MHD TWO-PHASE BLOOD FLOW THROUGH AN ARTERY WITH AXIALLY NON-SYMMETRIC STENOSIS

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Abstract

The hemodynamic/data linked with the physiological and geometrical conditions of the stenosis provide an alternative of experiments for the better understanding of cardiovascular diseases, the atherosclerosis. On the basis of blood constituents, various type of blood flow models are developed assuming it as single phase Newtonian or non-Newtonian fluid. Two phase model of blood flow integrates the effect of blood particles and fluid phase both. The whole blood is considered as suspension of the blood particles in the plasma to form a mixture of two phase fluid encompasses particle phase and fluid phase. The mixture viscosity is considered as function of volume fraction density of the particles and drag coefficient of interaction of two phases on each other. In the present study the artery is considered with axially non-symmetric stenosis in the presence of static transverse magnetic field. The modeled problem is solved, simulated for the effect of the magnetic field; geometric parameters of the stenosis on the velocity profile, resistive impedance and wall shear stress.

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