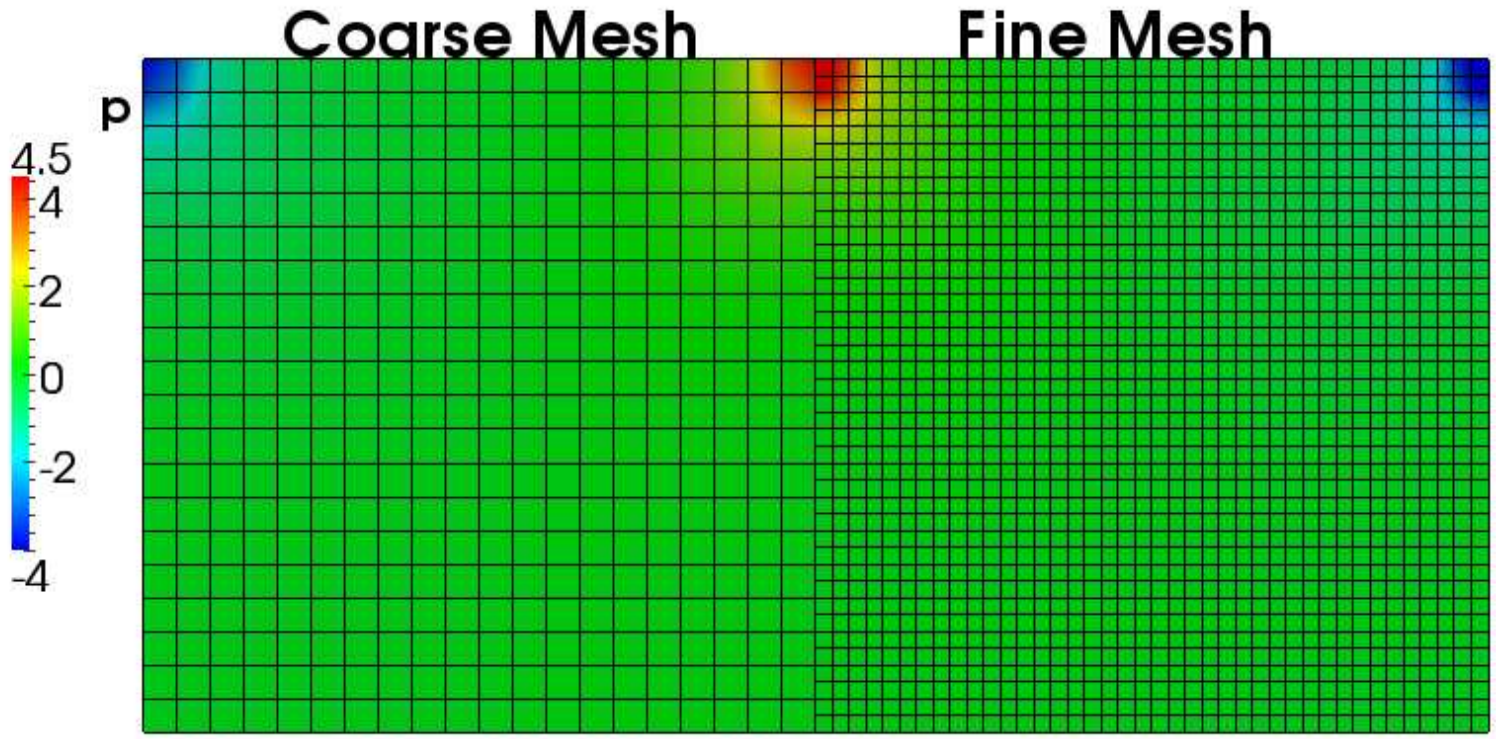
