1 Visualization of unsteady CFD Computations Using Paraview

Supervisor: Prof. Dr.-Ing. Nikolai Kornev

The aim of the work is the creation of movies illustrating unsteady CFD computations using Paraview. The work consists of two phases: Preliminary work and creation of a movie for the JBC test case.

1.1 Preliminary work

The preliminary work consists of the following steps

- Development of small program to create series of unsteady flows. Take just a simple vorton, rotate its axis in time, at each time instant create files with the velocities field.

- Display λ_2 fields for each time instant using Paraview.

- Development of Python code to call the Paraview program to create a series of flow pictures corresponding to different time steps.

- Creation of movie calling Paraview.

The preliminary work should be done on notebook.

1.2 Creation of movie for the JBC case

The creation of a movie for the JBC test case consists of the following steps
- Do the following substeps as a loop

    - Run computations of JBC case on cluster and save the λ_2 fields each ten time steps.

    - Call Python code and create a series of ten flow pictures corresponding to different time steps.

- Creation of movie calling Paraview.

1.3 Report

The possible content of the report is

- Introduction. Motivation of the work aims.

- Theoretical background. Governing equations.

- Numerical Methods.

- Results. Analysis of graphs.

- Conclusion

- References.

The report in hard copy form should be submitted at least one week before the defending.