Séminaire de théorie des nombres

Le 28 septembre 2020 à 14h (BigBlueButton)

On Isolated Points of Odd Degree

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Résumé : Let C be a curve defined over a number field k. We say a closed point x on C of degree d is isolated if it does not belong to an infinite family of degree d points parametrized by the projective line or a positive rank abelian subvariety of the curve's Jacobian. There are only finitely many isolated points on C of any degree, and this collection can be difficult to identify explicitly, especially as the genus of C (and thus the possible degree of an isolated point) grows.

Motivated by the well-known problem of classifying torsion subgroups of elliptic curves over number fields, we will restrict to the case where C is the modular curve $X_1(N)$. Prior joint work with Ejder, Liu, Odumodu, and Viray showed that there are only finitely many elliptic curves with rational j-invariant which give rise to an isolated point of any degree on any modular curve of the form $X_1(N)$, assuming Serre's Uniformity Conjecture. In this talk, I will discuss a recent unconditional version of this result for isolated points of odd degree, which is joint work with David Gill, Jeremy Rouse, and Lori Watson.