1172-13-268 **Neil Epstein*** (`nepstei2@gmu.edu`). *Locally excellent positive characteristic regular rings are Frobenius intersection flat.*

Given a ring map $R \to S$, one asks: does the process of intersecting an arbitrary collection of submodules of an $R$-module $M$ commute with base change to $S$? If this holds for all finite $R$-modules $M$, we say the $R$-algebra $S$ is *intersection flat*. It is a proper generalization of the notion of flatness.

We prove the result in the title with several steps. First, we reduce the problem to the local case by showing that in the Noetherian case, intersection-flatness is a local property. Then we reduce to the complete case by proving a descent lemma for intersection-flatness which applies to Frobenius because of a Theorem of André and Radu. Finally, the complete case follows from a result of Hochster and Jeffries.

It then follows from a result of Sharp that $(\mathrm{R}_0)$ quotients of excellent regular rings admit big test elements. It likewise follows from Sharp's arguments that an $(\mathrm{R}_0)$ ring that is essentially of finite type over an excellent local ring will also have big test elements. We also obtain discreteness and rationality of F-jumping numbers of a principal ideal in a locally excellent regular ring, as well as a uniform (among localizations at maximal ideals) upper bound on HSL numbers in quotients of excellent regular rings. (Received August 31, 2021)