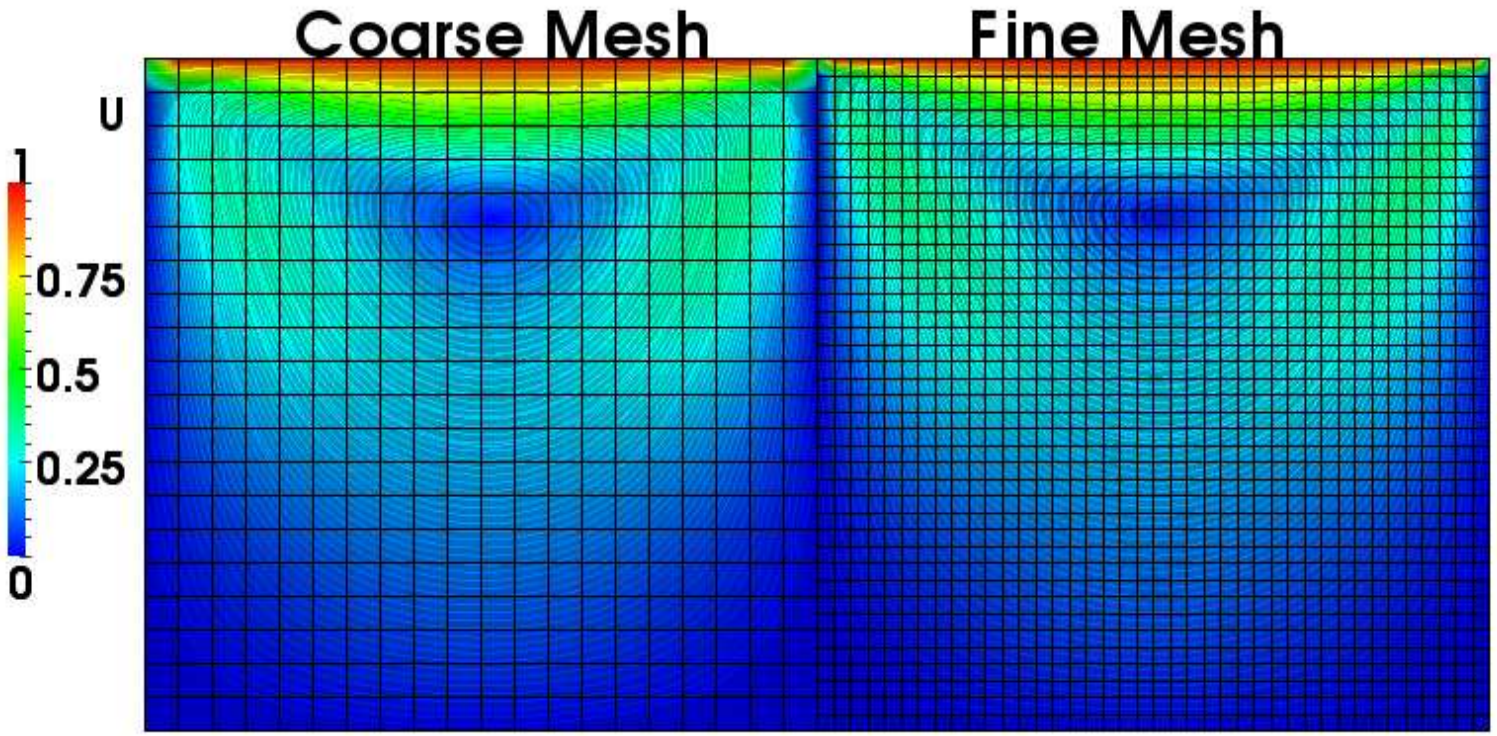
icoFoam: Cavity

