

# NUMERICAL INVESTIGATION OF FORCED CONVECTIVE COOLING PERFORMANCE OF TWO NANOFLUID TYPES IN MICROCHANNEL

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**ABSTRACT.** A numerical study has been performed by using single phase method on the convective heat transfer of Cu/water and Al<sub>2</sub>O<sub>3</sub>/water nanofluids flowing through a square microchannel under the laminar flow conditions (nanofluids are liquid suspensions of nano-sized particles). The effects of nanoparticles concentrations and Reynolds number are investigated on the flow and the convective heat transfer behaviour. The results obtained by the FLUENT software show that the presence of nanoparticles in the base fluid results in a considerable increase of heat transfer. Heat transfer coefficient increases by increasing the concentration of nanoparticles in nanofluid and Reynolds number.

**KEYWORDS:** *numerical simulation; nanofluid; convective Heat Transfer; concentration; Reynolds number.*