Thermal Radiation Effect on Flow and Heat Transfer to Sisko Nanofluid over a Non-Linearly Stretching Sheet

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In this work the flow and heat transfer characteristics to Sisko nanofluid over a non-linearly stretching sheet in the presence of thermal radiation included in the energy equation with convective boundary condition is investigated in the concerned study. Our nanofluid 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. An efficient numerical shooting technique with a fourth-order Runge–Kutta scheme (RK45) is used to obtain the solution of the boundary value problem. The effects of the power-law index, stretching parameter, the thermophoresis, Brownian motion and thermal radiation parameters on the temperature and concentration fields are analyzed and graphically presented. To see the validity of the present work, we made a comparison with the numerical results as well as previously published work with an outstanding compatibility.