

## Bachelor/Master Thesis

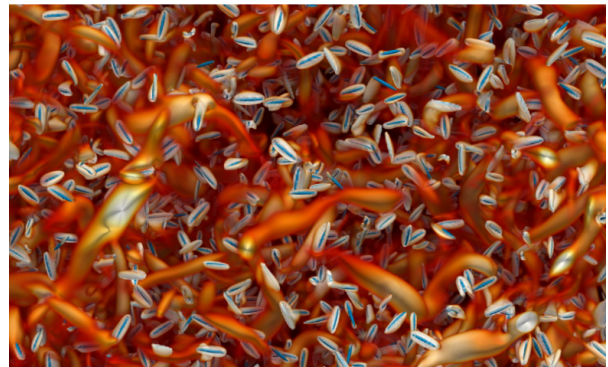
### Numerical simulation of biomass particles in turbulent flow

Almost all flows encountered in environmental and engineering-relevant settings are turbulent. The numerical simulation of single-phase turbulent flows is already complex and, although there are many successful modeling approaches, the complexity of multiphase turbulent-flows increases significantly.

The numerical analysis of particle-laden turbulent flows is an even more challenging problem. Despite their high relevance in various settings, existing models are valid only for simplified conditions and validation is often still pending.

An important application is the numerical design of a biomass combustor. Here, the determination of heating rates, particle dynamics, and turbulent mixing of non-spherical particles is crucial to properly design the entire combustion process and ensure efficient and safe environments.

The generation of high-resolution reference data using simulations and the development of accurate models for simplified cases, as well as their validation, are current research projects that are being pursued intensively at the Institute of Aerodynamics. For this project we are looking for motivated master thesis students.



*Visualization of a turbulent flow loaded with non-spherical biomass particles..*

#### You ...

- ... are interested in (computational) fluid dynamics and multi-phase flows
- ... have programming experiences in C++ and are interested in learning new concepts
- ... are eager to learn new skills and are able to work in an independent manner

#### If you are interested, please contact:

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