

Investigation of Enhancement of Heat Transfer in Natural Convection Utilizing of Nanofluids

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Abstract : This paper analyses the heat transfer performance and fluid flow using different nanofluids in a square enclosure. The energy equation and Navier-Stokes equation are solved numerically using finite volume scheme. The effect of volume fraction concentration on the enhancement of heat transfer has been studied incorporating the Brownian motion; the influence of effective thermal conductivity on the enhancement was also investigated for a range of volume fraction concentration. The velocity profile for different Rayleigh number. Water-Cu, water AL₂O₃ and water-TiO₂ were tested.

Keywords : computational fluid dynamics, natural convection, nanofluid and thermal conductivity

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