

## عنوان مقاله:

Non-Linear Oberbeck Convection in Chiral Fluid through a Vertical Permeable Channel in the Presence of a Transverse Magnetic Field

## محل انتشار:

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## خلاصه مقاله:

Nonlinear oberbeck convection in a chiral incompressible Boussinesq fluid flowing through a vertical channel bounded by rigid permeable isothermal boundaries kept at different temperatures is investigated in this paper in the presence of a uniform transverse magnetic field, under the influence of viscous dissipation. The nonlinear-coupled momentum and energy equations are solved analytically using a regular perturbation method valid for small values of buoyancy parameter  $N$ . To validate the results obtained from the analytical solutions of the non-linear equations, which are also solved numerically using a finite difference method supplemented with the successive over recreation (SOR) technique. The velocity, temperature, skin friction, mass flow rate and the rate of heat transfer are computed for various values of electromagnetic thermal number  $W_{emt}$ , buoyancy parameter  $N$ , and suction Reynolds Number  $Re$ . The results obtained are represented graphically and found that an increase in  $W_{emt}$ , increases the velocity and temperature. Physically, we attributes this to setting up of small scale turbulence by magnetic filed. The effect of .perturbation parameter  $N$  is shown to increases the skin friction, heat transfer and the mass flow rate

## کلمات کلیدی:

Chirality, Buoyancy parameter, Convective current, Lorentz force

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1385146>

