Toward a Higher Dimensional Matsusaka-Ran Criterion

Abstract:
A conjecture of Debarre predicts that the only subvarieties of ppav with minimal cohomology class are Brill-Noether loci in Jacobians and the Fano surface of line in the intermediate Jacobian of a cubic three fold. We present a work in progress with Luigi Lombardi in which we made some progress toward the conjecture. In particular we give a generalization to higher dimension of Matsusaka-Ran criterion.