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A STUDY ON TYPES OF MODEL ON NANOFLUID FLOW

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ABSTRACT

There exist large quantities of research both numerical and theoretical on laminar convection since the prediction of the convective heat transfer in these systems is valuable as it directly affects the design and operational conditions in many devices and processes requiring heat removal. There are two popular ways in which the convective heat transfer of Nano fluids can be modelled. These are known as the single-phase approach and the thermal diffusion model. The single-phase approach involves assuming the nanofluid to be a homogeneous mixture of fluid and particles, whose thermal properties are taken as a function of properties of both constituents and their concentrations. This type of modeling assumes no slip between particle and fluid, therefore other than standard heat transfer mechanisms of the base fluid there are no additional mechanisms. On the other hand, the diffusion model accounts for the slip motion between nanoparticles and base fluid, allowing for seven slip mechanisms such as Brownian motion, thermophoresis, etc. to contribute to heat transfer.