Séminaire de théorie des nombres

Le 05 mai 2025 à 14h (Jussieu)

On ℓ-torsion in class groups of ℓ-th root extensions

Exposé de Jonathan Love
(Leiden University)

Résumé : Class groups of global fields are generally expected to be governed by the Cohen-Lenstra heuristics, but the behavior of the ℓ-torsion in class groups of degree-ℓ extensions usually behaves quite differently. We will consider the function field case : Let ℓ be a prime and C a curve of the form $y^\ell = f(x)$ over a finite field $\mathbb{F}_q$. As the polynomial $f(x)$ varies, what can we say about the structure of the $\mathbb{F}_q$-rational divisor classes of order ℓ on C ? We will discuss several constraints on this group, including a parity constraint on the ℓ-rank that has no analogue in the number field setting, and share some experimental observations about the distribution of groups that occur. This is joint work with Wanlin Li and Eric Stubley.