

## Documents

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**Simulation of variable viscosity and Jeffrey fluid model for blood flow through a tapered artery with a stenosis**

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**Abstract**

Non-Newtonian fluid model for blood flow through a tapered artery with a stenosis and variable viscosity by modeling blood as Jeffrey fluid has been studied in this paper. The Jeffrey fluid has two parameters, the relaxation time  $\lambda_1$  and retardation time  $\lambda_2$ . The governing equations are simplified using the case of mild stenosis. Perturbation method is used to solve the resulting equations. The effects of non-Newtonian nature of blood on velocity profile, temperature profile, wall shear stress, shearing stress at the stenosis throat and impedance of the artery are discussed. The results for Newtonian fluid are obtained as special case from this model. © 2012 Chinese Physical Society and IOP Publishing Ltd.

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