1145-60-69 **Aaron Michael Yeager***, 913 S. Orchard, Stillwater, OK 74074. *On the Variance of the Number of Roots of Complex Random Orthogonal Polynomials Spanned by OPUC.*

Let $\{\varphi_k\}_{k=0}^{\infty}$ be a sequence of orthonormal polynomials on the unit circle (OPUC) with respect to a probability measure μ. We study the variance of the number of zeros of random linear combinations of the form

$$P_n(z) = \sum_{k=0}^{n} \eta_k \varphi_k(z),$$

where $\{\eta_k\}_{k=0}^{n}$ are complex-valued random variables. Under the assumption that μ satisfies $d\mu(\theta) = w(\theta)d\theta$, with $w(\theta) \geq c > 0$ for $\theta \in [0, 2\pi)$, and the distribution for each η_k satisfies certain uniform bounds for the fractional and logarithmic moments, we show that the variance of the number of zeros of P_n in annuli that contain the unit circle is at most of the order $n\sqrt{n \log n}$ as $n \to \infty$. When μ is symmetric with respect to conjugation and in the Nevai class, and $\{\eta_k\}_{k=0}^{n}$ are i.i.d. complex-valued standard Gaussian, we prove a formula for the limiting value of variance of the number of zeros of P_n in annuli that do not contain the unit circle. (Received July 18, 2018)