Master Thesis - “Outlet Guide Vane heat transfer investigation”

(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. GKN Aerospace design and make TRS (Turbine Rear Structures), where the OGV (Outlet Guide Vane) redirect the flow in the gaspath. Component life is depending on the thermal gradients in the TRS, and therefore it is key to have accurate heat transfer modeling in the temperature analyses.

Assignment Description

The proposed thesis work is to:

- Using CFD (ANSYS Fluent and/or CFX) to study the heat transfer of the TRS gaspath OGV flow, with special focus on guide vane leading edge, unsteady effects from upstream turbine blades and effect of turbine blade tip leakage effects.
- Use existing Chalmers rig test data to validate CFD methods.
- Study the effect of different “fillet” designs around the OGV, a pre-study for a coming rig measurements.
- 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: Sravan Shakker | Sravan.shakker@gknaerospace.com

Last date for application is 2024-12-13 but interviews will be held continuously so the position can be filled prior to the final application day.