

Zhou, Aihui; Li, Jichun**The full approximation accuracy for the stream function-vorticity- pressure method.** (English) [Zbl 0823.65110](#)

Numer. Math. 68, No. 3, 427-435 (1994).

The authors consider the stream function-vorticity-pressure formulation of the Stokes equations posed on a two-dimensional domain and its discretization by finite elements. They derive some error estimates; although these derivations do not explicitly require convexity of the domain, they do require high regularity of the (exact) solution of the Stokes equations (e.g., velocity in H^k and pressure in H^{k-2} for $k \geq 4$).

Reviewer: [A.J.Meir \(Auburn\)](#)**MSC:**

- [65N30](#) Finite element, Rayleigh-Ritz and Galerkin methods for boundary value problems involving PDEs
- [76M10](#) Finite element methods applied to problems in fluid mechanics
- [65N15](#) Error bounds for boundary value problems involving PDEs
- [76D07](#) Stokes and related (Oseen, etc.) flows

Cited in **19** Documents**Keywords:**

stream function-vorticity-pressure formulation; Stokes equations; finite elements; error estimates

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