

Convergence of Adaptive Finite Element Methods for the p -Laplace Equation

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Abstract

We study adaptive finite element methods for the p -Laplacian Equation using piecewise linear, continuous functions. The error is measured by means of the quasi-norm of Barrett and Liu. We provide residual based error estimators without a gap between the upper and lower bound. We show linear convergence of the algorithm which is similar to the one of Morin, Nochetto, and Siebert. Moreover, we show that the algorithm produces (almost) optimal meshes with respect to the degree of freedom. This extends the results of Stevenson to the non-linear case. All results are obtained without extra marking for the oscillation.