On a class of fourth order Steklov eigenvalue problems

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We talk about some spectral stability results for a class of fourth order Steklov eigenvalue problems with respect to domain perturbation. In the first part of the talk, we explain what we mean by fourth order Steklov eigenvalue problems, we describe their physical interpretation and we show their relevant role in the study of comparison principles for the bilaplacian. The central part of the talk is devoted to the main stability results obtained in a recent work published in Calc. Var. PDE in 2019. We find sufficient conditions for the validity of the spectral stability with respect to domain perturbation and we show their optimality. Finally, we present some results about stability and instability for a suitable ”Navier-to-Neumann map” and for a class of Navier-type problems.

Based on a joint work with Pier Domenico Lamberti.

Keywords: Biharmonic operators, Steklov boundary conditions, spectral stability.