

Master Thesis

CFD application for energetic utilisation of biomass

Scope of work:

The master thesis may either focus on development, validation and application of models or on the development and optimisation of new technologies based on CFD simulations, for the energetic utilisation of biomass.

The master thesis can be defined in the following research topics:

- Analysis of ash formation and behaviour in biomass combustion plants
- Thermal conversion processes of solid biomass (combustion, gasification, pyrolysis/torrefaction)
- Gas phase reactions and emissions

The research work is done in close co-operation with company partners in order to guarantee target oriented simulations and the efficient implementation of the results in appliances.

Actual topic of the thesis will be fixed depending on the student's interests and availability.

Skills:

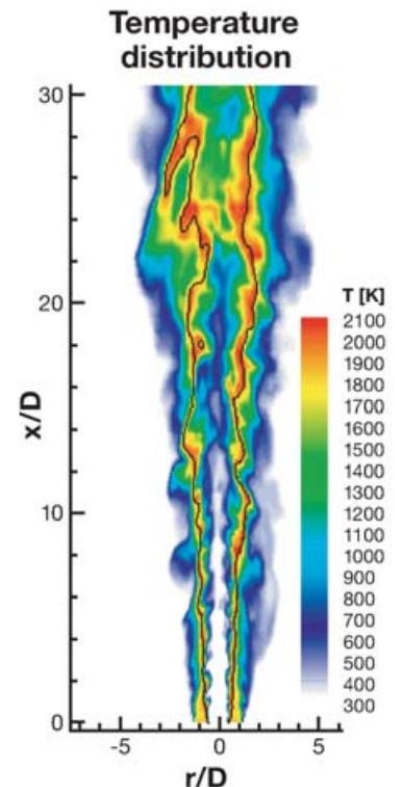
- Basic knowledge on gas phase reaction kinetic
- Basic knowledge on biomass combustion
- Knowledge on software ANSYS Fluent and/or CHEMKIN and/or programming (Matlab, C++) is an advantage

Start date: As soon as possible

The work will be performed in close collaboration with the Institute of Thermal Engineering (IWT) TU-Graz (Prof. Robert Scharler). A financial remuneration of the work is possible.

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Simulation of Sandia flame D with flamelet model (H. Pitsch, Annu. Rev. Fluid Mech., vol. 36, 2006).