**Thermal Effects of a Fluid Flow in a Non-uniform inclined prone tube having multiple stenoses**

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**Abstract:**

The effect of slip on Nano fluid in a circular tube of non-uniform cross section with multiple stenoses have been studied. By using Homotopy Perturbation Method, the coupled equations in temperature and nanoparticle phenomena are calculated. The expressions for the flow characteristics, like, pressure drop, resistance to the flow and shear stress at the wall have been derived and solutions have been obtained. It is observed that the resistance to the flow increases with the heights of the stenosis, Brownian motion number, Thermophoresis parameter, local temperature Grashof number, local nanoparticle Grashof number, inclination and permeability constant. It is also observed that the shear stress at the wall increases with Brownian motion parameter and with height of the stenosis, but decreases with local nanoparticle Grashof number, thermophoresis parameter and permeability constant. Also, it is found that the size of bolus decreases with the increase of permeability constant.

***Keywords*:** Stenoses, Nano Fluid, Permeability constant.