عنوان مقاله:

The Effect of Temperature Dependent Viscosity on MHD Natural Convection Flow from an Isothermal Sphere

محل انتشار:

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

Laminar magnetohydrodynamic (MHD) natural convection flow from an isothermal sphere immersed in a fluid with viscosity proportional to linear function of temperature has been studied. The governing boundary layer equations are transformed into a non-dimensional form and the resulting nonlinear system of partial differential equations are reduced to convenient form which are solved numerically by two very efficient methods, namely, (i) Implicit finite difference method together with Keller box scheme and (ii) Direct numerical scheme. Numerical results are presented by velocity and temperature distribution, streamlines and isotherms of the fluid as well as heat transfer characteristics, namely the local skin-friction coefficients and the local heat transfer rate for a wide range of magnetohydrodynamic paramagnet and viscosity-variation parameter.

کلمات کلیدی:

Finite difference, Natural convection, MHD, Sphere, Temperature dependent viscosity

لینک ثابت مقاله در پایگاه سیویلیکا:

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