عنوان مقاله:

A study on free convective heat and mass transfer flow through a highly porous medium with radiation, chemical reaction and Soret effects

محل انتشار:

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خلاصه مقاله:

The paper addresses the effects of Soret on unsteady free convection flow of a viscous incompressible fluid through a porous medium with high porosity bounded by a vertical infinite moving plate under the influence of thermal radiation, chemical reaction, and heat source. The fluid is considered to be gray, absorbing, and emitting but non-scattering medium, and Rosseland approximation is considered to describe the radiative heat flux in the energy equation. The dimensionless governing equations for this investigation are solved analytically by using perturbation technique. The effects of various governing parameters on the velocity distributions, temperature distributions, concentration distributions, local skin-friction coefficient, local Nusselt number and local Sherwood number are shown in figures and tables and analyzed in detail. It was noticed that the velocity distribution increased with increasing buoyancy parameters, temperature profiles decreased with increasing Prandtl number and concentration fields decreased with .increasing the Schmidt number and chemical reaction parameter

کلمات کلیدی:

Soret, Thermal radiation, free convection, Chemical reaction, heat source, highly porous