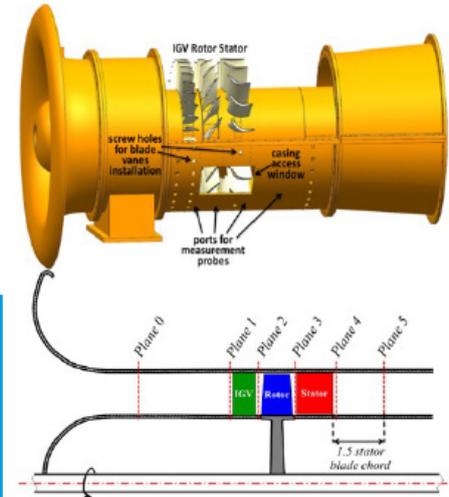
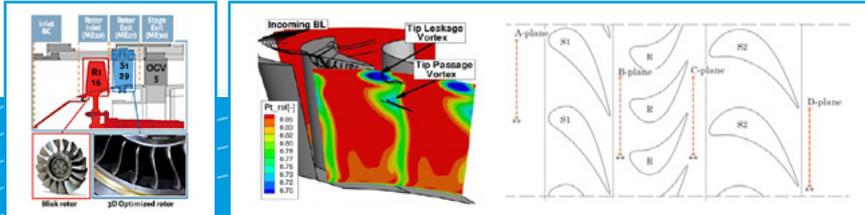


GPPS 3rd Turbomachinery CFD Workshop

The workshop will take place as part of the GPPS Hong Kong23 conference on October 16, 2023.



Built upon the experience from our previous workshops, we would like to launch our 3rd workshop. Three test cases are involved: the TUDa-GLR-OpenStage Transonic Axial Compressor, the BUAA Low Speed Large Scale Axial Compressor and the ETH Zurich 1.5-stage Turbine. The datasets of the two compressors are freely available to the public and can be downloaded from the workshop website. Accessing the datasets of the turbine requires attendance of the conference in 2021 or 2022 or registration of the upcoming conference or workshop.

How to participate

Participants are welcome to analyze the three cases, submit their prediction results, attend the workshop to present their results, listen and learn from the discussions. In the workshop, the organizers will present a summary of all submitted data. After that, each participant submitting the prediction results will have a 10-min rapid talk to present their results. No paper submission is required.

Workshop Organizers

Our organizers have wide background: academia, industries and software companies.

Mehdi Vahdati, Xiao He
(Imperial College London)

Shenren Xu, Dongming Cao,
Dingxi Wang
(Northwestern Polytechnical University)

Senthil Krishnababu
(SIEMENS Energy)

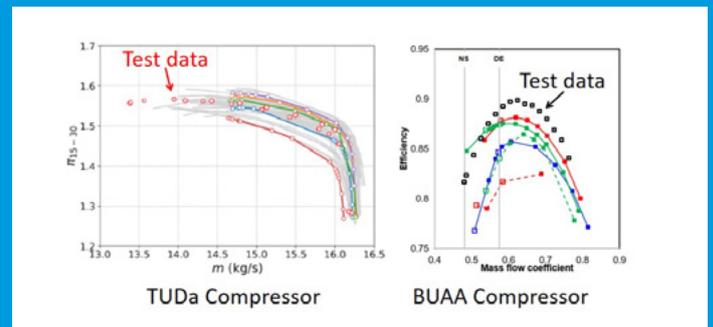
Domenico Mendicino,
Benoit Tartinville
(Cadence Design Systems)

Guangfeng An, Xianjun Yu
(Beihang University)

Fabian Klausmann
(Technical University Darmstadt)

Motivation

RANS simulation is the industrial workhorse for predicting turbomachinery flows. However, due to the errors and uncertainties involved in the experiments and CFD models, users can occasionally find inconsistency and deficiency of RANS results, which degrades users' trust in RANS turbomachinery solvers. This workshop aims to improve users' trust in RANS turbomachinery solvers by conducting a validation and verification (V&V) study on three cases: the TU-DA-GLR-OpenStage transonic axial compressor, the BUAA low speed large scale axial compressor and the ETH Zurich 1.5-stage turbine.



Objectives

1. Troubleshooting and version control of numerical models in existing in-house and commercial turbomachinery RANS solvers.
2. Enhance understanding of RANS prediction capability for subsonic and transonic axial compressors
3. Develop a best practice guide of RANS solvers for subsonic and transonic axial compressors.
4. Promote education of the next generation turbomachinery CFD engineers.