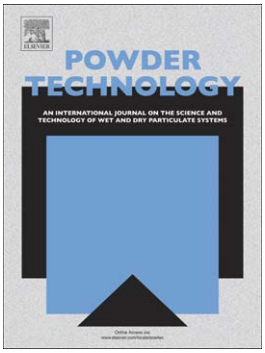

Heat and mass transfer analysis of nanofluid over linear and non-linear stretching surfaces with thermal radiation and chemical reaction

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Heat and Mass transfer analysis of nanofluid over linear and non-linear stretching surface with thermal radiation and Chemical reaction

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Abstract: This article presents MHD heat and mass transfer flow of nanofluid over a linear and non-linear stretching sheet embedded in porous media under the influence of Brownian motion, thermophoresis, thermal radiation and chemical reaction. Appropriate transformations reduce the non-linear partial differential systems into ordinary differential equations. Galerkin Finite element method is employed to solve these momentum, temperature and concentration equations numerically subject to the boundary conditions. The influence of various pertinent parameters on velocity, temperature and concentration profiles of the fluid are discussed and the results are plotted through graphs. Furthermore, skin-friction coefficient, Nusselt number and Sherwood number are investigated in detail and results are shown in tabular form. It is concluded that the velocity and temperature profiles escalates, whereas concentrations profile depreciates when Brownian motion parameter is rises.

Keywords: MHD; Nanofluid; Linear and non-linear stretching sheet; Thermophoresis; Brownian motion.