1171-13-166 Michael DeBellevue* (michael.debellevue@huskers.unl.edu), 431 E st., Nebrask, NE 68508. Graded Deviations and the Koszul Property. Preliminary report.

The graded deviations $\varepsilon_{ij}(R)$ of a graded ring R record the vector space dimensions of the graded pieces of a certain Lie algebra attached to the minimal resolution of the quotient of R by its homogeneous maximal ideal. Vanishing of deviations encodes properties of the ring: for example, $\epsilon_{ij}(R) = 0$ for $i \ge 3$ if and only if R is complete intersection and, provided R is standard graded, $\epsilon_{ij}(R) = 0$ for $i \ne j$ and implies R is Koszul. We extend this result by showing that if $\varepsilon_{ij}(R) = 0$ for $i \ne j$ and $i \ge 3$, then R is a quotient of a Koszul algebra by a regular sequence. This answers a conjecture by Ferraro. (Received August 10, 2021)