

عنوان مقاله:

Axisymmetric Magnetohydrodynamic Squeezing flow of Nanofluid in Porous Media under the influence of Slip Boundary Condition

محل انتشار:

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خلاصه مقاله:

The various industrial, biological and engineering applications of flow of squeezing flow of fluid between parallel plates have been the impetus for the continued interest and generation renewed interests on the subject. As a part of the renewed interests, this paper presents the study of axisymmetric magnetohydrodynamic squeezing flow of nanofluid in porous media under the influence of slip boundary condition using differential transformation method. Good agreements are established when the results of the differential transformation method are compared with the results of numerical method Runge-Kutta coupled with shooting method. Also, the analytical solution is used to investigate the effects of porous medium, magnetic field and slip boundary on the steady two-dimensional axisymmetric flow of the nanofluid. It is shown from the results that the velocity of the fluid increases as the magnetic field and porous parameters increase under slip condition while the velocity of the fluid decreases with increase in the magnetic field and porous parameter under no slip condition. By increasing the slip parameter, the velocity of the fluid increases while the velocity of the fluid decreases as the Reynolds number increases. Studies on nanofluidics such as energy conservation, friction reduction and micro mixing biological samples can be enhanced and better understood by the insights given in this present study.

کلمات کلیدی:

Nanofluid, Porous media, Squeezing flow, Magnetic field, Slip boundary condition

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