David Krumm* (dkrumm@cmc.edu). A local-global principle in the dynamics of polynomial maps. Preliminary report.

Let $K$ be a number field and let $f \in K[x]$ be a polynomial. For any nonnegative integer $n$, let $f^n$ denote the $n$-fold composition of $f$ with itself. If $	ilde{K}$ is a field containing $K$, we say that an element $\alpha \in \tilde{K}$ is periodic for $f$ if there exists a positive integer $n$ such that $f^n(\alpha) = \alpha$. In that case, the least such $n$ is called the period of $\alpha$. It is clear that if $f$ has a point of period $n$ in $K$, then it has a point of period $n$ in any extension of $K$; in particular, for every finite place $v$ of $K$, $f$ has a point of period $n$ in the completion $K_v$. In this talk we will discuss whether the converse holds: if $f$ has a point of period $n$ in every nonarchimedean completion of $K$, must it then have a point of period $n$ in $K$? (Received February 20, 2015)