Harvard-M.I.T. Algebraic Geometry Seminar

SMALL SCHEMES, LOW REGULARITY AND VARIETIES OF MINIMAL DEGREE

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From an algebraic point of view the simplest projective subschemes are those whose homogeneous ideals are generated by quadrics with a long strand of linear syzygies. I will discuss geometric and combinatorial consequences from the presence of such a long strand, based on recent joint work of mine with David Eisenbud, Mark Green and Klaus Hulek. These results extend the Del Pezzo-Bertini classification of varieties of minimal degree, the characterization of these as the varieties of Mumford-Castelnuovo regularity 2, and the construction of 2-regular square-free monomial ideals by Fröberg.

I will also mention certain combinatorial regularity bounds for monomial embeddings of the projective space motivated by the previous discussion.

Tuesday, November 23th, 2004
3:00 p.m.
MIT Room 4–149

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