RWTH AACHEN UNIVERSITY

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Our Research group

Ventiltechnik und Mechatronik

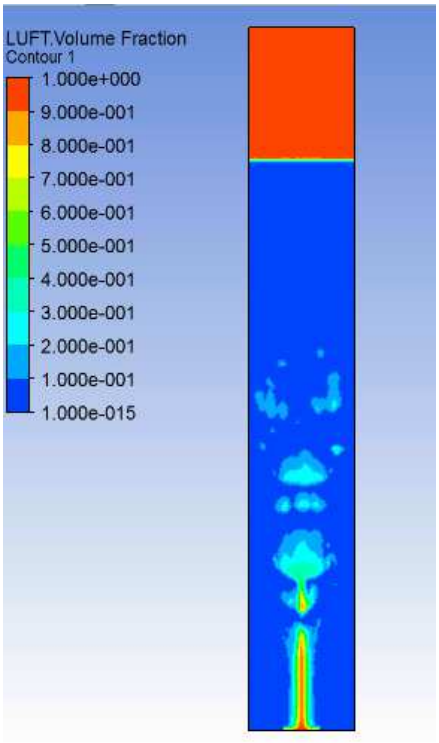
offers

Diploma-/ Master Thesis

with the topic

Tank Design using Multiphase Flow Simulations

A large number of flows in nature involve free surfaces. Their applications range from environmental sciences to numerous engineering problems. The CFD design of hydraulic tank lies among them. Hydraulic reservoir performs various important functions in oil power systems such as helping settle down the contaminants and aiding in the escape of air. Both of them require a multiphase simulation approach. Numerous computational techniques have been developed in order to face these kinds of problems. The rise of big air bubbles in stagnant mineral oil can be reproduced by using volume of fluid model (VOF). On the other hand, contaminants and small air bubbles can be treated by means of a lagrangian approach (LPT). The aim of this thesis is to couple the VOF with LPT method in OpenFOAM. Afterwards, the new solver will be asses with a simple test case such as a cylinder filled with oil. Experimental data to validate the simulated behavior of air bubbles will be available.



Requirements:

- Fluid Dynamic and CFD knowledge
- Good knowledge of C++ programming language
- Ability to work by yourself

We offer to you:

- Good work atmosphere
- Good supervision

If you are interested in this master thesis, do not hesitate to contact me:
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