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Doreen De Leon* (doreend1@csufresno.edu), CA. *A New Wavelet Multigrid Method Applied to the Incompressible Navier-Stokes Problem*. Preliminary report.

The standard multigrid procedure performs poorly or may break down when used to solve certain problems. The wavelet multigrid method solves this problem by using a wavelet transform and Schur complements to determine the coarse grid and intergrid transfer operators. This method, previously applied to diffusion and advection-dominated advection-diffusion problems, is modified for application to the steady-state incompressible Navier-Stokes equations. Numerical results demonstrate the effectiveness of the method applied to these problems. (Received September 12, 2007)