Abstract

The aim of this project is to simulate inviscid Mach 1.5 flow over a 23 degree wedge using OpenFOAM. The governing equation for flow over wedge is derived assuming 2D inviscid, compressible flow. The projects aims to investigate the flow over the wedge and the formation of a detached bow shock.

Problem Statement

This case involves steady, inviscid, non-heat-conducting supersonic flow ($M = 1.5$) over a wedge.

The wedge geometry is shown in fig. 1.

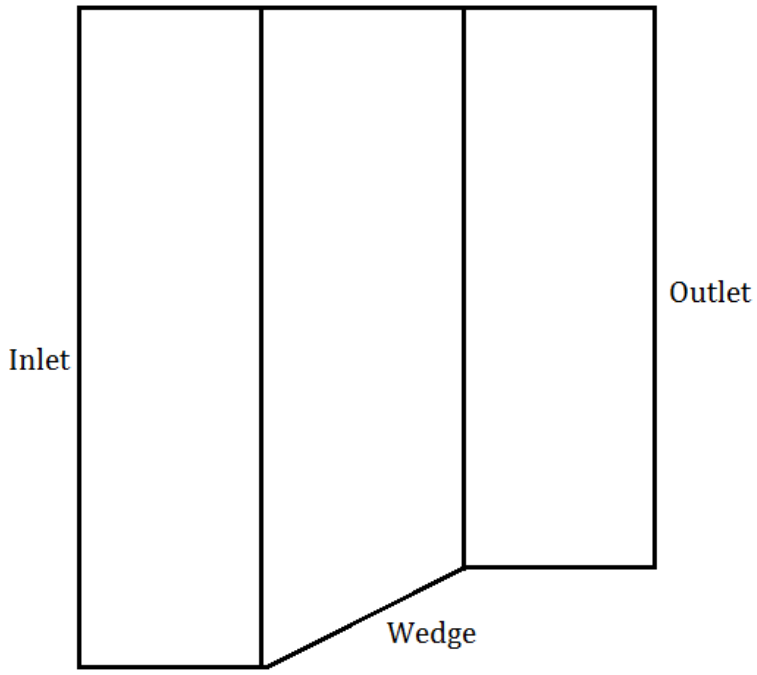

Figure 1. The configuration of supersonic flow over a wedge.

The wedge angle is 23^o. The wedge is of a finite height. The bow shock stand-off distance is dependent on the height of the wedge.