

Heat transfer on peristaltic flow of fourth grade fluid in inclined asymmetric channel with partial slip

Abstract

In this paper, the effects of slip and heat transfer are studied on the peristaltic transport of a magnetohydrodynamic (MHD) fourth grade fluid. The governing equations are modeled and solved under the long wavelength approximation by using a regular perturbation method. Explicit expressions of solutions for the stream function, the velocity, the pressure gradient, the temperature, and the heat transfer coefficient are presented. Pumping and trapping phenomena are analyzed for increasing the slip parameter. Further, the temperature profiles and the heat transfer coefficient are observed for various increasing parameters. It is found that these parameters considerably affect the considered flow characteristics. Comparisons with published results for the no-slip case are found in close agreement.