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Abstract

Unsteady hydromagnetic Couette flow of a viscous, incompressible and electrically conducting fluid in a rotating system between two infinitely long parallel porous plates, taking Hall current into account, in the presence of a transverse magnetic field is studied numerically. Fluid flow within the channel is induced due to impulsive movement of the lower plate of the channel and fluid motion is subjected to a uniform suction and injection at upper and lower plates. Magnetic lines of force are assumed to be fixed relative to the fluid. Numerical solutions for primary and secondary velocities are obtained from the governing momentum equation by employing explicit finite difference method. The effects of various non-dimensional parameters: Hall current parameter

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Index Terms

Computer Science Applied Sciences

Keywords

MHD Couette flow, uniform suction/injection, Hall effects, rotating system, finite difference method.