

Abstract

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m. a. teamah, s. m. elsherbinyr. a. saleh "effect of grashof number aspect ratio on double-diffusive laminar natural convection in a symmetrical trapezoidal enclosure" alexandria eng. journal vol. (49) no. 3, (2010).

the objective of the present investigation is to study the laminar natural convective heatmass transfer in a symmetrical trapezoidal enclosure numerically. both bottom ceiling are considered isothermal isoconcentration surfaces, while the vertical walls are considered adiabatic impermeable surfaces. the study covers a wide range of aspect ratio a , $0.5 \leq a \leq 5$, inclination angle θ , $0^\circ \leq \theta \leq 63.44^\circ$, thermal grashof number Gr_t , $10^2 \leq Gr_t \leq 5 \times 10^5$ buoyancy ratio n , $-1 \leq n \leq 1$. through the investigation, the lewis number is kept constant at $Le=1$ prandtl number is kept constant at $Pr=0.7$. the effect of thermal grashof number, inclination angle, aspect ratio as well as the buoyancy ratio on streamlines, isothermals are discussed. in additions, their effect on both local average nusselt number is elucidated. a comparison is made with the previous investigations shows a good agreement with published results.