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Three-dimensional flow of a magnetohydrodynamic Casson fluid over an unsteady stretching sheet embedded into a porous medium
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Abstract

A three-dimensional flow of a magnetohydrodynamic Casson fluid over an unsteady stretching surface placed into a porous medium is examined. Similarity transformations are used to convert time-dependent partial differential equations into nonlinear ordinary differential equations. The transformed equations are then solved analytically by the homotopy analysis method and numerically by the shooting technique combined with the Runge–Kutta–Fehlberg method. The results obtained by both methods are compared with available reported data. The effects of the Casson fluid parameter, magnetic field parameter, and unsteadiness parameter on the velocity and local skin friction coefficients are discussed in detail. © 2016, Pleiades Publishing, Ltd.

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