1172-30-88 **Igor E Pritsker***, igor@math.okstate.edu. *Integer polynomials with smallest norms.*

The study of polynomials with integer coefficients and small norms is an old problem originated in the work of Hilbert, Polya, Schur, Fekete, and others. We discuss the history of this problem and some applications to distribution of primes and approximation by integer polynomials. Integer Chebyshev problem remains open for the supremum norm on intervals of the real line, but we shall present its solution for some classes of lemniscates defined by irreducible polynomials. In fact, we consider a family of L_p norms defined with respect to the equilibrium measure of a lemniscate for $0 \leq p \leq \infty$, where $p = 0$ corresponds to the geometric mean (the generalized Mahler measure) and $p = \infty$ corresponds to the standard supremum norm. This special choice of the measure allows us to find an explicit form for the geometric mean of a polynomial, and estimate it via certain resultant. As a consequence, we find the smallest values of L_p norms, establish explicit polynomials of minimal norm, and show their uniqueness. (Received August 18, 2021)