FOSSEE Case Study Project Proposal

Abstract

Magneto/Electroaerodynamics propulsion cam possibly be opening up new possibilities in the field of propulsion. The objective of the project is studying the flow of electrically conducting fluid over an aerofoil (NACA 0012) under the influence of magnetic field. OpenFOAM's mhdFOAM utility will be used for this purpose. A 2-D geometry and mesh will be made using ANSYS ICEM package. The project will also involve explaining the setting up of the case files for this particular scenario. The end result of the project would be to study how assisting is the concept in terms of controlling the flow.

Velocity range to be used: 5-10 m/s (Taken from Concept aircraft reference)

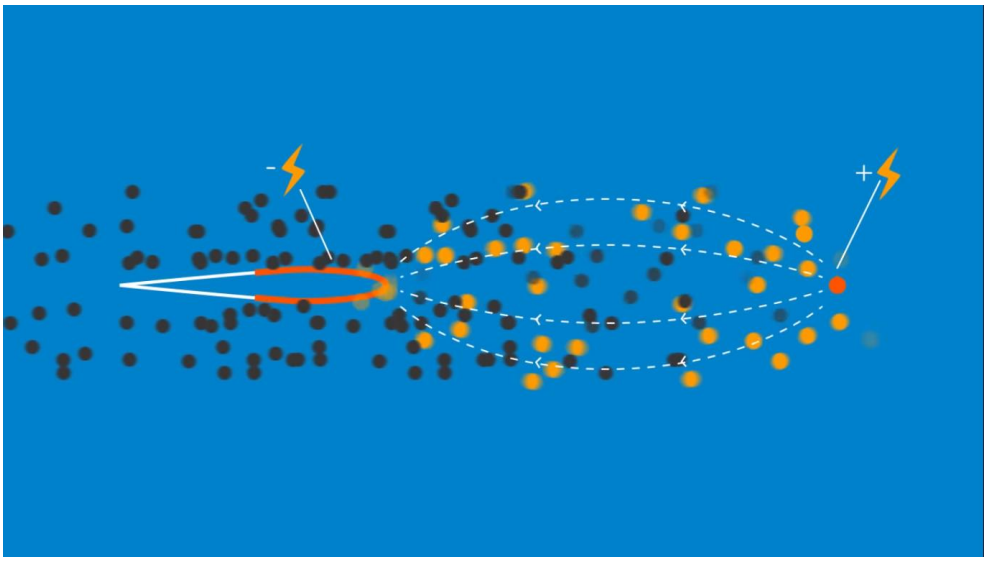

Fig: (Only for visualization) An electric field would be present in the direction of flow of the fluid. However, in our case, we will be using a perpendicular magnetic field.

References:

1. Motivation behind this project: MIT's electric aircraft initiative.