Carlo Lovadina, Rolf Stenberg: Energy norm a posteriori error estimates for mixed finite element methods; Helsinki University of Technology Institute of Mathematics Research Reports A473 (2004).

Abstract: The paper deals with the a-posteriori error analysis of mixed finite element methods for second order elliptic equations. It is shown that a reliable and efficient error estimator can be constructed using a postprocessed solution of the method. The analysis is performed in two different ways; under a saturation assumption and using a Helmholtz decomposition for vector fields.

AMS subject classifications: 65N30

Keywords: mixed finite element methods, a-posteriori error estimates, post-processing.

Correspondence

Carlo Lovadina, lovadina@dimat.unipv.it, Dipartimento di Matematica, Università di Pavia and IMATI-CNR, VIa Ferrata 1, Pavia 27100, Italy,

Rolf Stenberg, rolf.stenberg@hut.fi, Institute of Mathematics, Helsinki University of Technology, P.O. Box 1500, 02015 HUT, Finland

This work has been partly supported by the European Project HPRN-CT-2002-00284 "New Materials, Adaptive Systems and their Nonlinearities. Modelling, Control and Numerical Simulation".

ISBN 951-22-7304-8 ISSN 0784-3143 HUT Mathematics, Sep 17, 2004

Helsinki University of Technology Department of Engineering Physics and Mathematics Institute of Mathematics P.O. Box 1100, 02015 HUT, Finland email:math@hut.fi http://www.math.hut.fi/