Investigating the cooling potential of carbonaceous nanofluids

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The literature reports on carbonaceous nanofluids show a wide range of thermal conductivity increases, from very insignificant increase in amorphous carbon black to a 2-3 fold increase in thermal conductivity in some suspensions with carbon nanotubes and graphene oxide. A unique nature of anisotropic carbonaceous nanomaterials could engage additional heat transfer mechanism in suspensions and result in such a dramatic thermal conductivity increases. In this talk we will present experimental results on nanofluids with the variety of carbonaceous nanoparticles (carbon black, graphite, graphene oxide, graphene, decorated graphene, etc.) dispersed in the base fluids of different nature. The results are indicative of the general trends and formulation strategies for achieving the highest cooling potential of carbonaceous nanofluids.

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