Stress Reconstruction for the Nonconforming P2 Finite Element Method and A Posteriori Error Estimation

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We want to follow the framework given in [1] and present an a posteriori error estimator for the nonconforming P2 finite element method of the linear elasticity problem based on a nonsymmetric H(div)-conforming approximation of the stress tensor.

In [2] a nonconforming P2 finite element method was used with success to reconstruct an H(div)-conforming flux with application to a posteriori error estimation. We want to study the positive characteristics of nonconforming P2 elements in the framework of [1] and confirm the quality of our stress reconstruction and effectiveness of our error estimator with numerical examination of the Cooks membran problem. See also [3].

References:

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