

## Magnetoviscous Effects on Axi-Symmetric Ferrofluid Flow over a Porous Rotating Disk with Suction/Injection

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**Abstract :** The present study is carried out to investigate the magneto-viscous effects on incompressible ferrofluid flow over a porous rotating disk with suction or injection on the surface of the disk subjected to a magnetic field. The flow under consideration is axi-symmetric steady ferrofluid flow of electrically non-conducting fluid. Karman's transformation is used to convert the governing boundary layer equations involved in the problem to a system of non linear coupled differential equations. The solution of this system is obtained by using power series approximation. The flow characteristics i.e. radial, tangential, axial velocities and boundary layer displacement thickness are calculated for various values of MFD (magnetic field dependent) viscosity and for different values of suction injection parameter. Besides this, skin friction coefficients are also calculated on the surface of the disk. Thus, the obtained results are presented numerically and graphically in the paper.

**Keywords :** axi-symmetric, ferrofluid, magnetic field, porous rotating disk

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