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EFFECTS OF OHMIC HEATING AND VISCOUS DISSIPATION ON STEADY MHD FLOW NEAR A STAGNATION POINT ON AN ISOTHERMAL STRETCHING SHEET

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ABSTRACT

Aim of the paper is to investigate effects of ohmic heating and viscous dissipation on steady flow of a viscous incompressible electrically conducting fluid in the presence of uniform transverse magnetic field and variable free stream near a stagnation point on a stretching non-conducting isothermal sheet. The governing equations of continuity, momentum, and energy are transformed into ordinary differential equations and solved numerically using Runge-Kutta fourth order with shooting technique. The velocity and temperature distributions are discussed numerically and presented through graphs. Skin-friction coefficient and the Nusselt number at the sheet are derived, discussed numerically, and their numerical values for various values of physical parameters are compared with earlier results and presented through tables.

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