Abstract

The aim of this project is to simulate a flow across a rotating cylinder in a cross-flow using OpenFOAM. The phenomenon of Magnus effect is studied by investigating the properties of the flow across the rotating cylinder.

Problem Statement

This case involves unsteady, incompressible, turbulent flow across a cylinder rotating at $\omega = 200$ rad/s.
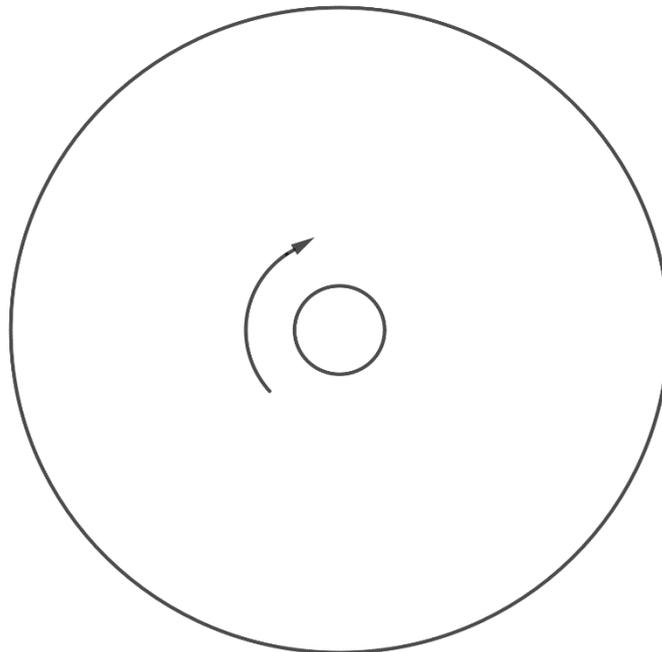
The geometry used is shown in fig. 1.

Figure 1. The configuration of flow across a rotating cylinder.

In the geometry, the inner circle represents the rotating cylinder, while the outer circle is stationary and represents the edge if the computational domain. The flow around the cylinder is observed and analysed.