

# NATURAL CONVECTION IN AN ENCLOSURE BY APPLYING A MAGNETIC FIELD

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## Abstract

Natural convection of an electrically conducting fluid in an enclosure by applying magnetic field is studied numerically. The two vertical side walls are held isothermally at temperatures  $\theta_h$  and  $\theta_c$ , while the horizontal top and bottom walls are adiabatic. A numerical method of finite difference scheme consisting of modified ADI method and SLOR method is used to solve the vorticity-stream function formulation of the problem. Numerical predictions are obtained for a wide range of Gr and Ha at the Pr=0.733. The numerical results show that by applying magnetic field has decreased the rate of convective heat transfer. The average Nusselt number decreases with an increase of Hartmann number.