BLOOD FLOW ANALYSIS THROUGH AN INCLINED ARTERY HAVING MULTIPLE STENOSIS WITH VARIABLE NANO FLUID VISCOSITY USING SINGLE WALL CARBON NANOTUBE (SWCNT).

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Abstract

In an inclined artery with a non-uniform cross-section, this work investigates the changing viscosity and thermal conductivity of a single wall carbon nanotube with numerous, symmetrical stenoses. Assuming that the flow is experiencing no-slip conditions and the stenoses are mild, a mathematical model is proposed. To obtain the equations characterizing heat conduction, axial velocity, flow resistance, and wall shear stress under the effect of SWCNT, governing equations are formulated and solved. The differences resulting from varying amounts of SWCNT are compared numerically. It has been noted that when stenoses get higher, the impedance (or resistance to the flow) λ rises but the wall shear stress (τ) falls. Additionally, flow patterns is illustrated using streamlines.

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