- Cavity - According to manual
- CavityFine - According to manual
- CavityGraded and cavityHighRe are merged. Map fields from cavityFine onto the graded mesh, lower viscosity and run long enough to get convergence

icoFoam: Cavity



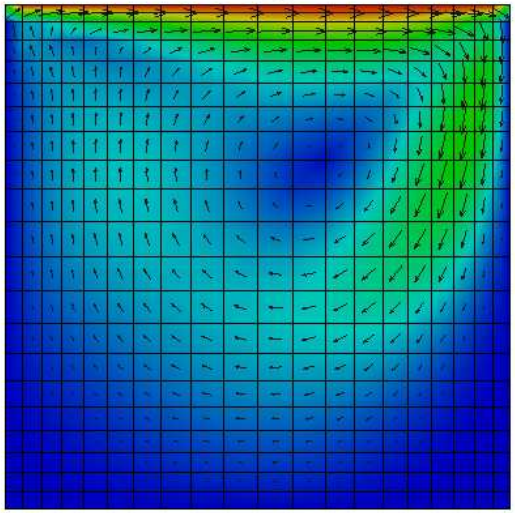
icoFoam: Cavity



Cavity

- Timestepsize: 2.5 [ms]
- Number of cells: 400
- Initial solution from cavityFine case

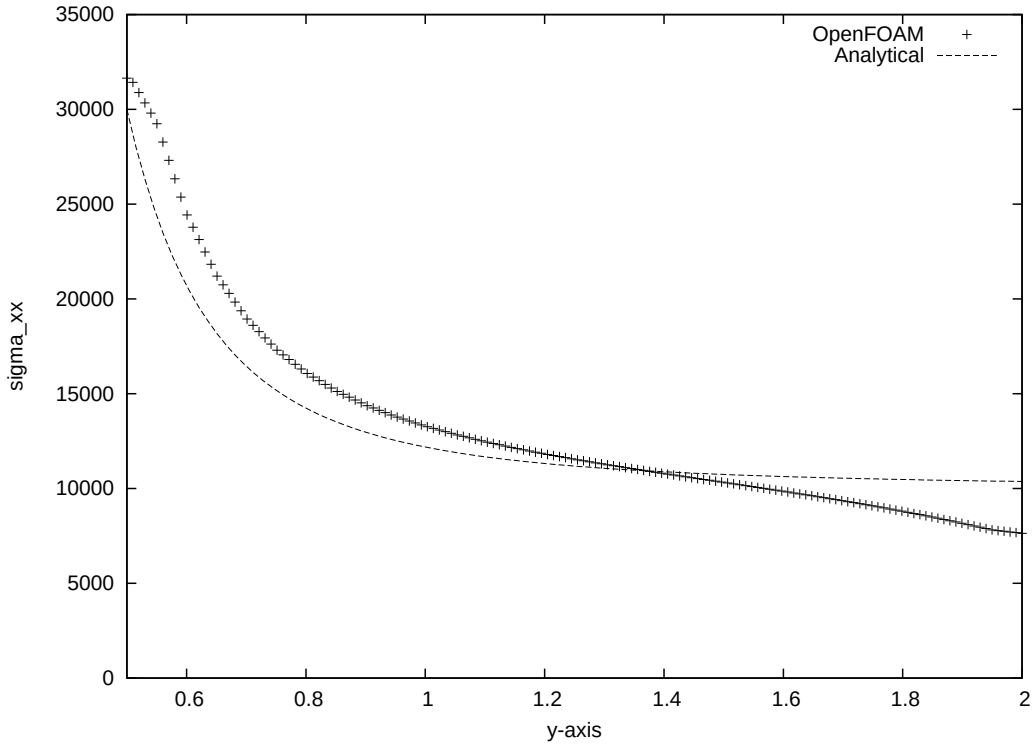
Graded Mesh and High Reynolds Number

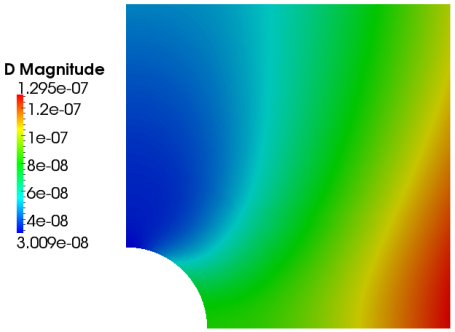


(nu=0.0005, 20 times smaller than original)

