

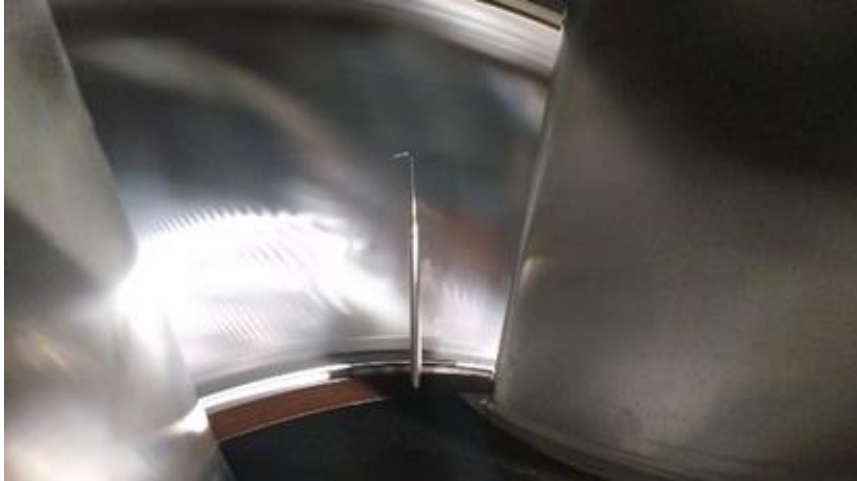


Image shows a MHP in Chalmers Low pressure turbine test facility

Evaluation of multihole probe utilizing additive manufacturing and machine learning

Background

Multi-hole probe (MHP) is an established and well recognised measurement technique in both academia and industry to measure pressure and velocities in fluids. MHP is often utilised in high end applications such as Formula 1, gas turbines and unmanned drones where quality and robustness of the measurement is of highest importance.

Problem and Target

This project aims to develop a method to achieve highly accurate pneumatic probe measurement in complex flow with high-pressure gradients and large fluctuations. This is especially challenging for a system with low losses found in for example ducts in gas turbine components.

Method

The students are expected to work with the researchers in the lab to further develop the MHP method for measurements in complex flow fields, some key element of this will be:

- Evaluate performance experimentally, via Chalmers in-house multi-hole probe calibrator.
- Perform uncertainty analysis of MHP method.
- Investigate machine learning for data reduction of probe data

Students Requirement:

Students should be comfortable in CAD and matlab/Python.

Potential Students

M, TD, F, Z

Gruppstorlek: 4-6

The work can be divided if needed. There are many potential configuration and the experimental investigation can be expanded if there is possibility to it.

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