A COMPARATIVE STUDY OF ANALYTICAL SOLUTION AND NUMERICAL SOLUTIONS OF HYDROMAGNETIC REVOLVING FLOW PAST A POROUS FLAT PLATE FOR LARGE SUCTION

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Abstract

The revolving flow of a viscous, incompressible, electricity conducting fluid pas over a fixed porous flat plate, is studied in the presence of external magnetic field. A series solutions in descending powers of a large suction parameter is developed. It is found that the effect of suction is to induce an axial flow at infinity towards the plate which increases as the suction velocity increases. On the other hand the axial velocity along the direction apart from the plate is seen to decrease as the suction parameter increases. Finally, a direct numerical results of the similarity equations is obtained using a shooting method employing the Runge-Kutta algorithm with Newton iteration in double precision. The influence of the existing flow parameters are analyzed for both analytical and Numerical solutions in this investigation.

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