

Abstract

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double-diffusive convective flow in a rectangular enclosure with the upperlower surfaces being insulatedimpermeable is studiedrnumerically. constant temperaturesconcentration are imposed along the leftright walls of the enclosure. in addition, a uniform magneticrfield is applied in a horizontal direction. laminar regime is considered under steady state condition. the transport equations for continuity,rnmomentum, energyspices transfer are solved. the numerical results are reported for the effect of thermal rayleigh number, heat generationrnr absorption coefficientthe hartmann number on the contours of streamline, temperature,concentration as well as the dimensionlessr-density. in addition, the predicted results for the average nusseltsherwood numbers are presenteddiscussed for various parametricrconditions. this study was done for constant aspect ratio $a = 2$, lewis number $le = 1$ prandtl number $pr = 0.7$. the study covers ranges for $10^3 \leq Ra \leq 10^6$, $0 \leq Ha \leq 200$, $0.25 \leq \Gamma \leq 10$.