



# Forced Convection Flow of Nanofluids Past Power Law Stretching Horizontal Plates.

F.M. Hady, F.S. Ibrahim, H.M. El-Hawary and A.M. Abdelhady.

## Abstract:

In the present work, we studied a nonsimilar solution of steady forced convection boundary layer flow and heat transfer of a nanofluid past a stretching horizontal plate. One-phase model has been used for this study. The nonsimilarity equations are solved numerically. We considered a nanofluid consists of  $Al_2O_3$  as a nanoparticles and water as a base fluid. The volume fraction of nanoparticles is considered in the range  $(0, 0.2)$  with prandtl number  $Pr=6.2$  for the water working as a regular fluid. The parameters which governing the solution are volume fraction of nanoparticles, stretching plate parameter and power law index. We investigated the effect of these parameters on the skin friction coefficient, Nusselt number, velocity and temperature profiles. We found that heat transfer rate and skin friction increased when skin friction parameter increased. On the other hand, we concluded that the increase in stretching plate parameter and power law index made heat transfer rate increases and skin friction decreases.

## Keywords:

Forced Convection; Nanofluid; Nonsimilar Solution; Heat Transfer Component

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