



Seminar

## K-Theory, Quadratic Forms and Number Theory

**Title:** Analogs of the Brauer–Siegel theorem for abelian varieties over global fields

**Speaker:** Professor Marc Hindry (Universite Paris Diderot)

**Date:** Wed 4th November 2009 at 3:00PM

**Location:** Mathematical Sciences Seminar Room

**Abstract:** The classical Brauer–Siegel theorem states that, for a sequence of number fields of fixed degree and discriminant going to infinity, the product of the class number by the regulator of units behaves asymptotically like the square root of the discriminant.

The analog we conjecture for abelian varieties is that for a sequence of abelian varieties of fixed dimension, over a fixed global field  $K$  and height going to infinity, the product of the cardinality of the Tate–Tate group by the Neron–Tate regulator behaves asymptotically like the exponential height.

We will define all the objects involved, explain the situation over number fields, where alas almost everything remains conjectural (it particular it relies on the Birch and Swinnerton–Dyer conjecture) and then concentrate on the case where  $K$  is the function field of a curve defined over a finite field where much more can be proven.

This is a joint work with Amílcar Pacheco (University of Rio de Janeiro).