

NUMERICAL METHODS FOR ACCURATE
FINITE ELEMENT SOLUTIONS OF ELLIPTIC
BOUNDARY VALUE PROBLEMS CONTAINING
SINGULARITIES

Hoonjoo Kim, Sung-Jin Lee, and Hae-Soo Oh

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Abstract

The Method of Auxiliary Mapping (MAM), introduced by Babuška and Oh, was proven to be very successful in dealing with monotone singularities arising in two dimensional problems. In this paper, in the framework of the p -version of FEM, MAM is presented for one-dimensional elliptic boundary value problems containing singularities. Moreover, in order to show the effectiveness of MAM, a detailed proof of an error estimate is also presented, which gives a sharp error bound of MAM.