Master Thesis - “Heat transfer in rotating disk cavities” (30 credits/20 weeks – one student)

About us

GKN Aerospace is the world’s leading multi-technology tier 1 aerospace supplier. With 55 manufacturing locations in 15 countries, we serve over 90% of the world’s aircraft and engine manufacturers. We design and manufacture innovative smart aerospace systems and components. Our technologies are used in aircraft ranging from the most used civil aircraft to the world’s advanced 5th generation fighter aircraft and the Ariane orbital rockets used by ESA.

Project Background

At GKN Aerospace, we work with thermal/temperature analyses of aircraft engine components, where usually the heat transfer (convection) is of key importance for life predictions. One area of importance is the internal secondary air system, which include rotating disk cavities, where cooling air is used to limit and control component temperatures.

Assignment Description

The proposed thesis work is to:

- Use CFD (ANSYS Fluent) to study and understand the heat transfer in rotating disk cavities, to identify what parameters that influence the heat transfer mostly.
- Search and use open literature rig test data to validate CFD methods for rotating disk cavities
- Use the validated CFD to develop convection (HTC) correlations for disk cavities and other parts of the secondary air system
- The work could also contain some thermal FE-analysis in order to test the proposed correlations.
- Report both internally and for the scientific community the outcome of the study

Qualifications

Student in the final year of their M.Sc. studies in the field Mechanical, Physics or Aerospace engineering with an interest in fluid mechanics, heat transfer and CFD. It is meritorious to have previous experience using CFD softwares such as Fluent and using different mesh softwares.

Apply by

Send your resume and cover letter to: Hans Abrahamsson | hans.abrahamsson@gknaerospace.com

Last date for application is 2023-12-08 but interviews will be held continuously so the position can be filled prior to the final application day.