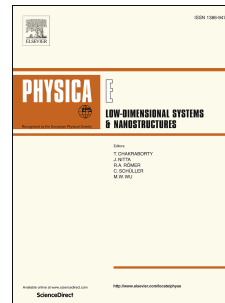


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Hall effects on peristalsis of boron nitride-ethylene glycol nanofluid with temperature dependent thermal conductivity

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Abstract: Current study provides a comprehensive numerical investigation of the peristaltic transport of boron nitride-ethylene glycol nanofluid through a symmetric channel in presence of magnetic field. Significant effects of Brownian motion and thermophoresis have been included in the energy equation. Hall and Ohmic heating effects are also taken into consideration. Resulting system of non-linear equations is solved numerically using NDSolve in Mathematica. Expressions for velocity, temperature, concentration and streamlines are derived and plotted under the assumption of long wavelength and low Reynolds number. Influence of various parameters on heat and mass transfer rates have been discussed with the help of bar charts.

Keywords: Peristaltic flow; BN-EG nanofluid; Hall effects; Ohmic heating; Variable thermal conductivity; Thermophoresis; Brownian motion.

1. Introduction

Due to diverse range of applications, peristalsis has been taken into consideration by several theoretical and experimental investigators. Peristalsis is a process for a fluid transport which

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