

The random plane wave and related objects

1st, December

Abstract: The behaviour of eigenfunctions of the Laplacian on manifolds or domains, as the eigenvalue gets larger, is a topic of much interest. Many of the problems in the field are quite difficult. Berry conjectured in 1970s that for many purposes, such an eigenfunction behaves like a particular random function on the plane, known as the random plane wave.

From the probabilist's point of view, the random plane wave is just one stationary Gaussian process in the plane, although some features such as slow decay of correlations make it less easy to study. We explain some of the developments of the last 15 years on the probabilistic side.

The talk is expository and should be accessible to graduate students in analysis having some basic knowledge of probability.