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Averaging technique for FE – a posteriori error control in elasticity. I: Conforming FEM.

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Summary: Averaging techniques are popular tools in adaptive finite element methods for the numerical treatment of second-order partial differential equations, since they provide efficient a posteriori error estimates by a simple postprocessing. In this paper, the reliability of any averaging estimator is shown for low order finite element methods in elasticity. Theoretical and numerical evidence supports that the reliability is tip to the smoothness of given right-hand sides, and is independent of the structure of shape-regular mesh.

MSC:

74S05 Finite element methods applied to problems in solid mechanics
74B05 Classical linear elasticity

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