



# Extension and Verification of a Tool for the Calculation of the Thermal Management Systems of Hybrid-Electric Compressors

## Semester thesis / HiWi

### Description:

Electric compressors in hybrid aircraft engines require effective cooling systems to ensure high power density and prevent overheating. As electric motors are integrated into the engine cycle to drive compressor components, efficient heat dissipation becomes essential for reliable operation and the implementation of advanced compressor architectures. The objective of the thesis is to improve a tool for calculating different cooling system architectures.

### Work packages:

- Optimising tool structure with respect to object-oriented programming principles
- Implementing alternative cooling system architectures
- Verifying of implemented models
- Conducting parameter studies and deriving optimisation potential

### Requirements/knowledge:

- Good knowledge of programming with Python
- Very good knowledge of object-oriented programming
- Knowledge of heat and mass transfer

**Type of research:** Prelim. Design / Numerical

**Begin:** as of now

**More under** „[www.asg.ed.tum.de/en/ltf/teaching-and-studies/theses](http://www.asg.ed.tum.de/en/ltf/teaching-and-studies/theses)“

