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K-Theory, Quadratic Forms and Number Theory Seminar

**Professor Cornelius Greither (Universitaet der Bundeswehr
Muenchen)**

will speak on

**The Tate module of Deligne's 1 motive and class groups as
Galois modules**

Wed 25th November 2009 at 3:00PM

Location: Mathematical Sciences Seminar Room

We consider a G -Galois covering $X \rightarrow Y$ of curves over a finite field. Deligne defined a certain 1-motive in this context (it is not necessary to know anything about motives for this talk!), and the ℓ -adic Tate module M of this motive is a finitely generated free fZ_ℓ -module with action of G and Frobenius. It is closely linked to the ℓ -part of the class group of arX (the curve X base-changed to the algebraic closure of the base field), but it behaves better algebraically. In ongoing joint work, Popescu and I study M as a Galois module. Applications include the calculation of Fitting invariants of class groups of curves, and an a priori lower bound on class groups of some Fermat curves.

This talk is part of the **K-Theory, Quadratic Forms and Number Theory** series. For more, see <https://maths.ucd.ie/seminars>