

Numerical Evaluation of the Novel Cropped Rotor Design

Description: Bachelor's-/Master's-/Semester's thesis

The cropped rotor is a novel design approach for highly loaded compressor stages, which aims to desensitise the rotor's tip leakage flow. The new strategy seeks to crop part of the rotor tip and bring this cropped part to the casing. This approach reduces the risk of rubbing because the axial movement of the spool would no longer affect the effective tip gap. The approach could give compressor stages with high-contracting channels more freedom in choosing a feasible tip gap size.

Work packages:

- Generation of a parametric CAD model of the Cropped Rotor
- Preparation of the unsteady 1.5-stage setup
- Unsteady simulations and evaluation of the novel geometry at off-design

Requirements/knowledge:

- CAD modelling - CATIA
- Compressor aerodynamics
- Basics in CFD

Type of research: Numerical

Begin: Sep. 2025

More under „www.asg.ed.tum.de/en/ltf/teaching-and-studies/theses“

