Flow and heat transfer of a nanofluid over a shrinking sheet

ABSTRACT

The problem of laminar fluid flow which results from the shrinking of a permeable surface in a nanofluid has been investigated numerically. The model used for the nanofluid incorporates the effects of Brownian motion and thermophoresis. A similarity solution is presented which depends on the mass suction parameter S, Prandtl number Pr, Lewis number Le, Brownian motion number Nb and thermophoresis number Nt. It was found that the reduced Nusselt number is decreasing function of each dimensionless number.

Keyword: Boundary layer; Nanofluid; Shrinking sheet; Brownian motion; Thermophoresis; Similarity solution