

A numerical analysis for effects of partial slip on the peristaltic flow of a MHD Newtonian fluid in an asymmetric channel

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Abstract: In this study, the effects of partial slip on the peristaltic flow of a MHD Newtonian fluid in an asymmetric channel are studied analytically and numerically. The governing equations of motion and energy are simplified using a long wave length approximation. A closed form solution of the momentum equation is obtained by the homotopy perturbation method (HPM) and an exact solution of the energy equation is presented in the presence of viscous dissipation term. The expression for pressure rise is calculated using numerical integration. Also we discussed the trapping phenomena. The graphical results are presented to interpret various physical parameter of interest.

Key words: Homotopy perturbation method, Heat transfer, Newtonian fluid, Partial slip.
