Solution Of Two Dimensional Navier-Stokes Equation For Analysis Of Cavity Driven Problem

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Abstract In this paper the solution of Navier Stokes equation in two-dimensional Cartesian coordinates is used and for solution of these equations the method of vorticity – stream function is applied. A computer program has been written to solve cavity driven problem. This type of flow usually created in rivers by guiding systems utilizing transverse circulations i.e. submerged vanes. Similarly in the literature for analysis of this problem, two types of equations are solved. First, Transport equation and second, Poisson equation. In the former, method of (FTCS) (forward in time and central in space), is used for discretization while in the latter, the method of over relaxation is applied. Finally, the velocity vectors are obtained and consequently the transverse circulations are observed.

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