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SPECTRAL APPROXIMATION OF VARIATIONALLY FORMULATED EIGENVALUE PROBLEMS ON CURVED DOMAINS*

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To the memory of Professor Jorge D. Samur

Abstract. This paper is concerned with the spectral approximation of variationally formulated eigenvalue problems posed on curved domains. As an example of the present theory, convergence and optimal error estimates are proved for the piecewise linear finite element approximation of the eigenvalues and eigenfunctions of a second order elliptic differential operator on a general curved three-dimensional domain.

Key words. spectral approximation, eigenvalue problems, curved domains

AMS subject classifications. 65N15, 65N25, 65N30

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