Eigenvalues of the Wentzell–Laplace operator and of the fourth order Steklov problems

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Abstract. We prove a sharp upper bound and a lower bound for the first nonzero eigenvalue of the Wentzell–Laplace operator on compact manifolds with boundary and an isoperimetric inequality for the same eigenvalue in the case where the manifold is a bounded domain in a Euclidean space. We study some fourth order Steklov problems and obtain isoperimetric upper bound for the first eigenvalue of them. We also find all the eigenvalues and eigenfunctions for two kind of fourth order Steklov problems on a Euclidean ball. This is a joint work with Qiaoling Wang.