solidDisplacementFoam: plateHole

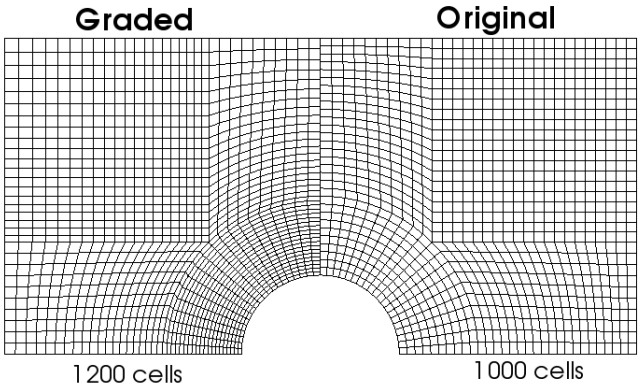
- Iterations: 150
- Number of cells: 1000
- Found that for the original 100 iterations the solution was not fully converged, so I changed it to 150. The change was also applied in the sampleDict.

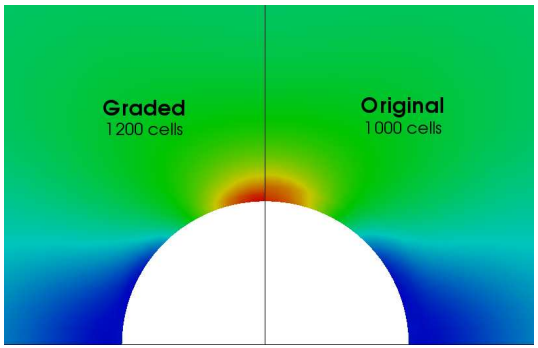


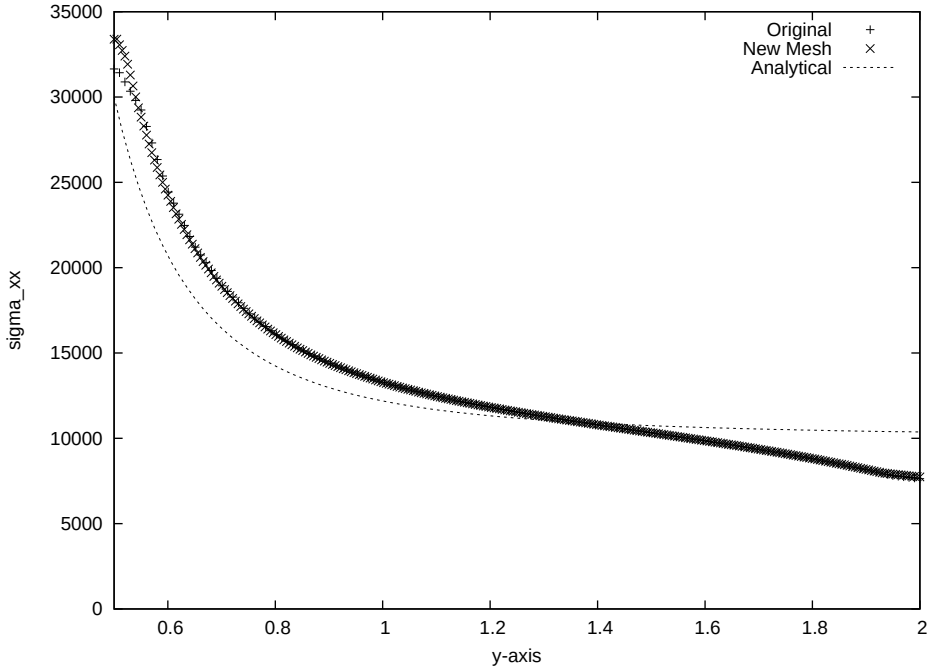


solidDisplacementFoam: plateHole

- **New Mesh**
- Refined around hole
- Graded
- Initial solution mapped from original case
- Small differences can be seen around the hole

