1077-11-2313 **Kalyani K. Madhu*** (kmadhu@brockport.edu). *Prime Divisors of Certain Polynomial Orbits.*
Let f be a polynomial map over the rational numbers. We say a prime p divides the f-orbit of a point $a \in \mathbb{Q}$ if the p-adic valuation $v_p(f^n(a)) > 0$ for some n. Jones showed that, for certain families of quadratic polynomials over $\mathbb{Z}$, the set of prime divisors of any orbit has natural density zero.

We give a similar result regarding maps of the form $f(x) = x^m + c$ with some restrictions on $c \in \mathbb{Q}$. Let E_m be the set of primes congruent to 1 modulo m. Then the set of primes of E_m that divide the f-orbit of a fixed point a has natural density zero. In order to obtain this result, we show that maps of the form $f(x) = x^m + c$ are eventually stable. That is, there is $N \in \mathbb{N}$ such that $f^N(x) = \prod_{i=1}^{s} g_i(x)$, and $g_i \circ f^n(x)$ is irreducible for all $n \in \mathbb{Z}, n \geq 0$.

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