

Effect of Mass Transfer on MHD Mixed Convective Flow along Inclined Porous Plate with Thermodiffusion

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Abstract : The effect of mass transfer on MHD mixed convective flow along inclined porous plate with thermodiffusion have been analyzed on the basis of boundary layer approximations. The fluid is assumed to be incompressible and dense, and a uniform magnetic field is applied normal to the direction of the flow. A Similarity transformation is used to transform the problem under consideration into coupled nonlinear boundary layer equations which are then solved numerically using the Runge-Kutta sixth-order integration scheme together with Nachtsheim-Swigert shooting iteration technique. The behavior of velocity, temperature, concentration, local skin-friction, local Nusselt number and local Sherwood number for different values of parameters have been computed and the results are presented graphically, and analyzed thereafter. The validity of the numerical methodology and the results are questioned by comparing the findings obtained for some specific cases with those available in the literature, and a comparatively good agreement is reached.

Keywords : Mass transfer, inclined porous plate, MHD, mixed convection, thermodiffusion.

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