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Free complexes on smooth toric varieties

Given a module M over the Cox ring of a smooth toric variety, one can consider free complexes that are acyclic modulo irrelevant homology, which we call free Cox complexes for M . These complexes have many advantages over minimal free resolutions over smooth toric varieties other than projective spaces. We develop this in detail for products of projective spaces. This is joint work with Daniel Erman and Gregory G. Smith.