Rate Optimality of Adaptive Algorithms

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Abstract: Four axioms (A1)–(A4) link estimators and distance functions on a set of admissible refinements together and imply optimality of a standard finite element routine on an abstract level with a loop: solve, estimate, mark, and refine. The presentation provides proofs and examples of the recent review due to C. Carstensen, M. Feischl, M. Page, and D. Praetorius: The axioms of adaptivity, Comput. Math. Appl. 67 (2014)1199-1253 and so discusses the current literature on the mathematics of adaptive finite element methods. The presentation concludes with an overview over several applications of the set of axioms. If time permits, some recent developments are discussed on ongoing joint work with Hella Rabus on separate marking.

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