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AN ADAPTIVE ALGORITHM WITH HIERARCHICAL B-SPLINES

We present and analyze an adaptive algorithm for elliptic equations using hierarchical B-splines, of any (fixed) order and maximal regularity. We first set the framework of approximation with hierarchical B-splines, and next develop an a posteriori error estimator based on solutions of discrete local problems. We next propose a refining method to increase the local resolution of the spaces and study a contraction property for Dörfler's marking strategy, which implies linear convergence of the adaptive method. This is one of the main ingredients towards optimality, which we discuss at the end.