

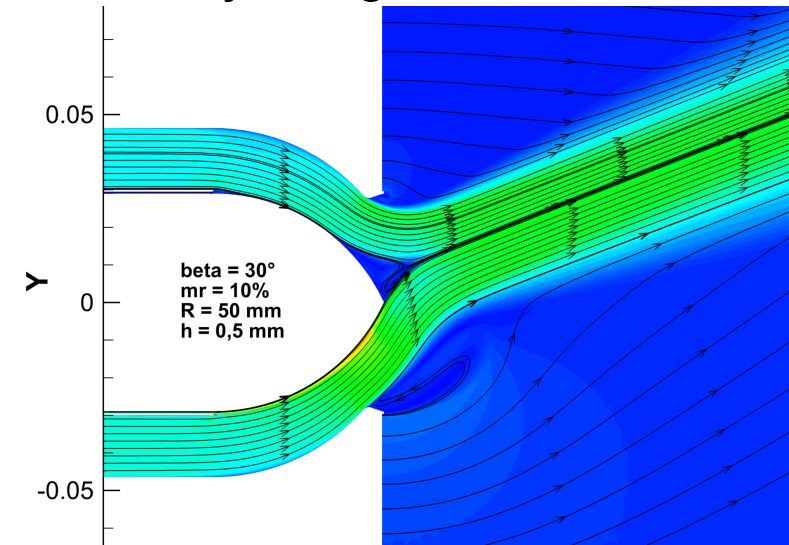
Design of an experimental test setup for fluidic thrust vectoring nozzles on turbojet engines

Overview:

The Institute of Jet Propulsion (ISA) at the Bundeswehr University Munich (UniBwM) is specifically investigating the application of fluidic thrust vector control (FTV) for use in unmanned flying platforms. Conventional SV methods use mechanical components to deflect the thrust jet, whereas FTV uses secondary air for this purpose - this method has numerous advantages.

Extensive CFD studies have already been carried out at ISA with very promising results specifically for the so-called Coanda Coflow FTV method. The next step is now to validate these CFD results in a test setup.

As part of this work, an experimental test setup is to be created for the investigation of an FTV rectangular nozzle (conceptual design, measurement technology). The ISA has access to modern 3D printers (plastic and metal) so that prototype development can be carried out quickly on site. It is possible to integrate various measurement techniques to determine the thrust components and velocity fields (e.g. via particle image velocimetry).



Objectives:

- Research on fluidic thrust vector nozzles and the associated experimental test environments (general design, required connections and measurement technology)
- Study of the existing experimental environment at the ISA
- Adaptation of the existing test environment and development of the necessary adjustments
- Implementation and testing of selected nozzles and generation of validation data for CFD
- Optional: Comparison of experimental and CFD data

Begin: Immediately

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