962-65-874 **Nihal J Siriwardana*** (siriward@lincolnu.edu), Department of Mathematics, 820 Chestnut Street, Jefferson City, MO 65109. *A Fourth Order Finite Difference Method for solving Navier Stokes Equations.*

A fouth order finite difference method based on central difference approximations for derivatives is derived to solve the system of Navier Stokes equations written in velocity pressure form. The method is tested on the bench mark problem known as the square cavity flow problem. The performance of the numerical scheme is analyzed for stability and convergence and the effectiveness of the simulation is discussed by comparing the results with the results from existing methods. (Received September 28, 2000)