عنوان مقاله:

Dispersion in Chiral Fluid in the Presence of Convective Current between Two Parallel Plates Bounded by Rigid Permeable Walls

محل انتشار:

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خلاصه مقاله:

This paper describes the use of Taylor dispersion analysis to study the dispersion of chiral fluid flow in a channel in the presence of the convective current bounded by rigid permeable walls. Analytical solution for velocity in the presence of a transverse magnetic field is obtained and it is computed for different values of electromagnetic parameterW_{em} . The results reveal that the velocity increases with an increase in the electromagnetic parameter, W_{em} . Concentration distribution is also determined analytically in the presence of advection of concentration of chiral fluid. It is shown that the molecules of chiral fluid dispersed relative to the plane moving with the mean speed of flow with an effective dispersion coefficient, D^* , called Taylor dispersion coefficient. This is numerically computed for different values of electromagnetic parameter, W_{em} , Paclet number P_e and Reynolds number, R_e . The results shows that dispersion coefficient, D^* decreases monotonically with Reynolds number, R_e , Paclet number P_e , but increase with an increase in electromagnetic parameter, W_{em} .

کلمات کلیدی:

Chiral Fluid, Lorentz force with chirality parameter, Convection current, Coronary Artery Diseases, Synovial Joints, Dispersion

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