1050-11-129 **Rafe Jones***, College of the Holy Cross, Department of Math and CS, Worcester, MA 01610.
Prime Divisors in Arithmetic Dynamics.

Certain non-linear integer recurrence sequences, such as the Fermat numbers $F_n = 2^{2^n} + 1$, can be described as an orbit of an arithmetic dynamical system. In this talk, I'll discuss the case when the dynamical system is given by iteration of a quadratic polynomial f. For orbits of such a system, the set of primes dividing at least one term is a natural object of study: it loosely gives a measure of how close the terms in the sequence are to being prime. The density of this set can be measured in terms of arithmetic properties of the orbit of the critical point of f. I'll discuss some families of f where this leads to a proof that all orbits have a density zero set of prime divisors. (Received March 02, 2009)