

Unsteady Heat Transfer Flow Of A Casson Fluid With Newtonian Heating And Thermal Radiation

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ABSTRACT

This study investigates the unsteady heat transfer flow of a non-Newtonian Casson fluid over an oscillating vertical plate with Newtonian heating on the wall under the effects of thermal radiation. With the help of non-dimensional variables, governing equations are written into dimensionless form and then solved analytically by Laplace transform technique to find the solutions of temperature and velocity. The corresponding solutions of Nusselt number and skin friction are also calculated. The solution in term of viscous fluid is recovered as a limiting case of this work. The effects of the pertinent parameters on temperature and velocity are presented graphically and discussed details in this paper.

KEYWORDS: Heat transfer; laplace transforms; newtonian heating; radiation effects

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