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COMPUTATIONAL ANALYSIS OF UNSTEADY FLOW OF BLOOD AND HEAT TRANSFER THROUGH A STENOSESD ARTERY IN A THIRD GRADE FLUID MODEL WITH SLIP CONDITIONS

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ABSTRACT

This paper investigates the computational analysis of unsteady flow of blood and heat transfer through a stenosed artery in a third grade fluid model with slip conditions. Incorporated into the model is an externally applied magnetic field. The solutions of the unsteady non-linear dimensionless momentum and energy equations are obtained using Galerkin's weighted residual and Fourth order Runge-Kutta methods. Effects of slip velocity, magnetic field, shear thinning, shear thickening and other parameters on the flow and heat transfer characteristics are presented graphically and discussed.

KEYWORDS: *Unsteady Blood Flow, Unsteady Heat Transfer, Magnetic Field, Slip Conditions, Stenosed Artery, Shear Thinning, Shear Thickening Third Grade Fluid And Galerkin's Weighted Residual Methods*

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