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Cohomology over short Gorenstein local rings.

We identify a class of local rings (R, \mathfrak{m}) with $\mathfrak{m}^4 = 0$, exhibiting the Koszul like property that $H_R(-t) P_M^R(t)$ is a polynomial in $\mathbb{Z}[t]$ for all finite R -modules M . This class includes generic graded Gorenstein algebras of socle degree 3. We show that minimal free resolutions of finite modules over such rings admit Koszul syzygy modules. (Received August 24, 2009)