

1142-13-178

**Paolo Mantero** and **Matthew Mastroeni\*** (mmastro@okstate.edu). *Koszul algebras defined by four quadrics*. Preliminary report.

Let  $I$  be an ideal generated by quadrics in a standard graded polynomial ring  $S$  over a field. A question of Avramov, Conca, and Iyengar asks whether the Betti numbers of  $R = S/I$  over  $S$  can be bounded above by binomial coefficients on the minimal number of generators of  $I$  if  $R$  is Koszul. This question has been answered affirmatively for Koszul algebras defined by three quadrics and Koszul almost complete intersections with any number of generators. We discuss progress towards an affirmative answer to the above question in the case of four quadrics. In the process, we prove structure theorems for the possible height two ideals of four quadrics defining Koszul algebras. (Received September 02, 2018)