1056-65-2069   **Jia Liu*** (`jliu@uwf.edu`), Department of Mathematics and Statistics, 11000 University Pkwy, Pensacola, FL 32514. *HSS preconditioning techniques for the Navier-Stokes equations.* Preliminary report.

This presentation is concerned with the solution of steady-state incompressible flow problems using MAC discretizations and preconditioned Krylov subspace methods. Our emphasis is on preconditioners that can be thought of as approximate block factorizations of the discretized equations. Several such preconditioners for the Stokes and Oseen (linearized Navier–Stokes) problems in two and three dimensions are described and experimentally compared. Linearization and application of an implicit time steeping scheme results in a linear stationary problem of Oseen type. Resutls of several preconditioners for steady Oseen problem and unsteady Oseen problem are presented which illustrate HSS (Hemittion and Skew-Hemittion) preconditioner behaves best. (Received September 23, 2009)