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An anisotropic nonconforming element for fourth order elliptic singularly perturbed problem

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Keywords: fourth order elliptic problem; singular perturbation problem; anisotropic nonconforming finite element method; double set parameter method; uniform convergence

Review text:

The authors consider a fourth order singular perturbation problem posed on two dimensional rectangular domain . An anisotropic nonconforming finite element scheme is presented to approximate the problem. The scheme is based on the use of a technique called the double set parameter method. Thanks to the use of a convenient choice for the first and the second set of parameters, a convergence of order one in the energy norm associated to the problem is proved uniformly with respect to the singular parameter. Numerical examples are presented to explain theoretical results

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