

## Friction Factor in Internal Pipe Turbulent Flow

- Validation: Moody Chart, Experimental results from lab, Darcy-Weisbach equation, Colebrook equation and Power-law profile.
- Smooth and Rough pipe
- Steady State simulation
- Domain
  - Length of Pipe 0.1 m
  - Roughness of Stainless steel pipe - 0.015 mm (nutkRoughWallFunction)
  - Pipe Diameter - 3.44 mm
- Starts with Laminar and extends to Turbulence study using,
  - RAS  $k\omega$ -SST
- Plots
  - Velocity profile
  - Pressure drop
  - Friction factor against Reynolds number
  - Validation against analytical solutions.
- Comments
  - Create programmable blockMeshDict.
  - Wedge geometry for analysis.