

# Workshop

GPPS 2024

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1. [INRIA Saclay](#) - GammaO Project - France
2. [Safran Tech](#), Modelling and Simulation, Magny-les-Hameaux, France

September 5, 2024

# Computation information

## Context

- Mesh Adaptation
- Flow solver : Wolf
- Mixing plane

## Geometry

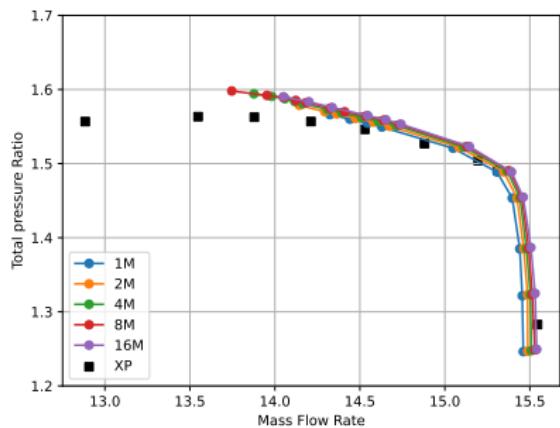
- No rotor casing pinch
- PE geometry, rotor tip gap constant
- No stator hub cavity

## Reference state

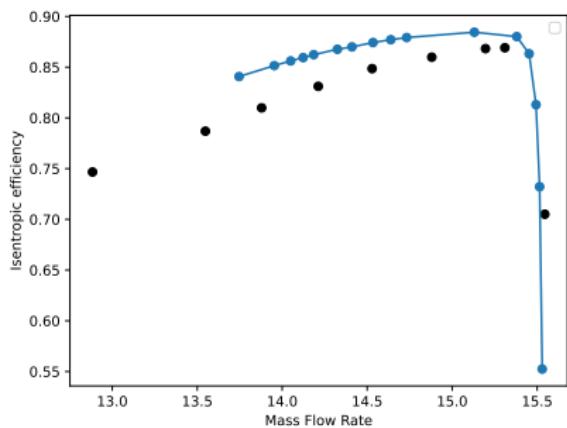
- Total pressure : 98727
- Static pressure : 89761
- Total temperature : 297.34
- Rpm : 20300
- Static pressure ratio between inlet and outlet varies between 1 and 1.59

