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Title: Koszul property and growth of deviations

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A positively standard graded ring is called **Koszul** if the residue field has a linear resolution. Recently this family of rings attracts attention due to their mysterious connections to different topics in commutative algebra such as Stilman's conjecture on projective dimension, properties of DG-algebras and also upper bounds for Castelnuovo-Mumford regularity. A Question-Conjecture by Conca asserts that the Betti numbers of the ideal of definition of a Koszul algebra have at most binomial growth. In this talk we settle Conca's conjecture for 3-generated ideals by connecting the question to the growth of deviations in the Tate resolution of the defining ideal. As well some uniform upper bounds for the Castelnuovo-Mumford regularity are presented.

This is joint work with A. Boocher and Srikanth B. Iyengar.