
THE STEKLOV SPECTRUM OF CONVEX EUCLIDEAN POLYGONS

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We will first address upper bounds for the Steklov eigenvalues, normalized by perimeter, of convex polygons. We then turn to the inverse problem for the Steklov spectrum, establishing that generic convex n -gons are determined up to finite many possibilities among all n -gons by their Steklov spectra and seeking bounds on the size of isospectral sets. A sample result: Every convex n -gon all of whose interior angles are obtuse and whose sides lengths are incommensurable over $-1,0,1$ is uniquely determined by its Steklov spectrum among all n -gons.

Our main tools in addressing the inverse spectral problem are the very powerful Steklov spectral invariants found by Stanislav Krymski, Michael Levitin, Leonid Parnovski, Iosif Polterovich and David Sher and the new eigenvalue bounds mentioned above.

This work is joint with Emily Dryden, Javier Moreno, Julie Rowlett, and Carlos Villegas Blas.