

## Simulation and layout of a Carbon-Capture System for realizing a CO<sub>2</sub>- and emission-reduced ship propulsion

- **Description:**

In order to reduce emissions, especially CO<sub>2</sub>, of ship propulsion systems, a drive train featuring up to 97% emission reduction is being developed in the course of the Horizon 2020 reasearch project HyMethShip. It uses regenerative methanol as energy carrier on the ship, which is then being split into hydrogen and CO<sub>2</sub> on board. The hydrogen is used as a fuel for the engine, whereas the carbon dioxide, after being liquefied, is stored and can, back on the shore, be used for the produciton of methanol again.

In the course of the dissertation, a concept of this Carbon Capture System (CCS) is to be designed, analyzed and evaluated; for the chosen concept, a cycle simulation model will be built up, which is then used for the defining the final ship propulsion system, but also for setting up a scaled demonstrator of the CCS.

- **Content:**

- Screening of different CCS layouts
- Setup of a CCS cycle simulation model
- Optimization and analysis of the system for the final ship layout
- Deduction of a layout of a small scale demonstrator plant

- **Project type:** EU Horizon 2020 Project

- **Start:** immediately

- **Duration:** temporary employment contract until 30.6.2021

- **Salary:** Classification B1 according to KV

- **Contact:** Ass.Prof. Dr. Michael Lang  
([michael.lang@ivt.tugraz.at](mailto:michael.lang@ivt.tugraz.at))

