1007-14-149   **Tom Braden*** (`braden@math.umass.edu`) and **Valery Lunts**. *Stanley's convolution and Koszul duality for dual affine toric varieties.*

Barthel-Brasselet-Fieseler-Kaup and Bressler-Lunts defined combinatorial sheaves on fans which model intersection cohomology on toric varieties (because of a result of Karu, this even makes sense for non-rational fans, when there is no toric variety). We use complexes of these sheaves to study more general perverse sheaves on toric varieties. Stanley's convolution identity for g-polynomials has a natural interpretation in this language: the multiplicity of simple objects in "standard perverse sheaves" on a toric variety X are given by intersection cohomology betti numbers on a dual toric variety Y.

This can be "lifted" from a numerical statement to a canonical, functorial correspondence between sheaves on X and Y. This is exactly analogous to the "Koszul duality" defined by Beilinson-Ginzburg-Soergel for Schubert-constructible sheaves on flag varieties, which lifted a convolution identity on Kazhdan-Lusztig polynomials analogous to Stanley's. (Received February 17, 2005)