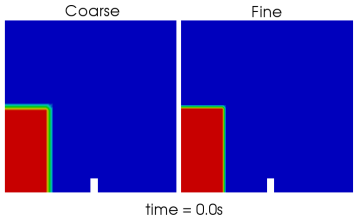


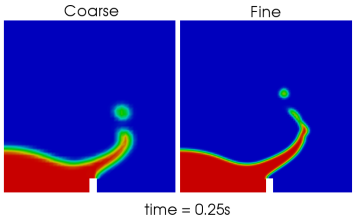


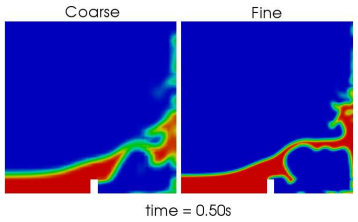


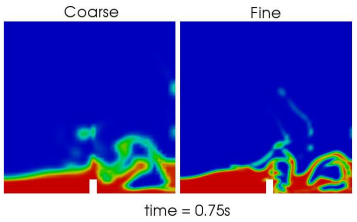
interFoam: damBreak

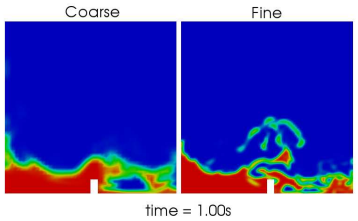
- **Original and Fine Mesh**
- Big differences between the two meshes





