

26. Februar 2026

Bachelor/Master Thesis – experimental

# Experimental Investigation of in-vitro Hemodynamic Flow in an Anatomically-Shaped Atrium.

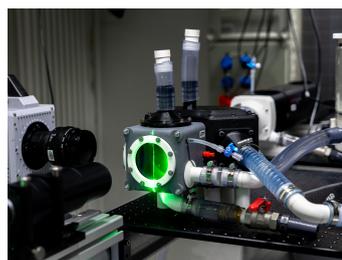
*Disclaimer:* The Thesis can be written in German or English / Die Arbeit kann sowohl auf Deutsch als auch auf Englisch absolviert werden.

If you are interested please contact [Philipp Warlitz \(philipp.warlitz@kit.edu\)](mailto:philipp.warlitz@kit.edu).

The topic of the thesis is the measurement and characterization of the blood flow in the right atrium. The right atrium has two veins through which the blood enters the atrium. During the diastole the blood flows through the tricuspid valve into the main chamber of the heart. The physiological flow is altered in the case of heart valve diseases and following surgical procedures. The goal is to quantify the effect of these changes on the hemodynamic flow in the atrium.

The thesis contains the following work packages:

- Literature research
- Setting up the optical measurements (Particle Image Velocimetry)
- Optimizing optical access into the atrium
- Calibration and Validation of the setup
- Pursuing the experiments
- Postprocessing and evaluation of the results



**Start:** SS26 - WS26/27

**Ansprechpartner:**  
[Philipp Warlitz](mailto:philipp.warlitz@kit.edu)

Institut für Strömungsmechanik

☎ +49 721 608 42765

✉ [philipp.warlitz@kit.edu](mailto:philipp.warlitz@kit.edu)