

Hughes, Thomas J. R.; Franca, Leopoldo P.; Mallet, Michel

A new finite element formulation for computational fluid dynamics. VI. Convergence analysis of the generalized SUPG formulation for linear time-dependent multidimensional advective-diffusive systems. (English) [Zbl 0635.76066](#)
Comput. Methods Appl. Mech. Eng. 63, 97-112 (1987).

[For part V see the authors, *ibid.* 59, 85-99 (1986; [Zbl 0622.76077](#)).]

An SUPG-type finite element method for linear symmetric multidimensional advective-diffusive systems is described and analyzed. Optimal and near optimal error estimates are obtained for the complete range of advective-diffusive behavior.

MSC:

- [76N10](#) Existence, uniqueness, and regularity theory for compressible fluids and gas dynamics
- [80A20](#) Heat and mass transfer, heat flow (MSC2010)
- [65Z05](#) Applications to the sciences
- [76R99](#) Diffusion and convection

Cited in **2** Reviews
Cited in **101** Documents

Keywords:

SUPG-type finite element method; linear symmetric multidimensional advective-diffusive systems; near optimal error estimates

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