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Tetrahedral finite element for dual analysis. (Éléments finis tétraédriques pour l'analyse duale.) (French. English summary) [Zbl 1226.76026](#)

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Summary: The error estimation by pure dual analysis requires two finite element computations. It is based on the results of displacement and equilibrium approaches of a given problem. It allows to compute the cumulated global discretization error of the two models by a simple comparison of the total energies computed using both methods. This paper presents the development of a new family of equilibrium type tetrahedral finite elements leading to statically admissible solutions of 3D finite element problems. Two examples of dual analysis using these elements are also presented.

MSC:

[76M10](#) Finite element methods applied to problems in fluid mechanics

Cited in **2** Documents

Keywords:

error estimation; 3D dual analysis; equilibrium model; tetrahedral finite element

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