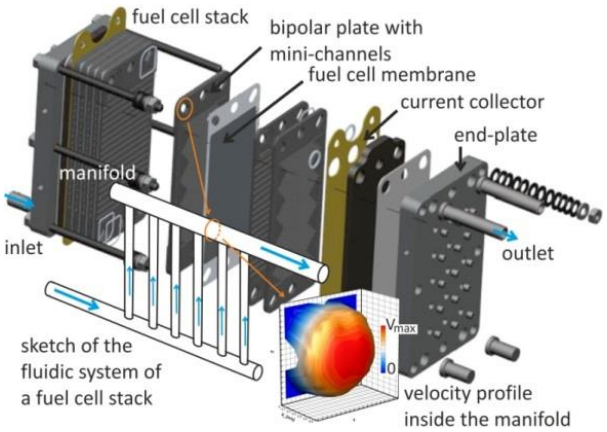
THE HYDROGEN AND FUEL CELL CENTER

Master Thesis: Flow Modeling of Fuel Cell Stacks

The hydrogen and fuel cell center "Zentrum für BrennstoffzellenTechnik" (ZBT GmbH) since founded in 2001 is supporting industry to speed up the market introduction of fuel cells and hydrogen technologies.

The fluid mechanics group combines flow measurement with numerical modeling (with commercial, open source and in-house tools) to investigate the gas and multiphase flow phenomena in the diverse fluidic structures of fuel cells and fuel cell stacks and their influence on the performance of the respective energy conversion systems.

Modeling the flow distribution in fuel cell stacks requires a trade-off between simulation accuracy and efficiency due to the geometrical complexity. Thus, reduced dimensional models are favoured for preliminary parameter studies. These reduced models, however, are not generally valid for a wide range of applications. Within the frame of this thesis, available models in the literature should be implementend into our in-house stack simulation tool and compared to three-dimensional CFD stack simulations for a range of geometrical parameters and operating conditions.



We are looking for talented applicants who...

- have a solid background in fluid mechanics, general transport phenomena and numerical modeling
- are interested in programming with Python and have a basic understanding of object-oriented programming
- are committed learners and enthusiastic about theoretical scientific work

Please send your application to: info@zbt.de

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