Electronic Transactions on Numerical Analysis.
Volume 23, pp. 38-62, 2006.
Copyright © 2006, Kent State University.
ISSN 1068-9613.

ETNA
Kent State University
etna@mcs.kent.edu

ISOTROPIC AND ANISOTROPIC A POSTERIORI ERROR ESTIMATION OF THE MIXED FINITE ELEMENT METHOD FOR SECOND ORDER OPERATORS IN DIVERGENCE FORM*

SERGE NICAISE† AND EMMANUEL CREUSÉ‡

Abstract. This paper presents an a posteriori residual error estimator for the mixed FEM of second order operators using isotropic or anisotropic meshes in $\mathbb{R}^d$, $d = 2$ or 3. The reliability and efficiency of our estimator is established without any regularity assumptions on the solution of our problem.

Key words. error estimator, stretched elements, mixed FEM, anisotropic solution.

AMS subject classifications. 65N15, 65N30.

*Received February 7, 2005. Accepted for publication August 4, 2005. Recommended by S. Brenner.
†MACS, Université de Valenciennes et du Hainaut Cambrésis, F-59313 - Valenciennes Cedex 09, France. (serge.nicaise@univ-valenciennes.fr).
‡MACS, Université de Valenciennes et du Hainaut Cambrésis, F-59313 - Valenciennes Cedex 09, France. (emmanuel.creuse@univ-valenciennes.fr).