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Max-norm stability of low order Taylor-Hood elements in three dimensions

Johnny Guzmán*

Manuel Sánchez-Uribe[†]

Abstract

We prove stability in $W^{1,\infty}(\Omega)$ and $L^\infty(\Omega)$ for the velocity and pressure approximations, respectively, using the lowest-order Taylor-Hood finite element spaces to solve the three dimensional Stokes problem. The domain Ω is assumed to be a convex polyhedra.

Key words: maximum norm, finite element, optimal error estimates, Stokes.

Mathematics subject classifications (1991): 65N30, 65N15.

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*Division of Applied Mathematics, Brown University, Providence, RI 02912, e-mail: johnny_guzman@brown.edu

[†]Division of Applied Mathematics, Brown University, Providence, RI 02912, e-mail: manuel_sanchez_uribe@brown.edu