

Harvard-M.I.T. Algebraic Geometry Seminar

CUBIC THREEFOLDS AND ABELIAN VARIETIES OF DIMENSION FIVE

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Let X be a smooth cubic threefold. Then, by a theorem of Mumford, the intermediate Jacobian JX is a principally polarized abelian variety of dimension 5 whose theta divisor has a unique singular point, which has multiplicity three. This talk describes joint work with R. Friedman, in which we prove a converse: if A is a principally polarized abelian variety of dimension 5 whose theta divisor has a unique singular point, which has multiplicity three, then A is the intermediate Jacobian of a smooth cubic threefold. The method of proof is to view A as a generalized Prym variety and to use this description to analyze the singular points of the theta divisor. Along these lines, I will also discuss work from my thesis, in which I prove a "Riemann singularity theorem" for Prym varieties.

Tuesday, March 8th, 2005

3:00 p.m.
Harvard Rm 507

<http://www-math.mit.edu/ags/>