

## Design and Simulation of an Evaporator Test Bench

Type: Semester Thesis / Master Thesis  
Content: theoretical / experimental / simulative  
Possible start: September

### TUM Hyperloop

Our group is researching Hyperloop technology for passenger transport. We focus on electromagnetic levitation, suspension, and propulsion, simulation of high-speed aerodynamic phenomena, cooling systems, and vehicle structure and infrastructure topics. Depending on the topic, we work on new test benches and the implementation of various experiments, computationally intensive simulations, or the design of new types of components. Our chair aims to motivate you and other students to develop modern technology for tomorrow – together as a strong team with the power of everyone.

### Job Description

Designing efficient evaporators under vacuum is essential for Hyperloop. In this project, an evaporator-condenser setup will be developed and analysed. The student will design both components using a CAD tool (e.g. SolidWorks) and simulate thermal behaviour under vacuum. The goal is to reproduce the thermal and flow behavior observed experimentally and enable a comparison between simulation and test results.

### Your Tasks

- Understanding the basic principles of evaporator cooling.
- Create the model for the evaporator using design software (e.g. SolidWorks).
- Conducting complex simulations in thermal and CFD software.

### Our Requirements

- Experienced knowledge of thermodynamics and fluid mechanics.
- Experience with or willingness to learn to operate new software.
- High motivation with enthusiasm to make an impact

### Our Offer

- Working with students and researchers in a highly motivated young research team.
- Experience in a new field of research which is gaining in importance.
- Possibility to be involved in the experimental set up assembly.

### Contact

If you are interested in working in our team, please send your application, motivational letter and supporting documentation to Miriam Hernan Gomez ([miriam.hernan-gomez-mingo@tum.de](mailto:miriam.hernan-gomez-mingo@tum.de)). If you have any questions, do not hesitate to contact us.