

Effect of an Induced Magnetic Field on the Peristaltic Motion of Phan-Thien-Tanner (PTT) Fluid

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This article looks at the influence of an induced magnetic field on peristaltic motion of an incompressible fluid in a planar channel with non-conductive walls. Peristaltic flow is generated by a sinusoidal wave travelling down its walls. The problem formulation in a wave frame of reference moving with velocity of wave is established. Mathematical relations for the stream function, pressure gradient, magnetic force function, and axial induced magnetic field are constructed. The pressure rise and frictional force are discussed by performing numerical integration. Effects of many sundry parameters entering into the governing problem are examined by plotting graphs.

Key words: Induced Magnetic Field; PTT Fluid; Long Wavelength.