

Unsteady MHD Free Convective Flow past an Inclined Parabolic Accelerated Plate with Hall Current, Radiation Effects and Variable Temperature in a Porous Medium

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Abstract

We analyze the effects of hall current and radiation on unsteady hydro magnetic free convection flow of a viscous incompressible electrically conducting fluid past an inclined parabolic accelerated plate in a porous medium by applying a transverse magnetic field which makes an angle α to the inclined plate. The fluid is assumed to be viscous, incompressible and electrically conducting with a strong magnetic field. Using the modified Ohm's law and the Bossinesq approximation the governing equations of the problem are reduced to local non-similarity boundary layer equations using suitable transformation. The dimensionless governing equations of flow field are solved numerically by Crank-Nicolson finite difference method for different values of governing flow parameters. The velocity and temperature profiles are shown through graphs.

Keywords

MHD Free Convection Flows, Heat Transfer, Hall Currents, Radiation, Transverse Magnetic Field, Inclined Parabolic Accelerated Plate, Porous Medium

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