

Séminaire de théorie des nombres

Le 15 janvier 2024 à 14h (Jussieu)

Horizontal p-adic L-functions

Exposé de Asbjørn Nordentoft
(Orsay)

Résumé : Goldfeld's Conjecture predicts that exactly 50% quadratic twists of a fixed elliptic curve will have L-function vanishing at the central point. When considering the non-vanishing of higher order twists of elliptic curve L-functions, it has been predicted by David-Fearnly-Kisilevsky that 100% non-vanishing. Very little was previously known beyond the quadratic case as the problem lies beyond the current technology of analytic number theory. In this talk I will present a p-adic approach relying on the construction of a 'horizontal p-adic L-function'. This yields strong quantitative non-vanishing results for general order twists. In particular, we obtain the best bound towards Goldfeld's Conjecture for one hundred percent of elliptic curves (improving on a result of Ono). I will also present applications to simultaneous non-vanishing.

This is joint work with Daniel Kriz.