

Stretching surface in rotating viscoelastic fluid

Abstract

The boundary layer flow over a stretching surface in a rotating viscoelastic fluid is considered. By applying a similarity transformation, the governing partial differential equations are converted into a system of nonlinear ordinary differential equations before being solved numerically by the Keller-box method. The effects of the viscoelastic and rotation parameters on the skin friction coefficients and the velocity profiles are thoroughly examined. The analysis reveals that the skin friction coefficients and the velocity in the x-direction increase as the viscoelastic parameter and the rotation parameter increase. Moreover, the velocity in the y-direction decreases as the viscoelastic parameter and the rotation parameter increase.

Keywords

Boundary layer; Rotating viscoelastic fluid; Similarity transformation; Stretching surface