Spoken Tutorial
Simulating flow in Lid Driven Cavity using OpenFOAM

Talk to a Teacher

http://www.sakshat.ac.in

National Mission on Education through ICT

http://www.spoken-tutorial.org

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Learning Objectives

- **Lid Driven Cavity File Structure**

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- **Meshing the geometry**

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- **Lid Driven Cavity File Structure**
- **Meshing the geometry**
- **Solving and post-processing results in Paraview**
- **Plotting and validating results on a spreadsheet**

System Requirement

- **Linux Operating System Ubuntu version 10.04**

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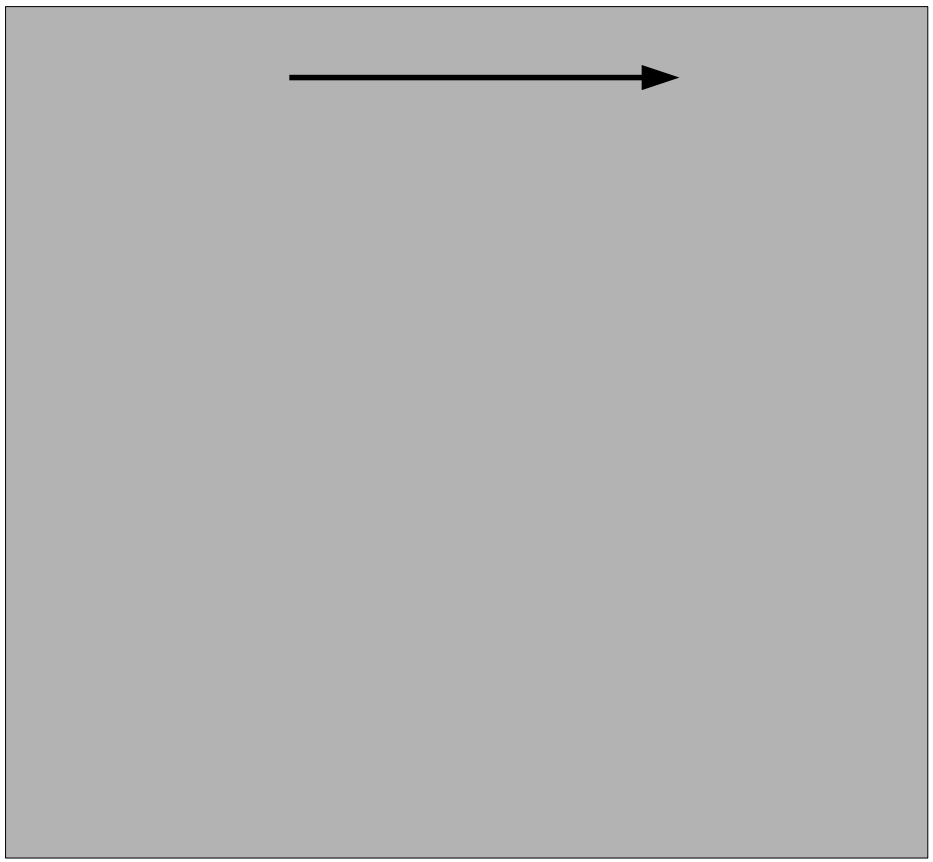
- **ParaView version 3.12.0**

About Lid Driven Cavity

- **It is the most widely used 2D test case for validation of a CFD code**

Lid Driven Cavity



(All velocities are in **m/s)**

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Boundary Conditions

- **A moving wall and three fixed walls**

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- **A moving wall and three fixed walls**
- **Reynolds number (Re) = 100**
- **Moving wall velocity (u) = 1 m/s**

