Influence of Thermal Radiation on Blasius Flow of a Second Grade Fluid

Tasawar Hayat[a], Meraj Mustafa[a], and Muhammad Sajid[b]

[a] Department of Mathematics, Quaid-I-Azam University 45320, Islamabad 44000, Pakistan
[b] Theoretical Plasma Physics Division, PINSTECH, P. O. Nilore, Islamabad 44000, Pakistan

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

This work describes the series solution of two-dimensional flow and heat transfer of a second grade fluid in the presence of radiation. The governing partial differential equations are reduced into ordinary differential equations by appropriate similarity tranformation. The series solutions of the resulting ordinary differential equations are obtained by using the homotopy analysis method (HAM). The convergence of the solution is discussed explicitly. The influence of pertinent parameters on the velocity and temperature is graphically displayed and discussed. Numerical values of the skin friction coefficient and the Nusselt number are also tabulated.