

Random Complex Zeroes

Mikhail Sodin

Abstract

Random complex zeroes (a.k.a. “chaotic analytic zero points”) are zeroes of a Gaussian entire function

$$f(z) = \sum_{k \geq 0} \zeta_k \frac{z^k}{\sqrt{k!}},$$

where ζ_k ’s are independent standard Gaussian complex random variables. The (random) zero set of this function is distribution invariant with respect to the isometries of the complex plane. In the talk, I am going to address two questions:

1. How to marry the Lebesgue measure with the random complex zeroes?
2. What is the size of fluctuations of the number of random complex zeroes in the disk of large radius?

The talk is based on joint works with Fedor Nazarov, Boris Tsirelson and Alexander Volberg.