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MHD Jeffrey nanofluid past a stretching sheet with viscous dissipation effect (Conference Paper)Zokri, S.M.^a, Arifin, N.S.^a, Salleh, M.Z.^a, Kasim, A.R.M.^a, Mohammad, N.F.^b, Yusoff, W.N.S.W.^a^aApplied and Industrial Mathematics Research Group, Faculty of Industrial Science and Technology, Universiti Malaysia Pahang, Kuantan, Pahang, Malaysia
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Abstract

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This study investigates the influence of viscous dissipation on magnetohydrodynamic (MHD) flow of Jeffrey nanofluid over a stretching sheet with convective boundary conditions. The nonlinear partial differential equations are reduced into the nonlinear ordinary differential equations by utilizing the similarity transformation variables. The Runge-Kutta Fehlberg method is used to solve the problem numerically. The numerical solutions obtained are presented graphically for several dimensionless parameters such as Brownian motion, Lewis number and Eckert number on the specified temperature and concentration profiles. It is noted that the temperature profile is accelerated due to increasing values of Brownian motion parameter and Eckert number. In contrast, both the Brownian motion parameter and Lewis number have caused the deceleration in the concentration profiles. © Published under licence by IOP Publishing Ltd.

Indexed keywords

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[Ordinary differential equations](#) [Partial differential equations](#) [Runge-Kutta methods](#) [Viscous flow](#)

Compendex keywords

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[Nonlinear ordinary differential equation](#) [Nonlinear partial differential equations](#) [Runge-Kutta Fehlberg method](#)
[Similarity transformation](#)

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[Brownian movement](#)

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