

Hydraulic Jump

A hydraulic jump is a phenomenon commonly observed in day to day life. When liquid at high velocity discharges into a zone of lower velocity, a rather abrupt rise occurs in the liquid surface. The rapidly flowing liquid is abruptly slowed and increases in height, converting some of the flow's initial kinetic energy into an increase in potential energy. In an open channel flow, this manifests as the fast flow rapidly slowing and piling up on top of itself similar to how a shockwave forms.

This report aims to simulate the Hydraulic Jump using OpenFOAM. This is a simple yet essential simulation for engineering purposes, especially for civil applications. The same simulations can be used to simulate the crown formation by a water droplet. This multi-phase simulation is done using interFoam with geometry and meshing have done using blockMesh.

Solver used : interFoam