

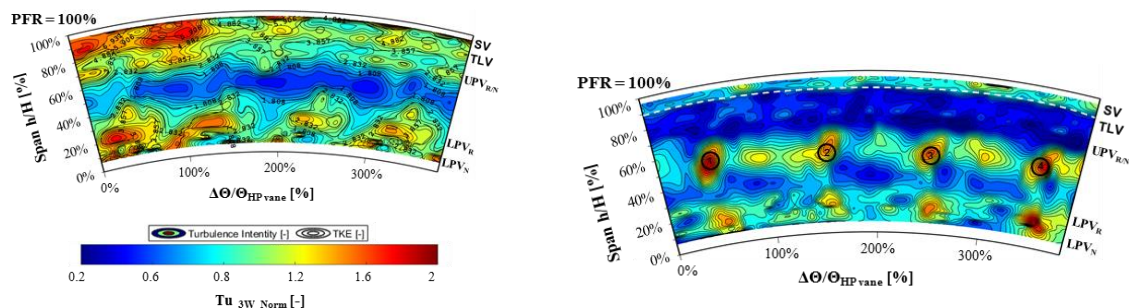
Master thesis

Numerical investigation of turbulence in a turbine test rig using high-fidelity turbulence models

Turbulence modelling is currently done in the aeronengine design process using Computational Fluid Dynamics (CFD). But the calibration of most turbulence models is done with measurement data of relatively simple geometries (flat plates). The reason is that high-quality turbulence data are sparsely available at industry-relevant conditions.

Thus, at the TTM institute measurements of turbulence kinetic energy and turbulent mixing length have been recently performed in the transonic test turbine facility, which shall be analysed based on a numerical flow simulation.

Therefore, the objective of the master thesis is the simulation of the flow in the test rig with a high-fidelity Reynolds Stress turbulence model using ANSYS CFX and to compare the numerical results with the experimental data. In this way, an understanding of the flow and the turbulence generation shall be found.



Measured turbulence intensity and turbulent mixing length

Beginning: available now

Duration: 5-6 Months

Language: English/German

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