Effects of Thermal Radiation on Unsteady Magnetohydrodynamic Flow of a Micropolar Fluid with Heat and Mass Transfer

Tasawar Hayat[a,b] and Muhammad Qasim[a]

[a] Department of Mathematics, Quaid-I-Azam University 45320, Islamabad 44000, Pakistan
[b] Department of Mathematics, College of Sciences, King Saud University, P. O. Box 2455, Riyadh 11451, Saudi Arabia

Reprint requests to T. H.; E-mail: pensy_t@yahoo.com

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An analysis has been carried out to study the combined effects of heat and mass transfer on the unsteady flow of a micropolar fluid over a stretching sheet. The thermal radiation effects are presented. The arising nonlinear partial differential equations are first reduced to a set of nonlinear ordinary differential equations and then solved by the homotopy analysis method (HAM). Plots for various interesting parameters are presented and discussed. Numerical data for surface shear stress, Nusselt number, and Sherwood number in steady case are also tabulated. Comparison between the present and previous limiting results is given.

Key words: Unsteady Flow; Micropolar Fluid; MHD Flow; Mass Transfer.