

OPTIMALITY OF ADAPTIVE FEM FOR EIGENVALUE CLUSTERS

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ABSTRACT. We present recent results establishing optimality of standard adaptive finite element methods of arbitrary degree for eigenfunction computations for elliptic boundary value problems. Similar previous analyses have considered only lowest-order (piecewise linear) finite element spaces or multiple eigenvalues only. In contrast to previous results, our techniques also confirm that a critical input parameter in the adaptive FEM, the marking parameter, may be chosen independent of the target cluster being approximated. This portion of the talk is joint work with A. Bonito. Time permitting, we will also discuss similar results for adaptive computation of harmonic forms.

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