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

Learning Objectives

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

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- **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**

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System Requirement

- **The tutorials were recorded using the versions specified in previous slide.**
- **Subsequently the tutorials were edited to latest versions.**
- **To install latest system requirements go to Installation Sheet.**

Prerequisite

- **Compressible flows**

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- **Gas dynamics**
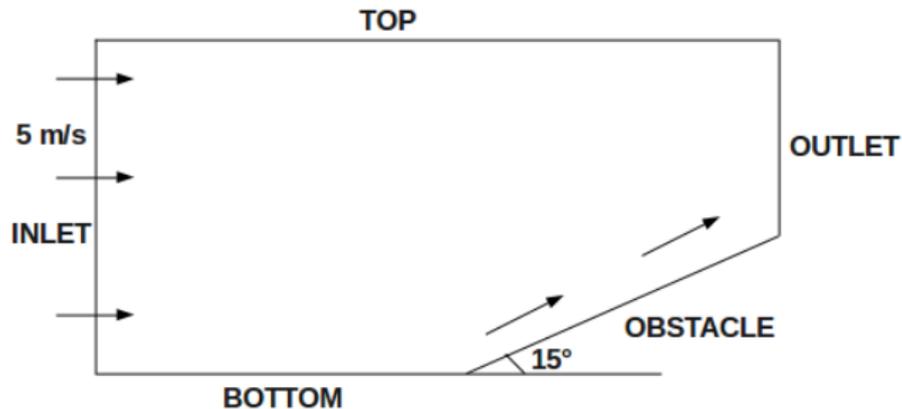
Geometry

Compressible solver

- **rhoCentralFoam**

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Compressible solver

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

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

Summary

- **Solving a compressible flow problem**

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- **Velocity and pressure contour for the wedge**

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- **Velocity and pressure contour for the wedge**

Summary

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

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

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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

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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**

Forum to answer questions

- **Do you have questions on THIS Spoken Tutorial?**
- **Choose the minute and second where you have the question.**
- **Explain your question briefly.**
- **Someone from the FOSSEE team will answer them. Please visit**

http://forums.spoken-tutorial.org/

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Forum to answer questions

- **Questions not related to the Spoken Tutorial?**
- **Do you have general / technical questions on the Software?**
- **Please visit the FOSSEE Forum**
  http://forums.fossee.in/
- **Choose the Software and post your question.**

Lab Migration Project

- We coordinate migration from commercial CFD software like ANSYS to OpenFOAM
- We conduct free Workshops and provide solutions to CFD Problem Statements in OpenFOAM

For more details, please visit this site:
http://cfd.fossee.in/

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Case Study Project

- **The FOSSEE team coordinates solving past, current or new CFD projects using OpenFOAM**

- **We give honorarium and certificate to those who do this**

For more details, please visit this site:
http://cfd.fossee.in/

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Acknowledgements

- **Spoken Tutorial Project is a part of the Talk to a Teacher project**
- **It is supported by the National Mission on Education through ICT, MHRD, Government of India**
- **More information on this Mission is available at http://spoken-tutorial.org /NMEICT-Intro**

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