1085-13-57 **Sean Sather-Wagstaff*** (`sean.sather-wagstaff@ndsu.edu`). *Weakly Spherical DG Modules over Koszul Complexes.* Preliminary report.

Let $(R, \mathfrak{m}, k)$ be a commutative local noetherian ring, and let $K = K^R(\mathbf{x})$ be the Koszul complex over R on the sequence $\mathbf{x} = x_1, \ldots, x_n \in \mathfrak{m}$. Given an integer $n \geq 1$, a homologically finite DG K-module X is *weakly n-spherical* if

$$\mathrm{Ext}^i_R(X, X) \cong \begin{cases} 0 & \text{for } i \neq 0, n \\ k & \text{for } i = 0, n. \end{cases}$$

(This definition is motivated by the notion of "spherical objects" from derived algebraic geometry.) For instance, if R is a DVR, then k is a weakly 1-spherical DG R-module. We prove (a) this is essentially the only way to construct weakly n-spherical DG R-modules, and (b) for $n \neq 2$, this is essentially the only way to construct weakly n-spherical DG K-modules. (Received August 26, 2012)