

# A Parallel System Solver for the Navier-Stokes Equations

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**Abstract:** We present an effective parallel solver for the saddle-point problems that arise in the numerical simulation of incompressible fluid flow. These saddle-point problems are solved using a nested iteration in which the outer iteration is a preconditioned Krylov subspace method, and the inner iteration is a Richardson scheme. We demonstrate the robustness of this algorithm, and its suitability for parallel computing platforms on model problems with varying viscosity coefficients.