

1104-13-96

Craig Huneke, Paolo Mantero, Jason McCullough* (jmccullough@rider.edu) and
Alexandra Seceleanu. *On the Projective Dimension of Four Quadrics.* Preliminary report.

Let S denote a polynomial ring over a field k and let $I = (f_1, \dots, f_n)$ denote a homogeneous S -ideal. Set $d_i = \deg(f_i)$. Stillman posed the question as to whether the projective dimension of S/I , $\text{pd}(S/I)$, is bounded above by a formula depending only on d_1, \dots, d_n . The question remains open though special cases have been solved in the affirmative, notably the upper bound for quadrics given by Ananyan-Hochster. Even when upper bounds are known, they tend to be exponential in the number of generators and far from tight. In this talk I will describe how one can prove that the projective dimension of S/I , where I is generated by four quadrics is at most 6. Canonical examples show that this bound is optimal and gives a complete answer to Stillman's Question for this case. (Received August 24, 2014)