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Title:The Zeros of Gaussian Random Holomorphic Functions on \mathbb{C}^n and Hole Probability

Abstract: I consider a class of Gaussian random holomorphic functions, whose expected zero set is uniformly distributed over \mathbb{C}^n . This class is unique (up to multiplication by a non zero holomorphic function), and is closely related to a Gaussian field over a Hilbert space of holomorphic functions on the reduced Heisenberg group. For a random function of this class, I show that the probability there are no zeros in a ball of large radius r is bounded above by $e^{-Cr^{2n+2}}$, and bounded below by $e^{-cr^{2n+2}}$, for some constants c and C .