

Heat Transfer Analysis of MHD Viscous Fluid in A Ciliated Tube with Entropy Generation

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Abstract

This investigation aims to explain the study of heat transfer and entropy generation of magnetohydrodynamic (MHD) viscous fluid flowing through a ciliated tube. Heat transfer study has massive importance in various biomedical and biological industry problems. The metachronal wave propagation is the leading cause behind this viscous creeping flow. A low Reynolds number is used as the inertial forces are weaker than viscous forces, and also creeping flow limitations are fulfilled. For the cilia movement, a very large wavelength of a metachronal wave is taken into account. Entropy generation is used to examine the heat transfer through the flow. Exact mathematical solutions are calculated and analyzed with the help of graphs. Streamlines are also plotted.

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