

Meeting: 1002, Pittsburgh, Pennsylvania, SS 5A, Special Session on Multiscale Algorithms in Computational Fluid Dynamics

1002-65-152 **Anastasios Liakos*** (liakos@usna.edu), 308 Chauvenet Hall, Department of Mathematics, Annapolis, MD 21402, and **John Volker** (john@mathematik.uni-magdeburg.de), Institute of Analysis and Numerical Mathematics, Department of Mathematics, Otto-von-Guericke-University Magdeburg, D-39106 Magdeburg, PF 4120, Germany. *Slip with friction boundary condition for the Navier-Stokes equations – numerical studies for time dependent laminar flows*. Preliminary report.

We study the numerical solution of the time dependent Navier-Stokes equations with slip with friction boundary conditions. Numerical tests on two- and three-dimensional channel flows across a step using the slip with friction boundary condition on the bottom wall were performed. This paper describes some aspects of the implementation of these boundary conditions in the finite element discretization. The influence of the friction parameter on the position of the reattachment point and the evolution of the reattachment curve of the recirculating vortex was described and explained. (Received September 13, 2004)