1154-41-66 **Aaron Michael Yeager*** (ayeager@ccga.edu), 348 Terrapin Trail, Brunswick, GA 31525. *Real Zeros of Random Sums with I.I.D. Coefficients.*

Let $\{f_k\}$ be a sequence of entire functions that are real valued on the real-line. We study the expected number of real zeros of random sums of the form $P_n(z) = \sum_{k=0}^{n} \eta_k f_k(z)$, where $\{\eta_k\}$ are real valued i.i.d. random variables. We establish a formula for the density function ρ_n for the expected number of real zeros of P_n. As a corollary, taking the random variables $\{\eta_k\}$ to be i.i.d. standard Gaussian, appealing to Fourier inversion we recover the representation for the density function previously given by Vanderbei through means of a different proof. Placing the restrictions on the common characteristic function ϕ of $\{\eta_k\}$ that $|\phi(s)| \leq (1 + as^2)^{-q}$, with $a > 0$ and $q \geq 1$, as well as that ϕ is three times differentiable with each the second and third derivatives being uniformly bounded, we achieve an upper bound on the density function ρ_n with explicit constants that depend only on the restrictions on ϕ. As an application we take the spanning functions of P_n to be $f_k(z) = p_k(z)$, $k = 0, 1, \ldots, n$, where $\{p_k\}$ are Bergman polynomials on the unit disk. (Received July 29, 2019)