

ON DOMAIN-ROBUST PRECONDITIONERS FOR THE STOKES EQUATIONS *

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Abstract. It is well known that the LBB-constant of the Stokes equations and its discrete counterpart degenerate on domains with high aspect ratio. For the solution of the corresponding linear system we propose two preconditioners that are proven to be independent of the aspect ratio of the underlying domain. Both preconditioners are based on a refined approximation of the Schur complement using a coarser grid.

Key words. Stokes equations, LBB constant, finite elements, mixed methods.

AMS subject classifications. 65N15, 65N30, 35Q30, 76D07.

*Received September 1, 2010. Accepted February 6, 2012. Published online on April 3, 2012. Recommended by T. Manteuffel.

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