Libby Farrell and Andres Zumba* (andreszumba@fresnostate.edu). Zero Distribution of a Sequence of Polynomials with a Higher Order Three Term Recurrence.

We study the zero distribution of a sequence of polynomials with the recurrence $P_m(z) = -B(z)P_{m-r}(z) - A(z)P_{m-n}(z)$ where $n$ and $r$ are relatively prime and both not equal to 1. We have shown that in the case that $n = 4$ and $r = 3$, the zeros will lie on the curve given by $\text{Im} \frac{A'(z)}{B'(z)} = 0$ and $\text{Re} \frac{A'(z)}{B'(z)} \geq 0$, except for values of $z$ which satisfy $B(z) = 0$. We also give results towards determining the zero distribution of the general recurrence. (Received August 03, 2018)