
HIGH-ENERGY LAPLACE EIGENFUNCTIONS ON INTEGRABLE BILLIARDS

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In this talk, we consider a bounded domain in the Euclidean plane and examine the Laplace eigenvalue problem with specific boundary conditions. A famous conjecture by Berry suggests that in chaotic dynamical systems, eigenfunctions resemble random monochromatic waves; however, this behavior is generally not expected in integrable dynamical systems. Here, we explore the behavior of high-energy eigenfunctions and their connection to Berry's random wave model. In particular, we study a related property, which we call Inverse Localization, describing how eigenfunctions can approximate monochromatic waves in small regions of the domain.