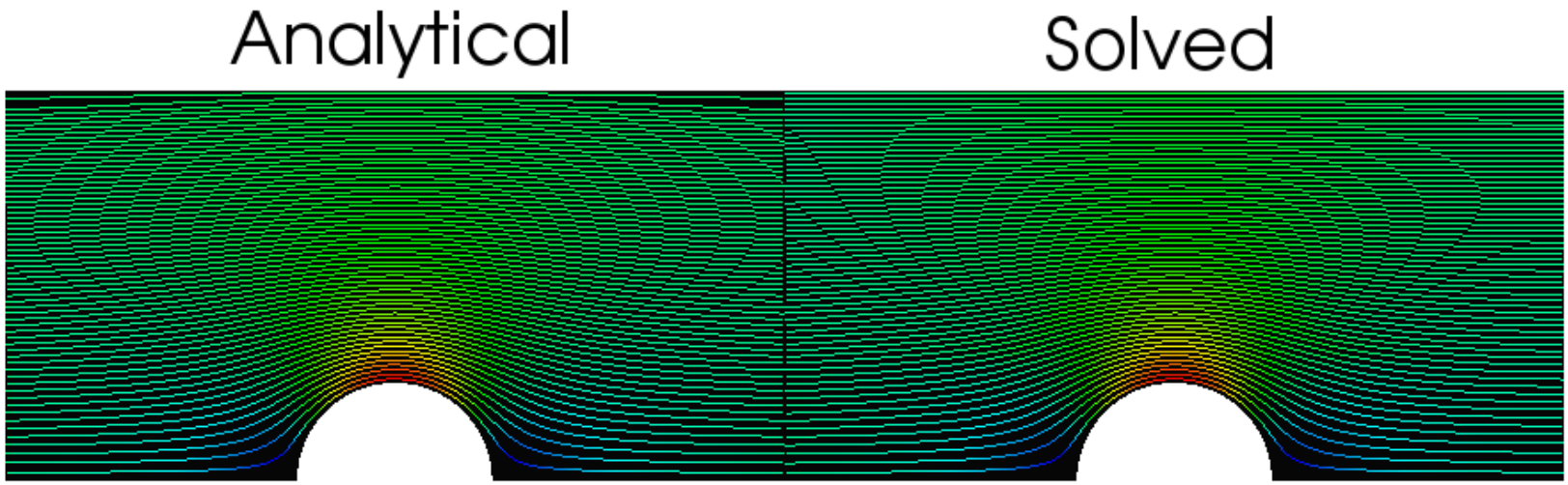






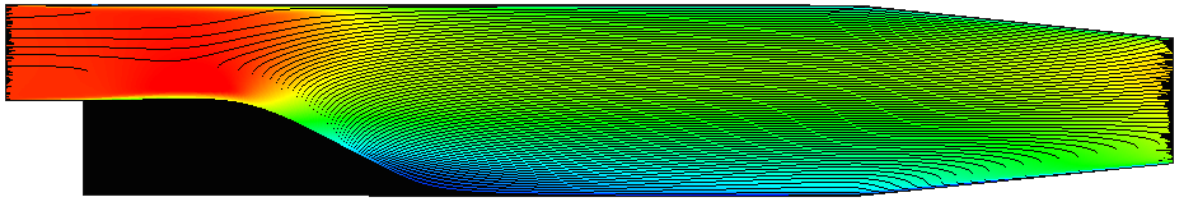
PotentialFoam: cylinder

- Solved and analytical case displayed below
- Slightly different

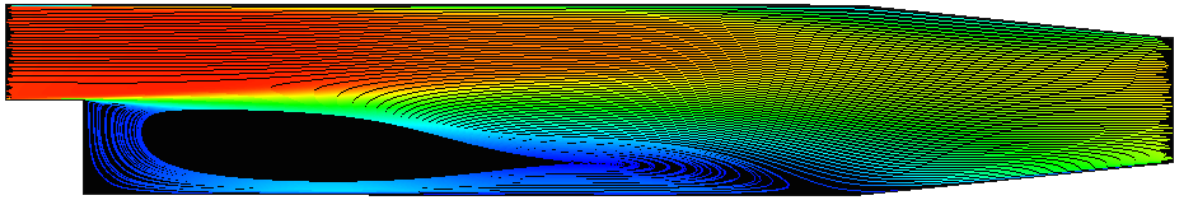


simpleFoam: pitzDaily

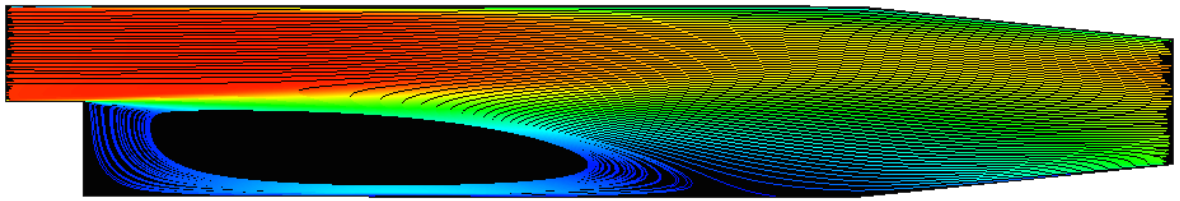
- 50 iterations



- 500 iterations

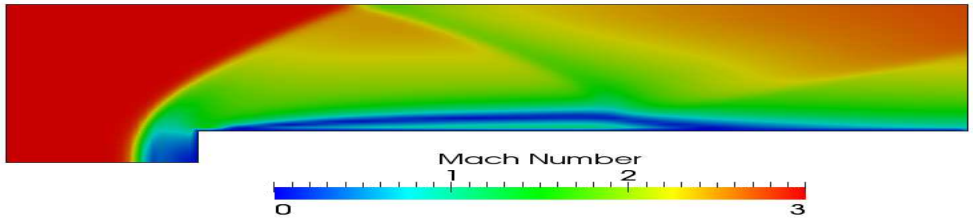


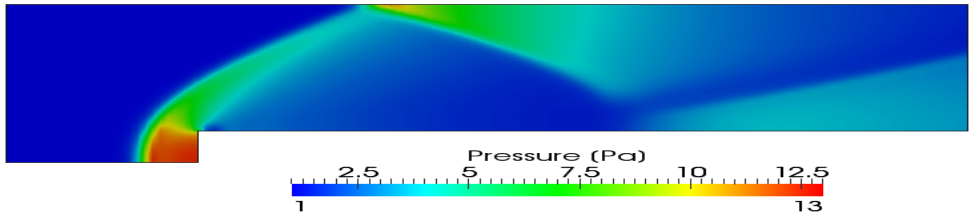
- 1000 iterations

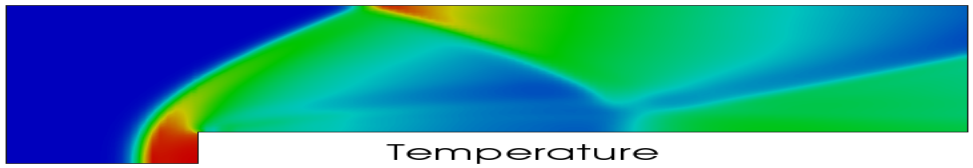


sonicFoam: forwardStep

- Simulation in sonicFoam
- Inlet velocity U_x= Mach 3
- Inlet pressure $p_{inlet} = 1Pa$

