

December 9, 2021

bachelor/master thesis – experimental

Measurements of Tunnel Characteristics of the Göttinger-Windtunnel at ISTM

Task description

The Göttinger Windtunnel at ISTM is being redeployed for service after extensive refurbishment. Due to the variety of modifications, the flow characteristics in the test section have to be re-examined accordingly. However, this is important for both reliable measurements and flow-quality improvements planned as foreseen for future research efforts. Limited measurements have already been carried out over the course of the last year. Meanwhile, the completion of a fully automated traversing system allows more rigorous and comprehensive investigations.

Work plan

The goal of this thesis is to measure and process several flow quantities inside the measurement section of the wind-tunnel. For a detailed understanding and to avoid unnecessary repetitions a literature study is to be conducted to understand the respective measurement techniques. In contrast to previous measurements this study shall be done at a sufficient resolution to properly evaluate the uniformity in space. The processing shall include – but is not limited to – the following figures of merit: Static pressure distribution, velocity distribution, turbulence level, flow angularity and shear layer location. Furthermore, the temporal resolution of several quantities is an additional degree of freedom for the flow-property analysis.



Requirements

Good understanding in Fluid Dynamics
Basics in Python3

Beneficial Skills

Basics in Labview

Start: February 2022

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