Compressible Electro-conductive Fluid Past Thin Airfoils

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Abstract:

In this paper the two-dimensional steady flow of an ideal compressible perfectly conducting fluid past an insulating thin airfoil has bee studied. From We consider the linearized partial differential equations of magnetohydrodynamics consisting of Euler's and Maxwell's equations and Ohm's law.

Integral representations for the velocity, magnetic induction and pressure and the boundary conditions lead to the integral equation for the jump of the pressure across the airfoil. Graphic representations for the lift coefficient, velocity and magnetic induction will be given for some 2D thin airfoils.