

STUDY OF PRESSURE DROP IN MICROCHANNEL VARYING TEMPERATURE WITH CONSTANT BIFURCATION OF 90°

Mahima Bunker

MTech, IIT Bombay

Synopsis

This research migration project aims to study and simulate water flow with the constant bifurcation of 90° in symmetric three-dimensional microchannel using OpenFOAM-9. The geometry and mesh were defined using blockMesh utility. A steady-state, SIMPLE algorithm-based simpleFoam solver was used in the simulation. The analysis executed by Samy et. al. [1] using commercial CFD code Fluent was taken as a reference.

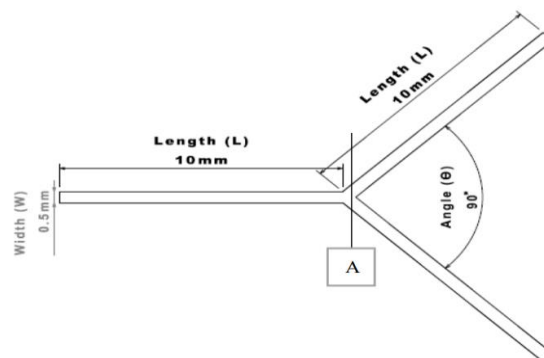


Figure 1: Geometry and Dimensions

The dimensions of the geometry stated in figure 1 are: Length(L) = 10mm, Width(W)= 0.5mm and Bifurcation angle= 90° . Flowing fluid is entering from inlet with velocity of 0.251m/s and exiting from outlet.

References

https://soar.wichita.edu/bitstream/handle/10057/14480/t17020_Mudiki.pdf?isAllowed=y&sequence=215