1147-13-188 **Taran Funk** and **Thomas Marley*** (tmarley1@unl.edu), Department of Mathematics, 203 Avery Hall, University of Nebraska-Lincoln, Lincoln, NE 68588-0130. *Frobenius and homological dimensions of complexes.* Preliminary report.

Let R be a local ring of prime characteristic p and $f : R \to R$ the Frobenius map. For an integer $n > 0$ let ${}^nR$ denote the ring R viewed as an R-algebra via f^n. Let M be an R-complex such that $s := \sup \mathrm{H}_*(M)$ is finite.

We prove the following two results:

Theorem A: Suppose R is Cohen-Macaulay of multiplicity e. If for some $n \geq e$ one has $\mathrm{Tor}_i^R({}^nR, M)$=0 for d consecutive values of $i > s$, then M has finite flat dimension.

Theorem B: Suppose R is a complete intersection. If $\mathrm{Tor}_i^R({}^nR, M) = 0$ for some $n > 0$ and some $i > s$, then M has finite flat dimension.

Theorem A generalizes a result of C. Miller and Theorem B generalizes a result of L. Avramov and C. Miller, both of which were proved in the case M is a finitely generated module. (Received January 08, 2019)