1142-41-8 **Aaron Michael Yeager***, 913 S. Orchard, Stillwater, OK 74074. *Zeros of random orthogonal polynomials with complex Gaussian coefficients.*

Let $\{f_j\}_{j=0}^n$ be a sequence of orthonormal polynomials where the orthogonality relation is satisfied on either the real line or on the unit circle. We study zero distribution of random linear combinations of the form

$$P_n(z) = \sum_{j=0}^{n} \eta_j f_j(z),$$

where $\eta_0, \ldots, \eta_n$ are complex-valued i.i.d. standard Gaussian random variables. Using the Christoffel-Darboux formula, the density function for the expected number of zeros of P_n in these cases takes a very simple shape. From these expressions, under the mere assumption that the orthogonal polynomials are from the Nevai class, we give the limiting value of the density function away from their respective sets where the orthogonality holds. In the case when $\{f_j\}$ are orthogonal polynomials on the unit circle, the density function shows that the expected number of zeros of P_n are clustering near the unit circle. To quantify this phenomenon, we give a result that estimates the expected number of complex zeros of P_n in shrinking neighborhoods of compact subsets of the unit circle. (Received May 30, 2018)