Eleonore Faber, MI 48104, Greg Muller, MI, and Karen E Smith*, Mathematics Department, University of Michigan, Ann Arbor, MI 48109. Non-Commutative Resolutions of Toric Varieties.

Let R be the coordinate ring of an affine toric variety. We show that the endomorphism ring of R-module homomorphisms of A, where A is the (finite) direct sum of all (isomorphism classes of) conic R–modules, has finite global dimension. Furthermore, we show that this endomorphism ring is a non-commutative crepant resolution if and only if the toric variety is simplicial. For toric varieties over a perfect field k of prime characteristic, we show that the ring of k-linear differential operators on R has finite global dimension. (Received August 19, 2018)