

عنوان مقاله:

Analysis of chemical reaction and thermophoresis on MHD flow near the accelerated vertical plate in a rotating system with variable temperature

محل انتشار:

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خلاصه مقاله:

This study analyses the combined effect of chemical reaction and Soret number on MHD flow of a viscous and incompressible fluid near the exponentially accelerated infinite vertical plate in a rotating system. The fluid under consideration is electrically conducting and the medium is porous. A set of dimensionless governing equations of the model is obtained. As the equations are linear, an exact solution is derived by using Laplace technique. The effects of flow parameters on the concentration, temperature and velocity are discussed through graphs. It is noticed that the components of the velocity in both the directions can be increased by increasing the Soret number; and the velocities can be reduced by increasing the chemical reaction parameter. Tables depict the numerical values of the rate of change of momentum, concentration and temperature. Applications of the study are considered in the fields like solar plasma and planetary fluid dynamics systems, rotating MHD generators, etc.

کلمات کلیدی:

thermophoresis, Rotation, MHD, Porous medium, Chemical reaction

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