

MHD FLOW OF AN IONIZED GAS IN A PARALLEL PLATE CHANNEL WITH POROUS LINING

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Abstract

Magnetohydrodynamic flow of an ionized gas in a parallel plate channel with porous lining is studied considering one of the walls to be lined with non-erodible porous material. The analysis uses Brinkman model in the porous medium and employs primary and secondary velocity slips at the interface in both partially and fully ionized cases. The influence of Hartmann number M and Hall parameter m on the flow field is studied graphically. It is found that the primary and the secondary velocity distributions in both partially ($s = 0$) and fully ($s = 0.5$) ionized cases decrease with increase in Hartmann number M . It is also found that Primary velocity decreases and secondary velocity increases in both partially and fully ionized cases with the increase in the Hall Parameter m .

Key Words : *Hall Currents, MHD, Ionized Gas, Porous Lining.*

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