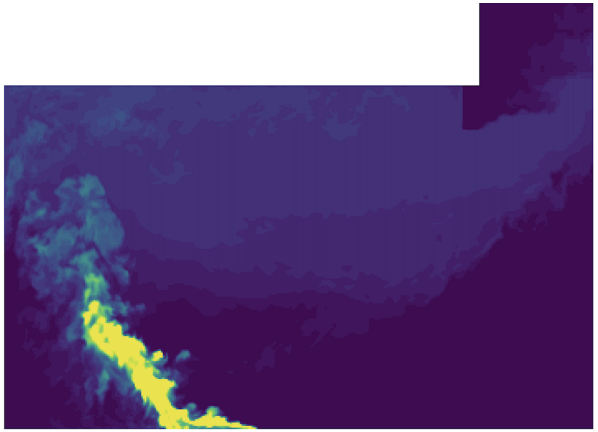
Evaluation of local under-ventilation in room fire scenarios

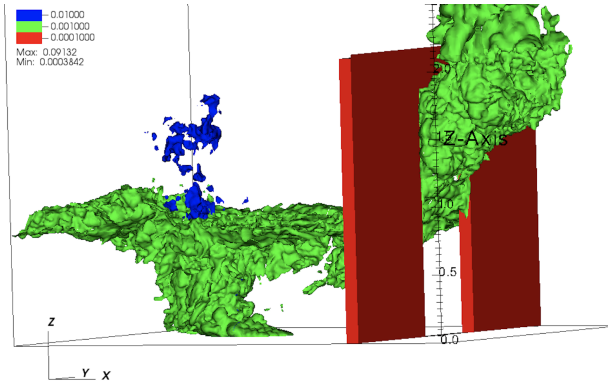
Background

Room fires are often categorized into well-ventilated and under-ventilated fires, which influences e.g. the development of toxic gases and extinction phenomena.

When handling extinction phenomena in detail, different models need to be applied. Though in general, no distinction is done between global or local under-ventilation. Whereas local under-ventilation might occur already in well-ventilated room fires.

This thesis should evaluate different scenarios of the Steckler room with **FDS** with special placement and shape of the burner. The aim is to get a better understanding of scenarios where and how large local under-ventilation can effect the combustion.





Main Steps

1. Get familiar with experimental setup and existing simulation results
2. Create initial FDS setup with all needed material settings and post-processing devices
3. Select burner size, position and shape
4. Mesh study
5. Evaluation with focus on oxygen level

Tools

- FDS (or OpenFOAM/fireFoam)

Requirements

- High motivation
- Interest in CFD and Fire Simulation

https://fire.uni-wuppertal.de

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