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SUPG finite element computation of viscous compressible flows based on the conservation and entropy variables formulations. (English) [Zbl 0772.76032](#)
Comput. Mech. 11, No. 5-6, 300-312 (1993).

We present the SUPG-stabilized finite element formulations for the computation of viscous compressible flows based on the conservation of entropy variables. This article is a sequel to the one on inviscid compressible flows by Le Beau et al. [*G. J. Le Beau, S. E. Ray, S. K. Aliabadi and T. E. Tezduyar*, “SUPG finite element computation of compressible flows with the conservation and entropy variables formulations”, Univ. Minnesota Supercomput. Inst. Res. Rep. 92/26 (1992)]. For the conservation variables formulation, we use the SUPG stabilization technique introduced in *S. K. Aliabadi and T. E. Tezduyar* [“Space-time finite element computation of compressible flows involving moving boundaries and interfaces”, Univ. Minnesota Supercomput. Inst. Res. Rep. 92/95 (1992)], which is a modified version of the one described in Le Beau et al. (1992). The formulation is based on the entropy variables.

MSC:

76M10 Finite element methods applied to problems in fluid mechanics

Cited in **31** Documents

76N10 Existence, uniqueness, and regularity theory for compressible fluids and gas dynamics

Keywords:

adiabatic flat plate; compression corner; NACA 0012 airfoil; stabilization technique

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