Abstract

Shubhanshu Rai
M.Tech Scholar
Department of Mechanical Engineering
IIT-Jodhpur

Aim: Flow Over Heated Flat Plate Having Unheated Starting & End Length.

Theory

In many practical applications such electronic component, processor etc temperature/heat flux value is known, so burning or damage to component due to overheating is common issue. So, the aim of this work is determining the variation of temperature of plate over length of plate, each having dimension of 1m x 1m x 0.3m. The fluid is atmospheric air flowing at high speed to enhance the rate of heat transfer having magnitude of 1m/s, the flow is laminar. Since it is conjugate, laminar, steady-state heat transfer problem, so chtMultiRegionSimpleFoam solver is to be used.

Fluid Inlet Temperature = 300K

Heated Plate Initial Temperature = 350K

Unheated Plates Initial Temperature = 300K

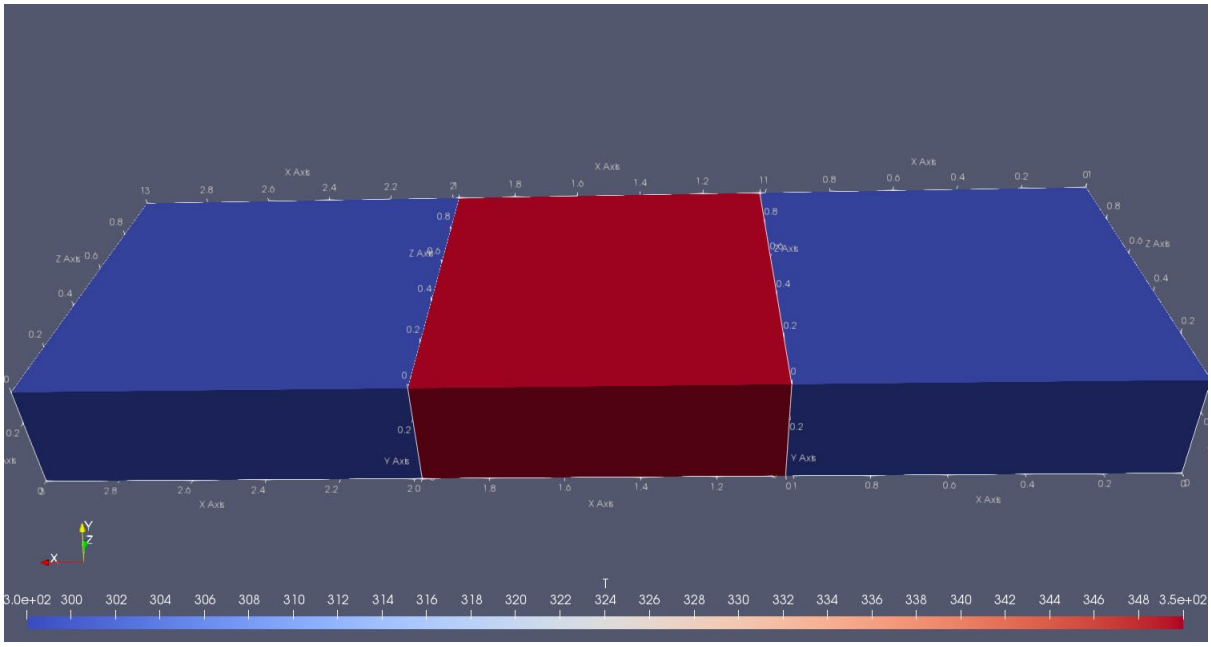

Fig 1: Geometric description of plate