Solver

- **icoFoam**

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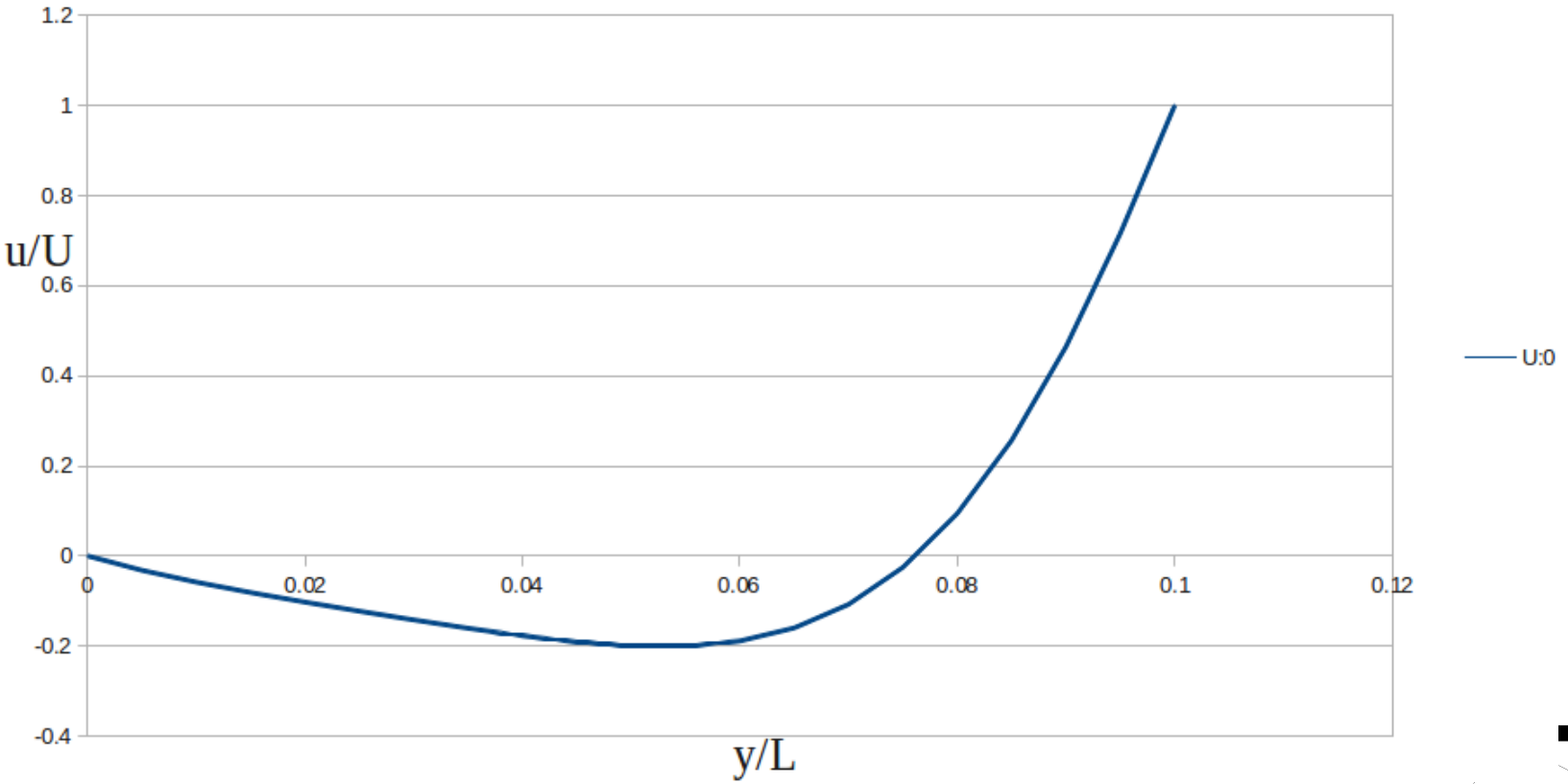
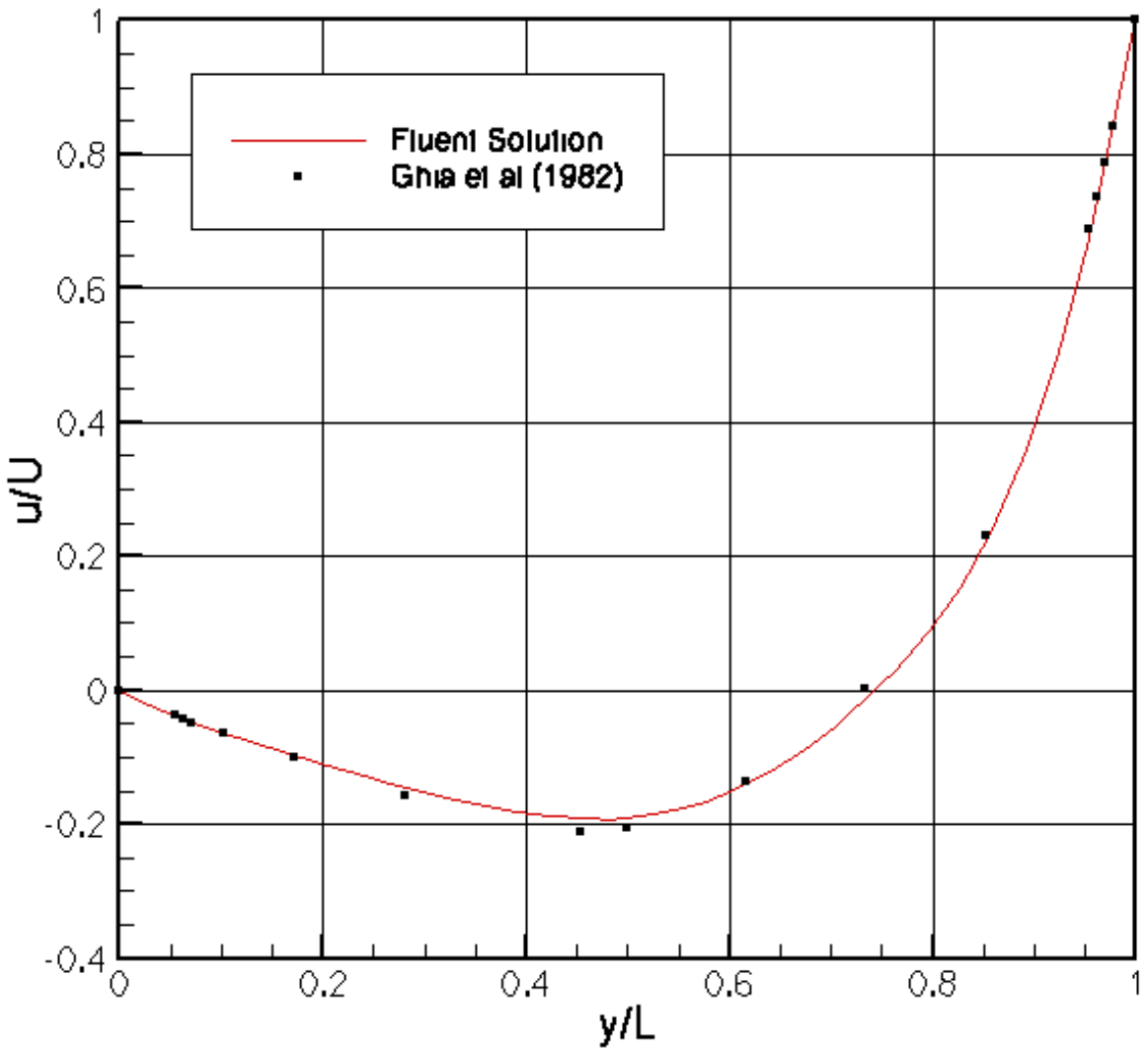
  - **Transient Solver for Incompressible flow of Newtonian fluids**

Lid Driven Cavity (OpenFOAM)



Ghia et al. (1982) and Fluent



Summary

- **File structure of Lid Driven Cavity**

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- Validation

Assignment

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  - **Velocity Magnitude in the '0' folder**
  - **Kinematic viscosity in transportProperties in 'constant' folder**
- **Plot result of 'u/U' v/s 'y/L'**

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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- 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