

Documents

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Boundary layer flow and heat transfer of a non-Newtonian nanofluid over a non-linearly stretching sheet
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Abstract

Purpose - The purpose of this paper is to study the boundary layer flow and heat transfer of a powerlaw non-Newtonian nanofluid over a non-linearly stretching sheet. **Design/methodology/approach** - The governing equations describing the problem are transformed into a nonlinear ordinary differential equations by suitable similarity transformations. The resulting equations for this investigation are solved numerically by using the variational finite element method. **Findings** - It was found that the local Nusselt number increases by increasing the Prandtl number, stretching sheet parameter and decreases by increasing the power-law index, thermophoresis parameter and Lewis number. Increases in the stretching sheet parameter, Prandtl number and thermophoresis parameter decrease the local Sherwood number values. The effects of Brownian motion and Lewis number lead to increases in the local Sherwood number values. **Originality/value** - The work is relatively original as very little work has been reported on non-Newtonian nanofluids. © Emerald Group Publishing Limited.

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