



Task Description Master's Thesis

for First and Last Name

Production and calibration of piezoelectric pressure probe

Herstellung und Kalibrierung piezoelektrischer Drucksonden

Motivation:

Pulsed Plasma Thrusters (PPTs) have proven to be a reliable and robust propulsion technology. Within the framework of the MP2S (Modular Pulsed Propulsion System) project, there is an emerging need for a pressure probe with a larger surface area to facilitate more accurate measurements. MP2S, which can be considered a Gas-fed PPT, has the potential to become a practical and competitive propulsion system due to advancements in material science and electronics. However, to fully realize these improvements and optimize PPT design, precise performance measurements are crucial.

To validate theoretical models and deepen our understanding of the underlying physics governing PPTs, it is necessary to develop a pressure probe tailored to this specific propulsion system. The probe will improve the accuracy of performance measurements and reduce extrapolation errors.

The task assigned to the student involves designing and constructing this pressure probe, followed by its calibration and the development of a measurement procedure. Once completed, the probe will be integrated into the existing thrust measurement setup. The student will be involved in all phases of the project, from initial design to final testing, contributing to a significant technical challenge that will advance our knowledge of plasma propulsion systems.

Task Description:

- Development and construction of pressure probe
- Design, calibration and proof of concept
- Integrate the probe into the existing setup and optimize the current software
- Implementation: Test and verification
- Documentation

Internal advisor: Velin Yordanov

Start date: Choose Date

Submission deadline: Choose Date

Acknowledgement of receipt:

I hereby confirm that I read and understood the task of the master's thesis, the legal framework as well as the study and exam regulations.

apl. Prof. Dr.-Ing. Georg Herdrich

(Responsible Professor)

Student

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