

Flow and Heat Transfer to Sisko Nanofluid over a Non-Linearly Stretching Sheet with Chemical Reaction

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This paper is focused on the study for the effects of chemical reaction on the steady two-dimensional flow and heat transfer to Sisko nanofluid over a non-linearly stretching sheet with convective boundary condition. Our nano fluid model incorporates the influences of the thermophoresis and Brownian motion. A similarity transformation is used to transform the governing partial differential equations to a system of non-linear ordinary differential equations. The resulting ODEs are successfully solved numerically with the help of fourth order Runge-Kutta method (RK45) with the shooting technique. The effects of various parameters like the power-law index, stretching parameter, the thermophoresis, Brownian motion and chemical reaction parameters on the flow and temperature and concentration profiles are discussed and graphically presented. To see the validity of the present work, we made a comparison with the earlier published results under limiting cases.