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| Title | Heatline analysis for mixed convection flow of nanofluid in a two sided lid-driven cavity with a heat generating block: effect of Reynolds number | | |
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| Abstract |  |
| Mixed convective flow and heat transfer characteristics of nanofluid inside a double lid driven cavity with a square heat generating block is analyzed numerically based on heatline approach. The upper and lower lids of the cavity are kept adiabatic and are moving in opposite direction while the other two boundaries are kept fixed at uniform temperature *Tc*. The water-alumina nanofluid is chosen as the operational fluid through the enclosure. The governing differential equations with proper boundary conditions are solved by Finite Element Method using Galerkin’s weighted residual scheme. Calculations are performed for different Reynolds number such as 20, 50, 100 and 150. Results are shown in terms of stream lines, isothermal lines, heatlines, average Nusselt number and average temperature. An enhancement in heat transfer rate is observed with the variation of Reynolds number. | |