

1167-11-88

Sumner Al Hamdani*, summera@mail.fresnostate.edu. *Zeros of a Binomial Combination of Chebyshev Polynomials.*

The sequence of Chebyshev polynomials of the second kind $\{U_m(z)\}_{m=0}^{\infty}$ is a well-known sequence of orthogonal polynomials whose zeros lie on the interval $(-1, 1)$ and are dense there as $m \rightarrow \infty$. For $0 < \alpha < 1$, we discuss the zeros of the sequence of polynomials $\{P_m(z)\}_{m=0}^{\infty}$ generated by the reciprocal of $(1-t)^\alpha(1-2zt+t^2)$ expanded as a power series in t . This sequence can equivalently be obtained from a linear combination of Chebyshev polynomials whose coefficients have a binomial form. We prove that the number of zeros of $P_m(z)$ outside the interval $(-1, 1)$ is bounded by a constant independent of m . (Received February 18, 2021)