Khang D Tran* (khanget@mail.fresnostate.edu), Department of Mathematics, 5245 North Backer Avenue M/S PB108, Fresno, 93740, and Maverick Zhang. Linear combinations of polynomials with three-term recurrence.

We study the zero distribution of the sum of the first $n$ polynomials satisfying a three-term recurrence whose coefficients are linear polynomials. We also extend this sum to a linear combination, whose coefficients are powers of $az + b$ for $a, b \in \mathbb{R}$, of Chebyshev polynomials. In particular, we find necessary and sufficient conditions on $a, b$ such that this linear combination is hyperbolic. (Received September 12, 2019)