

## **Hidden Koszulity in commutative algebra (and beyond)**

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Many classes of local rings (such as Golod rings and complete intersections) exhibit Koszul-like phenomena in their homological algebra, despite being far from quadratic in any obvious sense. I'll talk about the sense in which these rings are secretly Koszul relative to a regular ring, and I'll explain how this is borne out in resolutions over these rings.

Classical Koszulity comes in two flavours: one which asks for linearity of resolutions with respect to a grading (developed by Priddy), and one which asks for linearity with respect to a filtration (developed by Iyengar and Herzog). The relative Koszul duality which we set up likewise comes in two flavours; the key is to identify the right filtration with which to measure linearity, which turns out to be a natural Eilenberg-Moore filtration.

This is all joint work with James Cameron, Janina Letz, Josh Pollitz, and Keller VandeBogert.