Heat Transfer Enhancement via Using Al2O3/Water Nanofluid in Car Radiator

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Abstract : In this study, effect of adding Al2O3 nanoparticle to base fluid (water) in car radiator is investigated numerically. Radiators are compact heat exchangers optimized and evaluated by considering different working conditions. The cooling system of a car plays an important role in vehicle's performance, consists of two main parts, known as radiator and fan. Improving thermal efficiency of engine leads to increase the engine's performance, decline the fuel consumption and decrease the pollution emissions. In this study, the effects of fluid inlet flow rate and nanoparticle volume fraction on heat transfer and pressure drop of acar radiator are studied.

Keywords : forced convection, nanofluid, radiator, CFD simulation

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