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A rational approach for choosing stress terms for hybrid finite element formulations. (English) [Zbl 0661.73045](#)

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A new approach for choosing the stress terms for a hybrid stress element is based on the condition of vanishing of the virtual work along the element boundary due to the stress terms higher than constant and the additional incompatible displacement. Examples using 4-node plane stress elements have shown that when the incompatible displacements also satisfy the constant strain patch test the resulting elements will provide the most accurate solutions. Advantages of this approach for the formulation of an axisymmetric solid are also indicated.

MSC:

74S05 Finite element methods applied to problems in solid mechanics

74S30 Other numerical methods in solid mechanics (MSC2010)

74B10 Linear elasticity with initial stresses

Cited in **1** Review
Cited in **34** Documents

Keywords:

hybrid stress element; virtual work; incompatible displacement

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