

The semi-smooth Newton method for Solving the Stokes flow under the leak boundary condition

Abstract. We consider the Stokes equations under the leak boundary condition. Using the P1-bubble/P1 finite element approximation we get the algebraic optimization problem. Its optimality conditions are the starting point for the algorithm. We use an active set implementation of the semi-smooth Newton method to find the solution. Numerical experiments demonstrate the computational efficiency of an adaptive diagonal preconditioner.