

Philadelphia Area Number Theory Seminar

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Full Degree Two Del Pezzo

Abstract: A smooth two dimensional variety X defined over a field k is called a *del Pezzo* surface if its anticanonical divisor $^{-(1)}X$ is ample. The *degree* d of a del Pezzo surface is the self intersection number of its canonical class and $1 \leq d \leq 9$. The most popular examples of del Pezzo surfaces are cubic surfaces because they are the zero sets of degree three homogeneous polynomials in four variables. Over algebraically closed fields, the geometry of del Pezzo surfaces is well understood. For example, we know exactly how many lines each surface contains based on the degree. Over finite fields, these lines may not be defined. In the rare case that they are all defined over the finite field, we call the surface split. Hirschfeld classified split del Pezzo surfaces of degree at least three whose points are all contained on the lines in the surface. We continue his work and begin the classification of split degree two del Pezzo surfaces over finite fields whose points are all on the fifty-six lines of the surfaces.

Wednesday, July 8, 2015

2:40–4:00PM

Bryn Mawr College

Department of Mathematics

Park Science Center **328**

Tea and refreshments at 2:20PM in Park 355