Sean Sather-Wagstaff and Jonathan Totushek* (jonathan.totushek@ndsu.edu). Finiteness of Homological Dimensions with Respect to a Semidualizing Complex. Preliminary report.

A result of Foxby states: If there exists a complex with finite depth, finite flat dimension, and finite injective dimension over a local ring $R$, then $R$ is Gorenstein. In this talk we will investigate some homological dimensions involving a semidualizing complex and improve upon Foxby’s result by answering a question of Takahashi and White. In particular we prove for a semidualizing complex $C$, if there exists a complex with finite depth, finite $\mathcal{F}_C$-projective dimension, and finite $\mathcal{I}_C$-injective dimension over a local ring $R$, then $R$ is Gorenstein. (Received September 04, 2014)