

**MIXED CONVECTION IN A PLANE POROUS CHANNEL WITH WALL HEATING FROM
BELOW AND INTERNAL HEAT GENERATION**

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ABSTRACT The linear stability of a fully developed mixed convection flow in a horizontal porous channel bounded by impermeable plane and parallel walls is studied. The lower boundary wall is uniformly heated while the upper wall is adiabatic. An uniform internal heat source is present. The flow is modelled through Darcy's law and Oberbeck-Boussinesq approximation. The neutral stability curves are obtained numerically by employing a combined Runge-Kutta method and shooting method for the solution of the stability eigenvalue problem. The critical Darcy-Rayleigh numbers for the onset of convection are evaluated analytically by employing an asymptotic solution for vanishingly small wavenumbers.