

Fourier dimension of random images

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The Fourier dimension of a subset of the real numbers measures the fastest polynomial decay rate of the Fourier transform that can be achieved by a measure concentrated on the set. It is well known that the Fourier dimension of a set is always less than or equal to the Hausdorff dimension of the set, and that there are sets for which the inequality is strict. In this talk, I will describe a construction of a random diffeomorphism that can be used to show that every Borel set of real numbers is diffeomorphic to a set that has equal Fourier and Hausdorff dimensions.