

Preconditioning for the Stabilized Oseen Problem

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For the numerical treatment of the Navier-Stokes equations one needs fast iterative solvers for Oseen type problems. This can be achieved by preconditioning the saddle point problems with block diagonal or block triangular preconditioners.

We first present preconditioners from the literature and then develop some new ideas in conjunction with Local Projection Stabilization. Here we exploit the algebraic properties of the divergence stabilization in the preconditioner. Finally we give a few numerical comparisons.