AN ADAPTIVE WEM ALGORITHM FOR SOLVING ELLIPTIC
BOUNDARY VALUE PROBLEMS IN FAIRLY GENERAL DOMAINS
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Abstract. In this paper we introduce a simple adaptive wavelet element
algorithm similar to the Cohen, Dahmen, DeVore algorithm (Adaptive
Comp., 70 (2001), 27–75). The main difference is that we do not assume
the knowledge of many constants and all right hand side coefficients with
respect to an infinite dimensional wavelet basis. The algorithm is easy
to implement and applicable to a large class of problems in fairly general
domains. The efficiency is illustrated by many 2D numerical examples
and compared with an adaptive finite element method.

Key words. Adaptive wavelet and finite element methods, elliptic oper-
ator equations.

AMS subject classifications. 65T60, 42C40, 65N30, 65N50, 65N55.

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