Spoken Tutorial

Supersonic flow over a wedge using OpenFOAM

Talk to a Teacher

http://www.sakshat.ac.in

National Mission on Education through ICT

http://spoken-tutorial.org

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Learning Objectives

- **How to solve a compressible flow problem of supersonic flow over a wedge**

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- **How to solve a compressible flow problem of supersonic flow over a wedge**
- **How to post process the results in paraView**

System Requirement

- **Linux Operating System Ubuntu version 10.04**

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- **ParaView version 3.12.0**

Prerequisite

- **Compressible flows**

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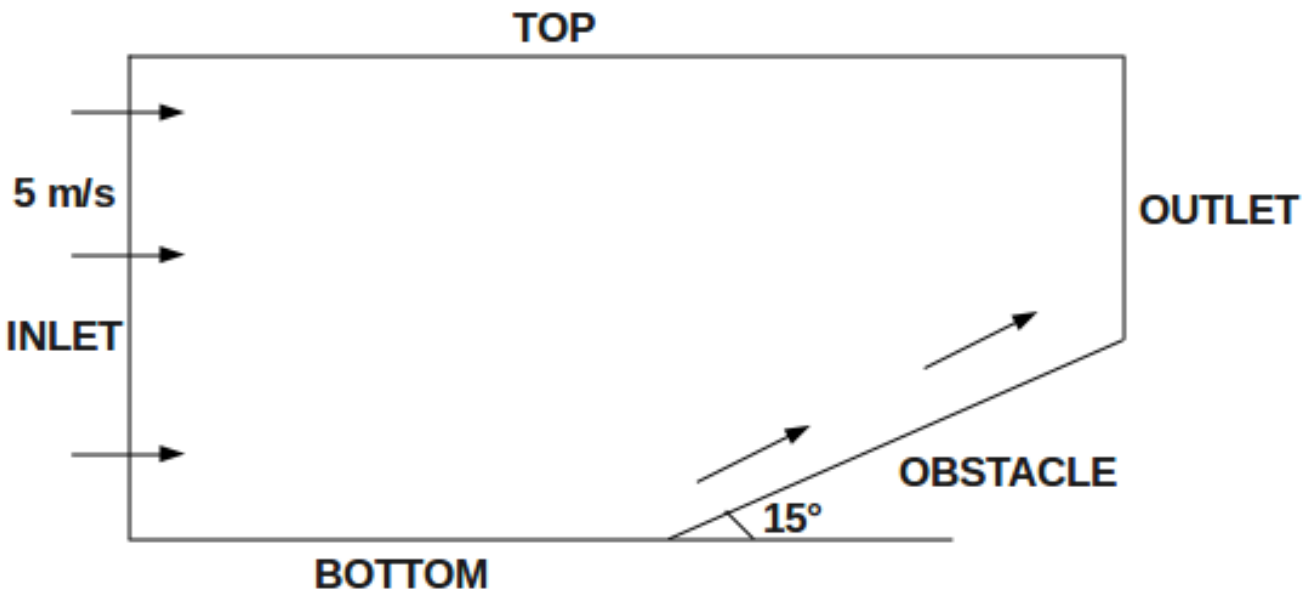
- **Gas dynamics**

Geometry



Compressible solver

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Compressible solver

- **rhoCentralFoam**
  - **It is a Density-based compressible flow solver**
  - **Based on central- upwind schemes of Kurganov and Tadmor**

Validation

- **Basic books of aerodynamics by John D Anderson**

Summary

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- **Solving a compressible flow problem**
- **Velocity and pressure contour for the wedge**
- **OpenFOAM utility for calculating Mach number**

Assignment

- **Vary the wedge angle between 10° to 15° to view the shock characteristic for the flow**

About the Spoken Tutorial Project

- **Watch the video available at http://spoken-tutorial.org /What_is_a_Spoken_Tutorial**
- **It summarises the Spoken Tutorial project**
- **If you do not have good bandwidth, you can download and watch it**

Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- **Conducts workshops using spoken tutorials**
- **Gives certificates to those who pass an online test**
- **For more details,please write to contact@spoken-tutorial.org**

Acknowledgements

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- More information on this Mission is available at http://spoken-tutorial.org/NMEICT-Intro