

1164-13-204

Olgur Celikbas, Arash Sadeghi and Yongwei Yao*, Department of Mathematics and Statistics, Atlanta, GA 30303. *Test properties of the Frobenius Endomorphism*. Preliminary report.

Let (R, \mathfrak{m}) be a local ring of prime characteristic p with $\dim(R) = d > 0$. For any R -module M and any natural number e , let eM denote the resulting R -module by restricting the scalars via the e -th iteration of the Frobenius endomorphism of R . In this talk, we discuss certain test properties of eM . In particular, we show that, with proper assumptions on R and M , if $\mathrm{Tor}_i^R(N, {}^eM)$ or $\mathrm{Ext}_R^i(N, {}^eM)$ vanishes for d many consecutive natural numbers i and for one $e \gg 0$, then $\mathrm{pd}(N) < \infty$; Similarly, if $\mathrm{Ext}_R^i({}^eM, N)$ vanishes for d many consecutive natural numbers i and for one $e \gg 0$, then $\mathrm{id}(N) < \infty$. (Received January 18, 2021)