

1163-35-874

**Luke Anthony McLennan\***, 2800 West Gore Blvd, Lawton, OK 73505, and **Narayan Thapa**, 2800 W. Gore Blvd, Lawton, OK 73505. *Numerical Solutions to Navier-Stokes Initial and Boundary Value Problems with External Force*. Preliminary report.

The Navier-Stokes Equations (NSE) are important partial differential equations which govern fluid dynamics. In this presentation, we discuss a method for numerically solving the 2D Navier-Stokes equations with an external force term. We use the vorticity-stream formulation of the NSE. The Finite Difference Method will be employed in order to solve the equations. We develop computational algorithms and display numerical results. In addition, we present and discuss the accuracy and stability of the implemented methods. (Received September 13, 2020)