## 1171-13-216 Giulio Caviglia<sup>\*</sup>, gcavigli@purdue.edu, and Alessandro De Stefani. Bounds on the number of generators of prime ideals.

Let S be a polynomial ring over any field  $\Bbbk$ , and let  $P \subseteq S$  be a non-degenerate homogeneous prime ideal of height h. When  $\Bbbk$  is algebraically closed, a classical result attributed to Castelnuovo establishes an upper bound on the number of linearly independent quadrics contained in P which only depends on h. We significantly extend this result by proving that the number of minimal generators of P in any degree j can be bounded above by an explicit function that only depends on j and h. In addition to providing a bound for generators in any degree j, not just for quadrics, our techniques allow us to drop the assumption that  $\Bbbk$  is algebraically closed. By means of standard techniques, we also obtain analogous upper bounds on higher graded Betti numbers of any radical ideal. (Received August 13, 2021)