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The enhancement of effective thermal conductivity and effective dynamic viscosity of nanofluids – A review

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A B S T R A C T

The determination of thermo-physical properties and especially thermal conductivity and viscosity were important for evaluating heat transfer coefficients either for single or two phase flow. The thermo-physical properties measurements and heat transfer observations were mostly obtained with nanoparticles above 10 nm. Various researchers measured and modelled for the determination of thermal conductivity and viscosity of nanofluids. Most of the investigators developed equations for the estimation of thermal conductivity and viscosity as a function of percentage volume concentration, temperature and sometimes with the consideration of particle size valid in their experimental range. Nanofluids are considered to have great potential for heat transfer enhancement and are applied in heat transfer processes. Many studies were carried out to investigate this phenomenon. The main aim of this study is to give a comprehensive review on the research progress on the enhancement of effective thermal conductivity and effective dynamic viscosity of nanofluids.