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Claudia Miller* (clamille@syr.edu) and **Hamidreza Rahmati**. *Resolutions and partial progress towards dg-algebra structures for compressed Artinian algebras.*

We construct free resolutions of compressed Artinian graded algebra quotients of polynomial rings and give a method to reduce them to a minimal resolutions. Our result generalizes results of El Khoury and Kustin for Gorenstein algebras of even socle degree with a different proof.

Then we use this to show current progress towards constructing dg-algebra structures in the Gorenstein case. For this we will discuss two general homological tools less known in the commutative algebra world, namely of transferring A^∞ structures (and dg-algebra structures in nice situations) along homotopy equivalences and a tool for creating new homotopy equivalences from old ones. (Received August 17, 2019)