

## CFD Simulation of Forced Convection Nanofluid Heat Transfer in the Automotive Radiator

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**Abstract :** Heat transfer of coolant flow through the automobile radiators is of great importance for the optimization of fuel consumption. In this study, the heat transfer performance of the automobile radiator is evaluated numerically. Different concentrations of nanofluids have been investigated by the addition of Al<sub>2</sub>O<sub>3</sub> nano-particles into the water. Also, the effect of the inlet temperature of nanofluid on the performance of radiator is studied. Results show that with an increase of inlet temperature the outlet temperature and pressure drop along the radiator increase. Also, it has been observed that increase of nano-particle concentration will result in an increase in heat transfer rate within the radiator.

**Keywords :** heat transfer, nanofluid, car radiator, CFD simulation

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