# Characteristic curve

Total pressure w.r.t. Mass Flow Rate

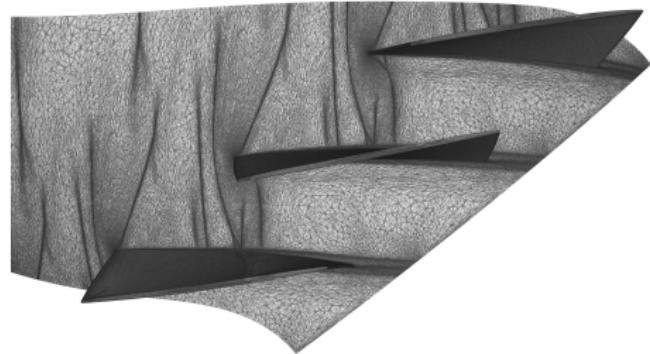


Isentropic efficiency w.r.t. Mass Flow Rate

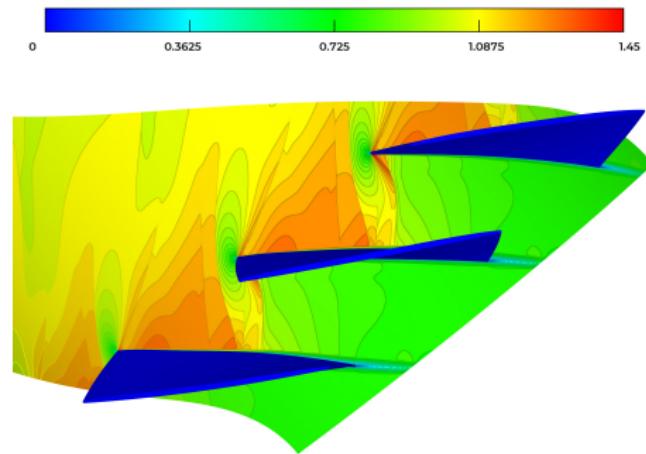


# Peak Efficiency Visualisation

## Rotor row



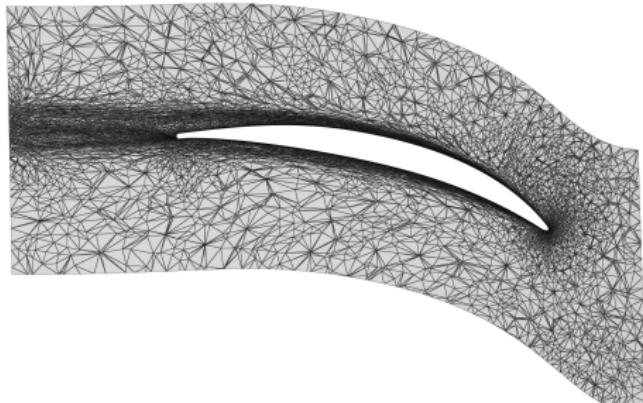
Mesh



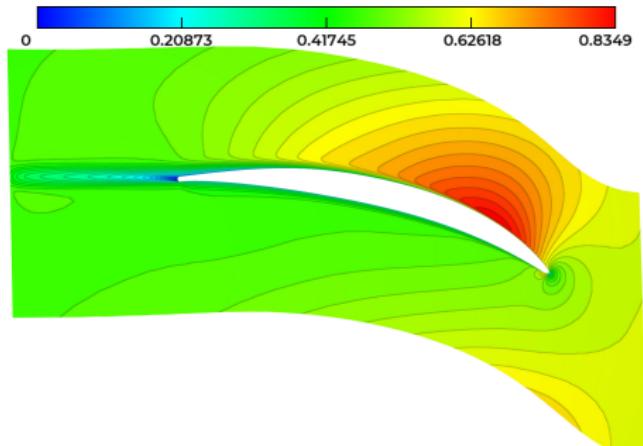
Mach number

# Peak Efficiency Visualisation

## Stator row



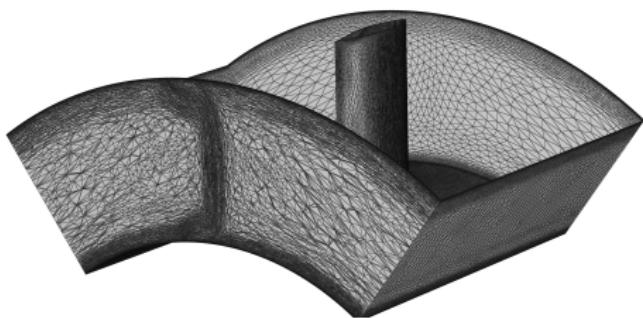
Mesh



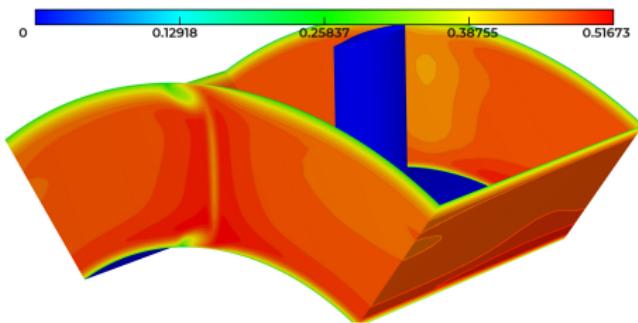
Mach number

# Peak Efficiency Visualisation

OGV row



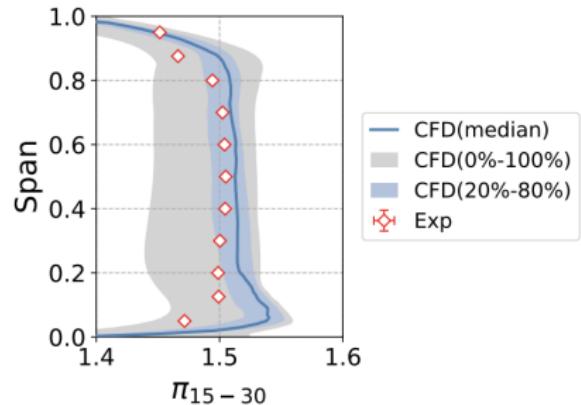
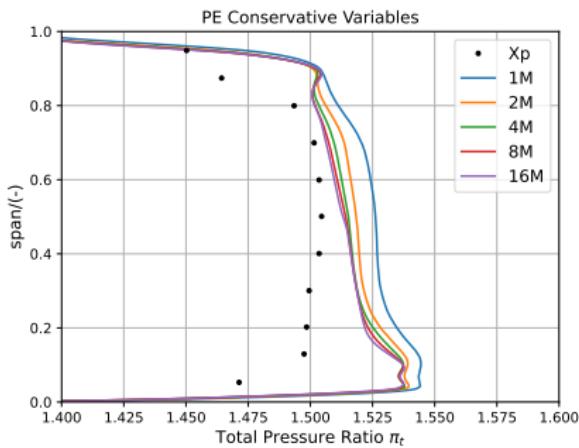
Mesh



