



A posteriori error analysis for elliptic variational inequalities of the second kind

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Abstract

This chapter derives the posteriori error estimates for the finite element approximation of elliptic variational inequalities of the second kind, by using the duality theory in convex analysis. An example in which the numerical performance of the adaptive refinement procedure based on the estimates is shown in the chapter. The results suggest that the adaptive procedure yields a reliable solution. The finite element method is the dominant numerical method for solving most problems in structural and fluid mechanics. A posteriori error estimates provide quantitative information on the accuracy of the solution and are the basis for the development of automatic, adaptive procedures for engineering applications of the finite element method.