

İSTANBUL ANALYSIS SEMINARS

DISTRIBUTION OF ZEROS OF RANDOM POLYNOMIALS

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Abstract: A classical result due to Hammersley asserts that the zeros of a random complex polynomial

$$P_N(z) = \sum_{j=0}^N c_j z^j$$

tend to accumulate on the unit circle as $N \rightarrow \infty$ if the coefficients c_j are i.i.d. complex Gaussian random variables with mean zero and variance one. In this talk, I shall discuss the asymptotic distribution of normalized zeros of random polynomials on \mathbb{C}^m under very general distributions that include standard real and complex Gaussians. I will explain how one can prove new results by means of pluri-potential theory. Namely, normalized zero measures of m i.i.d. random polynomials, orthonormalized on a regular compact set $K \subset \mathbb{C}^m$, are almost surely asymptotic to the equilibrium measure of K .

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