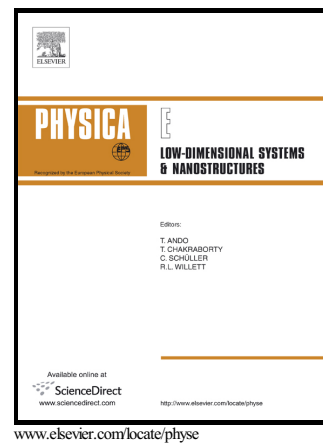


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Peristaltic transport of magneto-nanoparticles submerged in water: Model for drug delivery system

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Abstract: Recent development in biomedical engineering has enabled the use of the magnetic nanoparticles in modern drug delivery systems with great utility. Nanofluids composed of magnetic nanoparticles have the characteristics to be manipulated by external magnetic field and are used to guide the particles up the bloodstream to a tumor with magnets. In this study we examine the mixed convective peristaltic transport of copper-water nanofluid under the influence of constant applied magnetic field. Nanofluid is considered in an asymmetric channel. Aside from the effect of applied magnetic field on the mechanics of nanofluid, its side effects i.e. the Ohmic heating and Hall effects are also taken into consideration. Heat transfer analysis is performed in presence of viscous dissipation and heat generation/absorption. Mathematical modelling is carried out using the lubrication analysis. Resulting system of equations is numerically solved. Impact of embedded parameters on the velocity, pressure gradient, streamlines and temperature of nanofluid is examined. Effects of applied magnetic field in presence and absence of Hall effects are studied and compared. Results depict that addition of

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