

Department of Mathematics, BGU

Colloquium

On Tuesday, December 27, 2016

At 14:30 – 15:30

In Math 101-

Alon Nishry (University of Michigan)

will talk about

Gaussian complex zeros and eigenvalues - Rare events and the emergence of the ‘forbidden’ region

Abstract: The zeros of the Gaussian Entire Function and the infinite Ginibre ensemble are two natural examples of two-dimensional random point configurations whose distribution is invariant under rigid motions of the plane. Due to non-trivial correlations, the features of these two processes are quite different from the ones of the homogeneous Poisson point process. For this reason, these processes are of interest to analysts, probabilists, and mathematical physicists.

I will describe some of the things that we know about the structure and the statistics of these processes. Of particular interest are rare events, when the number of points in a certain domain is very different from its ‘typical’ value. An important example is the ‘hole’ event, when there are no zeros in a large disk. Conditioned on the hole event, the zeros exhibit a large forbidden region,

outside the hole, where there are very few zeros asymptotically. This is a new phenomenon, which is in stark contrast to the corresponding result known to hold for the Ginibre ensemble.

Based on a joint work with S. Ghosh (arXiv:1609.00084).