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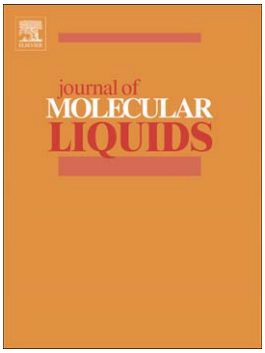

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On model of Burgers fluid subject to magneto nanoparticles and convective conditions

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Abstract: Here modeling and analysis are developed to characterize the boundary layer flow of Burgers nanofluid in presence of Robin's type condition at the stretching surface. Considered nanofluid model consists of Brownian motion and thermophoresis effects. The flow analysis is considered under the action of applied magnetic field. Similarity variables are selected to convert the dimensional nonlinear equations into dimensionless expressions. The governing dimensionless problems are solved through the implementation of homotopic procedure. The variations in dimensionless temperature and nanoparticle concentration profiles corresponding to embedded physical parameters are displayed and evaluated. The physical quantities of interest are examined through numerical data for various values of thermophoresis, Brownian motion, Prandtl number, Schmidt number and Biot numbers. Comparison of $f''(0)$ and $\theta'(0)$ in a limiting case is presented for the verification of present derived solutions.

Keywords: Magnetic field; Burgers nanofluid; Robin's type conditions.

1. Introduction

At present the cooling of electronic equipments plays a major role in industrial processes but smaller thermal conductivity base fluids like oil, water, ethylene glycol has many limitations. Such limitations can be controlled by developing the new heat transfer fluids that have higher thermal efficiency. These liquids can be developed by adding the small size solid particles into base fluid. The submerssion of solid particles alter the thermophysical capability of host liquids. These liquids not naturally occured but can be developed in the laboratry. The thermal performance of these liquids have major impact on the heat transfer coefficient between the heat transfer medium and surface. The thermal conductivity of nanoliquids is much higher than the

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