1143-13-164 Nicholas Switala* (nswitala@uic.edu) and Wenliang Zhang. The stable part of the Matlis dual of an F-finite F-module. Preliminary report.

Let $k$ be an algebraically closed field of characteristic $p > 0$, and let $R$ be a formal power series ring over $k$. If $M$ is an $F$-finite $F$-module over $R$, we prove that the $\mathbb{F}_p$-dimension of the space of $F$-module homomorphisms $M \to E$ (where $E$ is the Matlis dualizing module over $R$) is the same as the $k$-dimension of the Frobenius stable part of the Matlis dual $D(M)$.

With “stable part” in place of “0th de Rham cohomology”, this is a positive-characteristic analogue of a recent result of Hartshorne and Polini on holonomic $D$-modules. This is work in progress with Wenliang Zhang. (Received August 08, 2018)