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Entropy of ϵ-logarithmic quasimodes

Consider (M, g) a hyperbolic surface without boundary and its semiclassical Laplacian $-\hbar^2\Delta_g$. It has been shown that for sequences of $-\hbar^2\Delta_g$-eigenfunctions $\{\psi_\hbar\}_\hbar$ (with central energy $E > 0$) and corresponding semiclassical measure μ_{sc}, the Kolmogorov-Sinai entropy $H_{KS}(\mu_{sc})$ is bounded below by $\frac{1}{2}$.
In this talk, we discuss the semiclassical measures μ_{sc} of special sums of $-\hbar^2\Delta_g$ eigenfunctions, namely *ϵ-logarithmic quasimodes* $\Psi_\hbar$ (with central energy $E > 0$) where $\epsilon > 0$. We show that for any $c \in [0, \frac{1}{2}]$, there exists $\epsilon = \epsilon(c)$ and a family of $\{\Psi_\hbar\}_\hbar$ of ϵ-logarithmic quasimodes whose $H_{KS}(\mu_{sc})$ is bounded below by c. This continues/generalizes some work of Anantharaman-Koch-Nonnenmacher, amongst others.