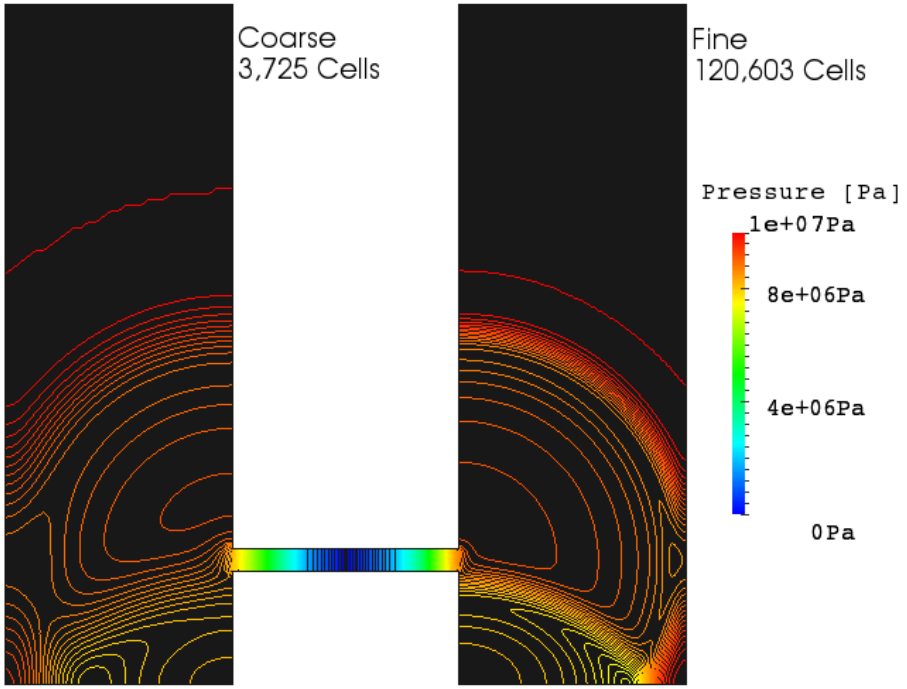






sonicLiquidFoam: decompressionTank

- Case: Decompressiontank
- Fine Mesh has 32 times more cells
- Quite big difference in speed of shockway
- Contribution to knowledge of reader: Label of colorbar
- Turn off ”Automatic Label Format” in the ”Color Legend” tab. Set the Label Format to ”%6gPa” to add ”Pa” after the numbers of the colorbar.



mhdFoam: Hartmann

- Case: Hartmann
- Flow of electro-conducting fluid through a magnetic field
- B, magnetic flux density, is changed from 20 to 1
- Result: Magnetic field has less impact on the flow