EFFECTS OF CONVECTION ON MHD FLOW AND HEAT TRANSFER OVER A RADIALLY STRETCHING DISK

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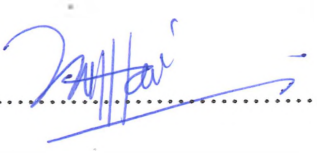
DECLARATION BY CANDIDATE

I certify that this report and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.



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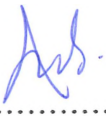

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ABSTRACT

This study sought to investigate the effects of magnetic field and convection on a steady magnetohydrodynamic (MHD) flow and heat transfer past a radially stretching disk. Mathematical formulation of simplified Navier-Stokes equations is made in the presence of a few parameter such as magnetic field and buoyancy. In the analysis, the governing partial differential equations (PDEs) are transformed into a set of ordinary differential equations (ODEs) by a similarity transformation. The transformed equations then are solved numerically by using Keller-Box scheme in MATLAB which consist of three method that are finite difference method, Newton's method and block elimination method. The numerical solutions are obtained for the heat transfer, the rate skin friction coefficient, velocity and temperature profiles are being compared with the previous research for the purpose of accuracy. The effects of magnetic field and convection, suction on the shear stress and heat transfer are analysed and discussed. It was found that the skin friction coefficient decreases with the increasing values of buoyancy parameter, L while heat transfer remained the same.

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