1077-11-2109 **Jason Bell** and **Kevin Doerksen*** (kdoerkse@gmail.com). *On the prime divisors in zero orbits of families of commuting polynomials.* Preliminary report.

Let $(b_n) = (b_1, b_2, \dots)$ be a sequence of integers. A primitive prime divisor of the k-th term is a prime which divides b_k but does not divide any previous term in the sequence.

We consider a generalized notion of primitive prime divisors as it applies to families of commutative polynomials. Let $\Phi = \{\varphi_1, \dots, \varphi_k\}$ be a finite set of integer polynomials which are commutative with respect to composition. An element β is said to be in the forward orbit of 0 if there are integers $n_1, \dots, n_k$ such that

$$\beta = \varphi_1^{n_1}\varphi_2^{n_2}\dots\varphi_k^{n_k}(0),$$

We say that p is a primitive divisor of β if $p \mid \beta$ and p satisfies the following condition: if $p \mid \gamma$ for some $\gamma = \varphi_1^{\ell_1}\varphi_2^{\ell_2}\dots\varphi_k^{\ell_k}(0)$ where $\ell_i \leq n_i$ for all $i \leq k$ then in fact $\ell_j = n_j$ for all $j \leq k$.

In this talk, we consider families of commutative polynomials which all have zero linear term. We give an effective bound on the number of terms in the forward orbit of 0 which do not have primitive prime divisors. (Received September 21, 2011)