

عنوان مقاله:

Role of ohmic heating and radiation on magnetohydrodynamic Jeffery fluid model through a tapered channel with peristalsis

محل انتشار:

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خلاصه مقاله:

Theoretical investigation of Ohmic heating (Joule heating) and radiation on MHD Jeffery fluid model with porous material along the tapered channel with peristalsis is the focus of this study. Long wavelength and low-Reynolds number approximations are used in the mathematical modelling. Axial rate, pressure gradient, temperature, and heat transfer coefficient rate expressions are calculated. Plotting diagrams were used to analyse the impact of physical parameters on flow characteristics, which were then addressed in greater depth. It is worth noting that raising the gravitational parameter, Jeffery fluid parameter, Hartmann number and Porosity parameter raises the fluid's velocity. Also, as the Ohmic heating (Jeffery fluid) parameter and porosity parameter increase, the axial pressure gradient drop, and the temperature of the fluid rises. The rate of heat transfer coefficient rises in region with an increase in the Radiation parameter, Heat generator parameter and Jeffery fluid parameter. Mathematica software is employed to seek out numerical results.

کلمات کلیدی:

Ohmic heating, Gravity field, MHD, Jeffery fluid, Tapered vertical channel

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