

Séminaire de théorie des nombres

Le 09 janvier 2023 à 14h (PRG)

Motivic local systems on curves

Exposé de Joshua Lam
(Humboldt Universität, Berlin)

Résumé : I will discuss several results on local systems on curves which are "of geometric origin", i.e. the local system arises in the (Betti) cohomology of a family of varieties over the curve. For example, I'll discuss the result that only finitely many genus two curves admit rank two local systems of geometric origin, and similarly for several other topological type of curves (i.e. genus and number of punctures); this is very much in contrast with the situation in positive characteristic, where every curve over the algebraic closure of a finite field admits infinitely many such local systems. On the other hand, I'll talk about an analogous result in positive characteristic where we additionally bound the field generated by the traces of Frobenius elements. Time permitting, I will discuss what results are known or can be hoped for concerning trace fields of local systems on curves over finite fields.