1146-13-75 **Sean K. Sather-Wagstaff*** (`ssather@clemson.edu`) and **Jonathan P. Totushek**.
Localizations of infinite projective dimension. Preliminary report.

Let R be a commutative noetherian ring. Results of Gruson-Raynaud, Jensen, and Osofsky show that if d is a nonnegative integer such that either R has Krull dimension at most d or $|R| \leq \aleph_d$, then every flat R-module has projective dimension at most d. In particular, if either of these conditions holds, then every localization of R has finite projective dimension. It is natural to ask whether the same conclusion holds more generally. We give a negative answer to this question by showing how a construction of Nagata produces a commutative noetherian ring such that every localization at a prime ideal has infinite projective dimension. The ring is particularly nice, being an integral domain such that every localization at a prime ideal is regular. (Received January 08, 2019)