

Siebert, Kunibert G.

An a posteriori error estimator for anisotropic refinement. (English) Zbl 0873.65098
Numer. Math. 73, No. 3, 373-398 (1996).

From the author's summary: Besides an algorithm for local refinement, an a posteriori error estimator is a basic tool of every adaptive method. Using information generated by such an error estimator the refinement of the grid is controlled. For second-order elliptic problems an error for anisotropically refined grids (like $n - D$ cuboidal and $3 - D$ prismatic grids) is presented. This error estimator gives correct information about the size of the error and generates information about the direction into which some elements have to be refined to reduce the error in a proper way. A number of numerical examples for $2 - D$ rectangular and $3 - D$ prismatic grids are presented.

Reviewer: [R.R.D.Lazarov](#) (College Station)

MSC:

- [65N15](#) Error bounds for boundary value problems involving PDEs
- [65N30](#) Finite element, Rayleigh-Ritz and Galerkin methods for boundary value problems involving PDEs
- [65N50](#) Mesh generation, refinement, and adaptive methods for boundary value problems involving PDEs
- [35J25](#) Boundary value problems for second-order elliptic equations

Cited in **25** Documents

Keywords:

adaptive finite elements; grid refinement; a posteriori error estimator; adaptive method; second-order elliptic problems; numerical examples

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