

LOCAL AND PARALLEL FINITE ELEMENT ALGORITHMS FOR THE NAVIER-STOKES PROBLEM

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摘要

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LOCAL AND PARALLEL FINITE ELEMENT ALGORITHMS FOR THE NAVIER-STOKES PROBLEM

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Abstract Based on two-grid discretizations, in this paper, some new local and parallel finite element algorithms are proposed and analyzed for the stationary incompressible Navier-Stokes problem.

These algorithms are motivated by the observation that for a solution to the Navier-Stokes problem, low frequency components can be approximated well by a relatively coarse grid and high frequency components can be computed on a fine grid by some local and parallel procedure. One major technical tool for the analysis is some local a priori error estimates that are also obtained in this paper for the finite element solutions on general shape-regular grids.

Key words [Navier-Stokes problem](#) [Finite element](#) [Two-grid method](#) [Local and parallel algorithm.](#)

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