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Shape optimization of the Steklov eigenvalues under various constraints

Many recent works deal with the shape optimization of the Steklov eigenvalues. There are only a few cases where the optimal shapes are explicitly known, which motivates the study of numerical algorithms that can approximate efficiently the optimal shapes. In this presentation theoretical aspects regarding the existence of optimal shapes and numerical aspects regarding the numerical computation of Steklov eigenvalues are shown. Algorithms for optimizing numerically functionals related to the Steklov eigenvalues under volume, diameter and convexity constraints are also presented.

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