

A Renovated Model for Heat Conduction in Nanofluids

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Nanofluids, a new class of solid/liquid suspensions, offer scientific challenges because their measured thermal conductivity is superior to traditional heat transfer fluids. The conventional theoretical models cannot explain the large enhancement of the thermal conductivity of nanofluids. It has been recorded that the interfacial layer formed by liquid molecular layering at the solid (particle)/liquid interface is one of the major mechanisms for enhancing the thermal conductivity of nanofluids, but little is known about the connection between this nanolayer and the thermal properties of the suspensions. Here, we have modified the heat conduction equation for the effective thermal conductivity of Nanofluids to include the effect of this liquid molecular layering (interfacial layer). This interfacial layer has a major impact on nanofluid thermal conductivity. Finally we compare our results with some experimental data.