Queen's Algebraic Geometry — Seminar —

Lines on Fermat Surfaces

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Abstract

Fermat surfaces are a classical object in algebraic geometry and number theory. For instance, their zeta-functions and unirationality is understood completely.

In this talk, we will consider divisors on Fermat surfaces — the most natural candidates being lines. Over the complex numbers, it is known when the Neron-Severi group of divisors up to algebraic equivalence is rationally generated by lines. However, it is unknown for degree at least 5 when the lines generate the Neron-Severi group integrally.

We will introduce new techniques to attack this problem involving supersingular reduction. As an application, we will give an affirmative answer for the Fermat quintic surface.

Monday, March 17, 2008
4:30pm – 5:30pm
319 Jeffery Hall