

Meeting: 1005, Newark, Delaware, SS 14A, Special Session on Spectral and High-Order Discretization Methods for Partial Differential Equations

1005-65-13 **Daniel X Guo*** (guod@uncw.edu), 601 South College Road, Wilmington, NC 28403. *High-Order Fully Discretized Method for the Incompressible Navier-Stokes Equations.*

Based on the fractional-step method, we combine the fourth-order Runge-Kutta method and the matrix approximation to propose a new high-order method for fully discretized Navier-Stokes equations. This method is fourth-order in time and second-order in spatial variables. In this method, the boundary conditions of the intermediate velocity field and pressure are not required. We apply this method to the driven-cavity problem and some numerical results will be presented and compare with other methods. (Received December 14, 2004)