1160-13-36 **Benjamin Briggs** and **Eloísa Grifo*** (eloisa.grifo@ucr.edu), eloisa.grifo@ucr.edu, and **Josh Pollitz**. *Constructing non-proxy small modules.* Preliminary report.

By Auslander-Buchsbaum-Serre, a local ring (R, m, k) is regular if and only if every finitely generated R-module has finite projective dimension. Moreover, the residue field k can be used as a test module: R is regular if and only if k has finite projective dimension. This characterization can be extended to the derived category $D^f(R)$, where every object is small if and only if R is regular.

Recent results of Pollitz extend this to complete intersections: R is a complete intersection if and only if every object in $D^f(R)$ is proxy small. In this talk, we will discuss a return to the world of R-modules, and search for finitely generated R-modules that are not proxy small whenever R is not a complete intersection. We give an algorithm to construct such modules in certain settings, including when R is equigenerated. (Received July 30, 2020)