Universität Stuttgart
INSTITUT FÜR THERMODYNAMIK DER LUFT- UND RAUMFAHRT
Direktor: Professor Dr.-Ing. B. Weigand
Pfaffenwaldring 31, 70569 Stuttgart, Germany · http://www.itlr.uni-stuttgart.de

HiWi/Bachelor Thesis/Master Thesis

Numerical investigation of a future propulsion watery recovery system

Today's demand for climate-neutral aviation has turned the research focus towards innovative propulsion systems. The **WET** (**W**ater **E**nchanced **T**urbofan) engine is a revolutionary propulsion concept that recovers the exhaust heat, and thus improves thermal efficiency and reduces energy consumption.

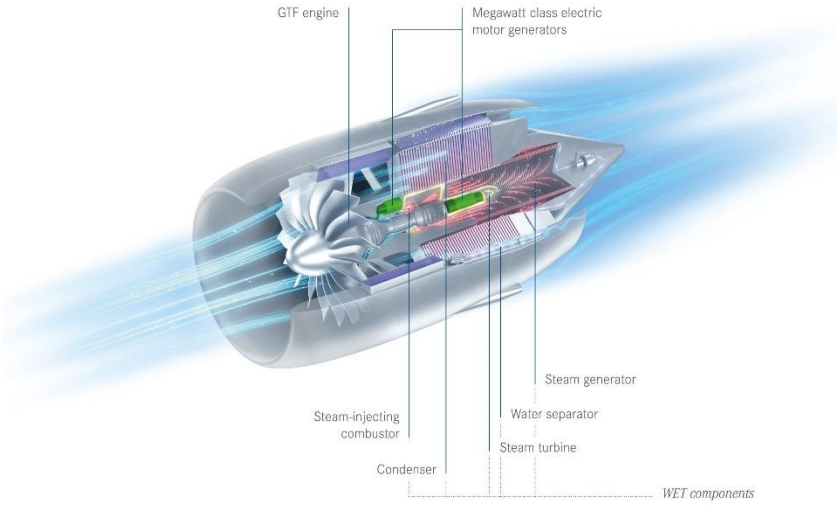

Figure 1: WET engine architecture

One of the WET engine components (see Figure no.1) is the **W**ater **R**ecovery **U**nit (**WRU**) which role is to collect the droplets from the supersaturated flow, with the minimum pressure drop possible. In the frame of this position, one phase CFD simulations concentrating on the pressure (P), velocity profile (v), mass flow rate (dm/dt) and temperature (T) will be carried out.

Qualifications:

- Good knowledge of thermodynamics and numerical methods
- Experience with programming languanges (e.g MATLAB)

- Experience with CFD simulation tools
- Motivation

Tasks:

- Meshing
- 1D computational thermodynamics simulations
- 3D CFD simulations
- Work documentation

Contact person:

Herr Georgios Iosifidis, M.Sc.
E-mail: georgios.iosifidis@itlr.uni-stuttgart.de
Telephone number: +49 711 685 62311
Webex: https://unistuttgart.webex.com/meet/georgios.iosifidis