

Queen's Algebraic Geometry

— Seminar —

UNRAMIFIED BRAUER CLASSES ON CYCLIC COVERS OF THE PROJECTIVE PLANE

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Abstract

Let $X \rightarrow \mathbb{P}^2$ be a p -cyclic cover branched over a smooth, connected curve C of degree divisible by p , defined over a separably closed field of prime-to- p characteristic. We define a homomorphism $(\text{Pic } C / \langle L \rangle)[p] \rightarrow \text{Br } X[p]$ (where L is a fixed line in \mathbb{P}^2) which factors through $\text{Br } k(\mathbb{P}^2)$. In addition, the image contains all Brauer classes on X that are fixed by $\text{Aut}(X/\mathbb{P}^2)$. If $p = 2$, we give a geometric construction, which works over any field of characteristic not 2, that uses Clifford algebras arising from symmetric resolutions of line bundles on C to yield Azumaya representatives for the 2-torsion Brauer classes on X . We show that, when $p = 2$, both constructions give the same result. This generalizes work of van Geemen for degree 2 K3 surfaces with Picard rank 1. This is joint work with Colin Ingalls, Andrew Obus, and Ekin Ozman.

Monday 30 March 2015
16:30–17:30
319 Jeffery Hall