

# The random wave conjecture and arithmetic quantum chaos

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Berry's random wave conjecture is a heuristic that the eigenfunctions of a classically ergodic system ought to display Gaussian random behaviour, as though they were random waves, in the large eigenvalue limit. We discuss two aspects of this problems for eigenfunctions of the Laplacian on a particular number-theoretic negatively curved surface: Planck scale mass equidistribution, and an asymptotic for the fourth moment.