Abstract

An unsteady three dimensional flow in an incompressible viscous, chemically reacting fluid mixture due to a permeable rotating heated disk is studied by taking into account the effects of magnetic field, ohmic heating, viscous dissipation, chemical reaction and suction or injection. The system of non-linear partial differential equations governing the flow, heat and mass transfer is reduced to a system of nonlinear ordinary differential equations by using similarity transformations. The resulting system of ordinary coupled nonlinear differential equations is solved numerically by bvp4c and solutions are presented graphically. All numerical calculations are done with respect to air at 200°C (Pr = 0.71) in presence of Hydrogen (Sc = 0.22). Numerical values of the local skin frictions and the rate of heat and mass transfers are shown in tables.

References

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Chemical reaction.