Boston University Number Theory Seminar

Some advances in a conjecture of Watkins and an analogue over function fields

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Monday, October 2 at 4:00 pm
665 Commonwealth Avenue, CDS 548
Tea and cookies at 3:30

Abstract: In 2002, M. Watkins conjectured that for every elliptic curve defined over the rational numbers, its Mordell-Weil rank is at most the 2-adic valuation of its modular degree. This talk is structured in two main parts.

Firstly, I will present results and various approaches related to Watkins’s conjecture, demonstrating conditions under which an elliptic curve satisfies this conjecture. In the second part, I extend this conjecture to elliptic curves defined over function fields of positive characteristic. I will then provide examples where Watkins’s conjecture is verified, including a family of elliptic curves with unbounded rank. This work was part of my PhD thesis, which was supervised by Hector Pasten.