

Abstract

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the present study is concerned with the mixed convection in a rectangular lid-driven cavity under the combined buoyancy effects of thermal mass diffusion. double-diffusive convective flow in a rectangular enclosure with moving upper surface is studied numerically. both upper lower surfaces are being insulated impermeable. constant different temperatures concentration are imposed along the vertical walls of the enclosure, steady state laminar regime is considered. the transport equations for continuity, momentum, energy species transfer are solved. the numerical results are reported for the effect of richardson number, lewis number, buoyancy ratio on the iso-contours of stream line, temperature, concentration. in addition, the predicted results for both local average nusselt and sherwood numbers are presented discussed for various parametric conditions. this study was done for $0.1 \leq \text{prandtl number} \leq 50$. through out the study the grashof number aspect ratio are kept constant at 1042 respectively 10 and 10, while richardson number has been varied from 0.01 to 10 to simulate forced convection dominated flow, mixed convection natural convection dominated flow.