

## عنوان مقاله:

Effects of Rotation and Magnetic Field on Unsteady Couette Flow in a Porous Channel

## محل انتشار:

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## خلاصه مقاله:

Unsteady hydromagnetic Couette flow of a viscous incompressible electrically conducting fluid in a rotating system in the presence of a uniform transverse magnetic field is studied. The plates of the channel are considered porous and fluid flow within the channel is induced due to the impulsive movement of the upper plate of the channel. General solution of the governing equations is obtained which is valid for every value of time  $t$ . For small values of time  $t$ , the solution of the governing equations is obtained by Laplace transform technique. The expression for the shear stress at the stationary plate due to the primary and secondary flows is obtained in both the cases. It is found that the solution obtained by Laplace transform technique converges more rapidly than the general solution when time  $t$  is very small. Magnetic field retards the fluid flow in both the primary and secondary flow directions. Rotation retards primary flow whereas it accelerates secondary flow. There exists incipient flow reversal near the stationary plate on increasing rotation parameter  $K\gamma$ . Suction accelerates primary flow whereas it retards secondary flow. Injection retards both the primary and secondary flows.

## کلمات کلیدی:

Magnetohydrodynamic Couette flow, Primary and secondary flow, Rotation, Suction/injection

## لینک ثابت مقاله در پایگاه سیویلیکا:

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