Karlsruhe Institute of Technology

Institut für Fusionstechnologie und Reaktortechnik
Bereich Innovative Reaktorsysteme
Vincenz-Prießnitz-Str. 3
76131 Karlsruhe
http:/www.ifrt.kit.edu

Simulation of components in HELOKA-HP with system code ATHLET3.0A

Bachelor-/ Masterthesis, Studien-/ Diplomarbeit

Objective

HELOKA-HP (Helium Loop Karlsruhe - High Pressure) is an experiment facility at KIT CN for testing and qualifying ITER components and their Helium Cooling Circuit (HCS). In order to understand the loop dynamics, the HELOKA piping and components have been modelled with the system code RELAP5-3D. For code validation ATHLET3.0A (Analysis of THermal-hydraulics of LEaks and Transients) is an alternative code, since helium is implemented as working fluid in this code version. Objectives of this task are simulations of HELOKA components (e.g. heater, economiser, cooler, etc.) and the helium loop using ATHLET, depending on available working time. The ATHLET-results will be validated with RELAP-results.

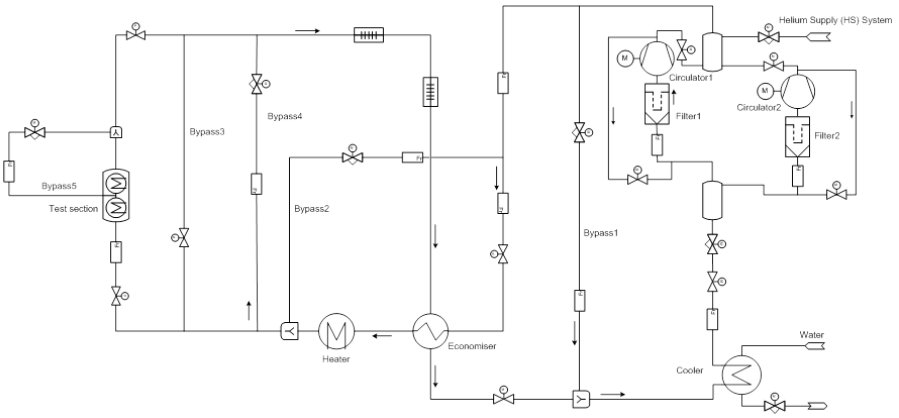

Figure 1: HELOKA-HP PID-Schema für Systemsimulation

Requirements

- Student of mechanical engineering, process engineering or chemical engineering
- Knowledge in fluid mechanics and thermal dynamics
- Knowledge in numerical simulation appreciated

Start

- by appointment

Duration

- 3 to 6 month

Contact

Prof. Dr.-Ing. Xu Cheng
Institut für Fusionstechnologie und Reaktortechnik
R 238.2, Geb. 07.08, Vincenz-Prießnitz-Str. 3
Tel.: 0721 - 608 45356
E-Mail: xu.cheng@kit.edu