1031-13-93 **Andrew R. Kustin*** (kustin@math.sc.edu). *An explicit, characteristic-free, equivariant homology equivalence between Koszul complexes.*

Let E and G be free modules of rank e and g, respectively, over a commutative noetherian ring R. The identity map on $E^* \otimes G$ induces the Koszul complex

$$\to \mathrm{Sym}_m E^* \otimes \mathrm{Sym}_n G \otimes \bigwedge^p (E^* \otimes G) \to \mathrm{Sym}_{m+1} E^* \otimes \mathrm{Sym}_{n+1} G \otimes \bigwedge^{p-1} (E^* \otimes G) \to$$

and its dual

$$\ldots \to D_{m+1} E \otimes D_{n+1} G^* \otimes \bigwedge^{p-1} (E \otimes G^*) \to D_m E \otimes D_n G^* \otimes \bigwedge^p (E \otimes G^*) \to \ldots .$$

Let $\mathrm{H}_{\mathcal{N}}(m,n,p)$ be the homology of the top complex at $\mathrm{Sym}_m E^* \otimes \mathrm{Sym}_n G \otimes \bigwedge^p (E^* \otimes G)$ and $\mathrm{H}_{\mathcal{M}}(m,n,p)$ the homology of the bottom complex at $D_m E \otimes D_n G^* \otimes \bigwedge^p (E \otimes G^*)$. It is known that $\mathrm{H}_{\mathcal{N}}(m,n,p) \cong \mathrm{H}_{\mathcal{M}}(m',n',p')$, provided $m+m' = g-1$, $n+n' = e-1$, $p+p' = (e-1)(g-1)$, and $1-e \le m-n \le g-1$. In this talk we exhibit a complex $\mathbb{Y}$ and explicit quasi-isomorphisms from $\mathbb{Y}$ to the two complexes described above. (Received August 05, 2007)