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Approximation of eigenvalue problems with VEM

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The approximation of the eigenvalue problems with the virtual element method (VEM) often depends on stabilization parameters that are needed in order to deal with nonsingular matrices. It has been observed in [1] that the choice of the optimal parameters for the computation of the eigenvalues of the Laplace operator might not be an easy task. The virtual element approximation of eigenvalue problems for several applications have been investigated in recent years, and the question of the choice of the optimal parameters is only occasionally addressed (see [2] for a survey).

Here we present some new results on the approximation of the eigenvalue for the acoustic vibration problem and we show that in this case there is no need of using any stabilization for the stiffness and mass matrix. These results have been obtained, in collaboration with Daniele Boffi, Linda N. Alzaben and Andreas S. Dedner.

REFERENCES

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