1165-60-198 **Christopher Michael Corley*** (christopher-corley@utc.edu), Department of Mathematics, 615 McCallie Ave., Chattanooga, TN 37403, and **Andrew Ledoan** (andrew-ledoan@utc.edu), Department of Mathematics, 615 McCallie Ave., Chattanooga, TN 37403. *The intensity of complex roots of random sums.* Preliminary report.

Let $\{a_j\}_{j=0}^N$ and $\{b_j\}_{j=0}^N$ be sequences of mutually independent and identically distributed, real, normal random variables with mean zero and variances $\{\sigma_{a_j}^2\}_{j=0}^N$ and $\{\sigma_{b_j}^2\}_{j=0}^N$. Let $\{f_j(z)\}_{j=0}^N$ be a sequence of given basis functions that are entire and real-valued on the real line. We give an exact formula for the intensity of complex roots of the random equation $\sum_{j=0}^N (a_j + ib_j) f_j(z) = K_1 + iK_2$, where K_1 and K_2 are constants independent of z, and apply this formula to a standard Brownian motion. We then consider the case when the variances are set to be one and study the resulting intensity function and its asymptotic behavior for the random Kac, Weyl and root-binomial polynomials. Moreover, we examine the special case when the basis functions are polynomials orthogonal on the real line and on the unit circle. (Received January 18, 2021)