

Messungen von Eisadhäsionsspannungen auf einer rotierenden Platte

Measurements of ice adhesion stresses on a rotating plate



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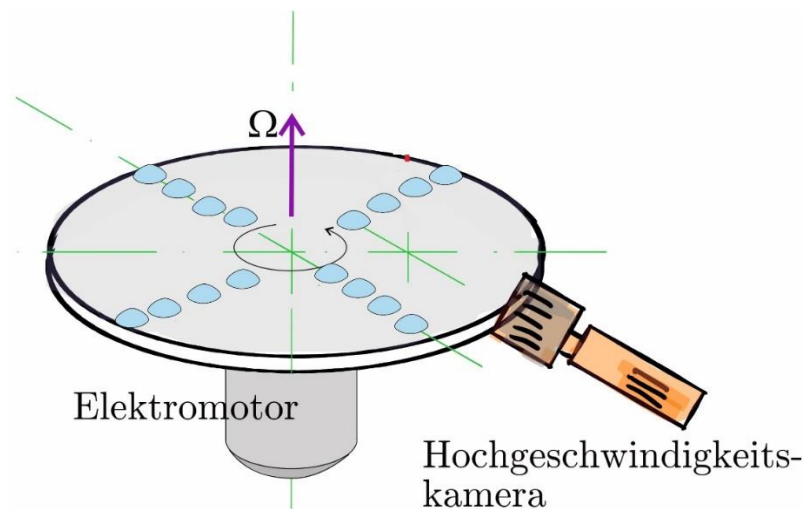
Task is for Master's or Bachelor's thesis

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The aircraft industry works intensively on the development of various anti-icing and ice-prevention systems. One of the most important parameters characterizing icing is an adhesion force, which determines how strong an ice layer is attached to the aircraft surface. This project will help to accurately measure the tensile and shear stresses associated with the ice adhesion. The idea is based on the application of a frozen drop on a certain surface of a centrifugal force that appeared on a rotating body.

Within the scope of this work, the conditions for the experimental investigation of the rotating blade will be established. The series of experiments will be performed with different rpm and the stress distribution of the ice adhesion will be observed at different points while rotating the surface at various temperature levels. The validation includes the calibration of the employed measurement equipment and quantification of the measurement uncertainties, as well as the conducting of initial experiments to demonstrate operational capability.



The tasks within this thesis include in detail:

- Literature research and acquaintance with the topic
- Design and fabrication of the experimental set-up
- Derivation of requirements for experimental boundary conditions necessary for the operation
- Commissioning of the test rig
- Validation of the test setup
- Analysing the results
- Documentation of the results

Prof. Dr.-Ing. J. Hussong