

Investigation of Complex Flow using MRI Velocimetry

Master's thesis

This Master's thesis focuses on investigating complex flow behavior using MRI velocimetry. The technique enables non-invasive, spatially resolved measurement of velocity fields inside opaque flow systems.

Main Tasks:

- Plan and perform MRI velocimetry experiments in selected flow geometries or process-engineering systems.
- Process, visualize, and analyze the measured velocity data to identify flow patterns, recirculation zones, mixing behavior, and other relevant flow phenomena.

Your Profile:

- Master's student in chemical engineering, bioprocess engineering, mechanical engineering, physics, biomedical engineering, or a related field
- Interest in fluid mechanics, MRI, experimental research, and data analysis
- Basic programming skills in Python or MATLAB are beneficial
- Independent and structured working style

Two-student option: The project can accommodate two interested students working in parallel, for example on complementary experimental systems, flow geometries, or analysis topics. Applications from individual students are also welcome.

Start date : Flexible

Location : Institute of Process Imaging V-10, TUHH

Contact : Muhammad Adrian (muhammad.adrian@tuhh.de)