Bounds on resonance-counting functions for obstacle scattering

Abstract:
Resonances are in some sense analogs of discrete eigenvalues for certain operators with continuous spectrum. Physically they may correspond to decaying waves.

For Euclidean scattering in odd dimensions, the resonances are points in the complex plane; in even dimensions, they lie on the logarithmic cover of the complex plane. For scattering by an obstacle, we consider the problem of counting the number of resonances in certain regions. In particular, we show that surprisingly there is a sharp lower bound on a resonance-counting function in even dimensions for which the analogous result is not yet known in odd dimensions.

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