

# Over-expanded Nozzle - Verification & Validation

Author: Julio Sampaio Gabriel de Pieri, Cornell University

[Problem Specification](#)

[1. Pre-Analysis & Start-Up](#)

[2. Geometry](#)

[3. Mesh](#)

[4. Physics Setup](#)

[5. Numerical Solution](#)

[6. Numerical Results](#)

[7. Verification & Validation](#)

[Exercises](#)

[Comments](#)

## Verification & Validation

To get more precise, refine mesh a lot. One could inflate the mesh around the wall to predict drag and, with  $\dot{m}$ , estimate the thrust (? check the article)

geometry is slightly off, over simplified.

check the work mentioned in the first page, which compares to the experimental data.



Under Construction

### Further learning

Talk about the one that I solved, with almost million iterations, series of steps (first initialize, solve for some pressure, then duplicate and use old pressure as starting point. First converge for first order, then second. Start with low courant number gradually increase. Use the conv accel for high aspect ratio mesh. etc.

[Go to Exercises](#)

[Go to all FLUENT Learning Modules](#)