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MHD mixed convection oscillatory flow over a vertical surface in a porous medium with chemical reaction and thermal radiation

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Abstract

The present paper concerns with the study of thermal radiation and magnetohydrodynamic effects on mixed convection flow of a viscous incompressible electrically-conducting fluid through a porous medium with variable permeability in the presence of oscillatory suction. The influence of a first-order homogeneous chemical reaction, heat source and Soret effects are analyzed. The resultant governing boundary layer equations are highly nonlinear and coupled form of partial differential equations which are solved analytically using two-term harmonic and non-harmonic functions. The effects of different physical parameters on the velocity, temperature and concentration fields are discussed in detail. The results are presented graphically and discussed qualitatively.

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