

# On DGAs with polynomial homology

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It is surprisingly hard to find non-trivial examples of DGAs whose homology is polynomial in one generator. I will discuss one such example, which is a derived quotient of a discrete ring by an odd prime. I will also give one reason why it is hard to find examples: If the homology of a DGA  $A$  is polynomial over a perfect  $\mathbb{F}_p$ -algebra and the underlying ring spectrum of  $A$  refines to an  $E_3$ -ring spectrum, then  $A$  must already be trivial in a certain sense.