Mach number

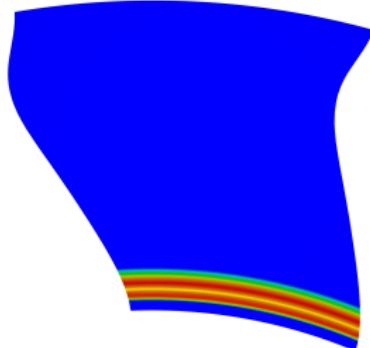
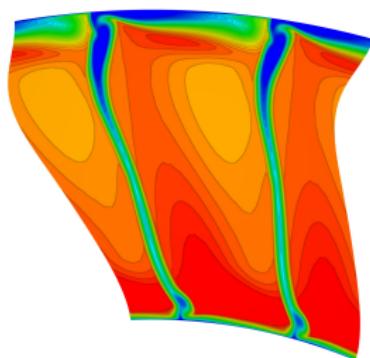
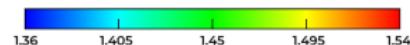
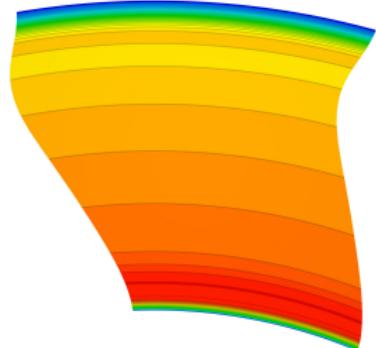
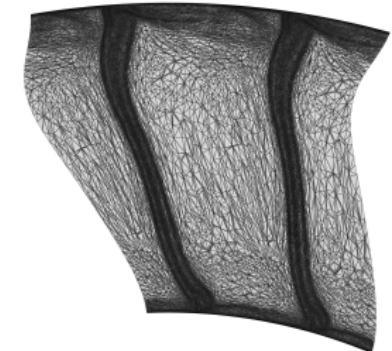
# Peak Efficiency Visualisation

Convergence of  $\pi^*$  w.r.t. the mesh size for the conservative variables



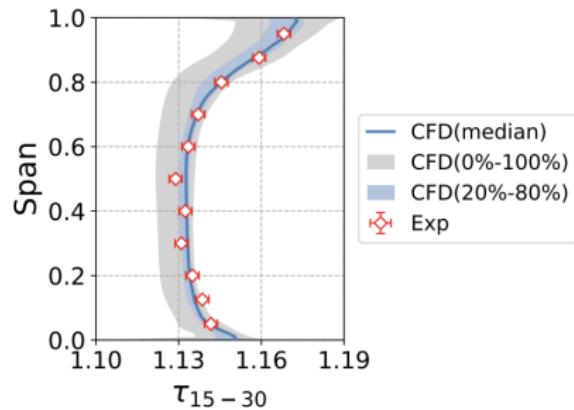
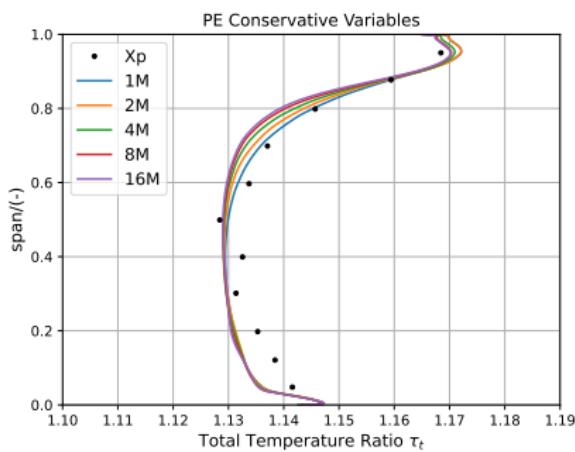
CFD results from GPPS workshop  
[He, Klausmann - Capabilities of RANS CFD for Axial  
CompressorFlows: A Perspective from the GPPS CFDWorkshop]

# Peak Efficiency Visualisation



# Peak Efficiency Visualisation

Convergence of  $\tau^*$  w.r.t. the mesh size for the conservative variables



CFD results from GPPS workshop

[He, Klausmann - Capabilities of RANS CFD for Axial CompressorFlows: A Perspective from the GPPS CFDWorkshop]