Modelling thermophysical effects of heat and mass transfer in unsteady magnetohydrodynamics viscoelastic fluid flow in inclined porous media

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This research presents the study of thermophysical effects of heat and mass transfer in unsteady Magnetohydrodynamics viscoelastic fluid flow in inclined porous media. The modelled results in form of nonlinear and coupled form of partial differential equations were transformed into Ordinary Differential Equations and were solved by using embedded fourth-order Runge-Kutta integration scheme with Newton-Raphson shooting method. Numerical computations were carried out for the non-dimensional to study the effect of different physical parameters. Physical parameters such as viscos-elasticity, permeability of the porous media, magnetic field, Grashof number, Schmidt number, heat source parameter and chemical reaction parameter on the flow, heat and mass transfer characteristics were discussed.

Keywords: Unsteady Magnetohydrodynamics; Viscoelastic Fluid Flow; Chemical Reactions.