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Geometric bounds for Steklov eigenvalues

Abstract

We present upper and lower bounds for Steklov eigenvalues on domains of \mathbb{R}^N of class C^2 which are compatible with the Weyl's asymptotics. The key result is a comparison of the Steklov eigenvalues with the eigenvalues of the Laplacian on the boundary obtained by applying Pohozaev-type identities on an appropriate neighborhood of the boundary and from the min-max principle. In particular, we find asymptotically sharp upper bounds on Riesz-means and the trace of the corresponding Steklov heat kernel.