
The Lang-Trotter Conjecture

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Abstract

Abstract: For a prime p and fixed integers a and b , let $n(p)$ be the number of solutions (x, y) of the cubic $y^2 = x^3 + ax + b$ over the finite field \mathbb{F}_p and let $a(p) = p - n(p)$. In 1976, Serge Lang and Hale Trotter formulated a conjecture regarding the distribution of primes p for which $a(p) = A$ for a fixed integer A . This conjecture is widely open. In this talk we give an exposition of this conjecture and describe some of the work done in this topic over the last few decades. We also report on our recent joint work with James Parks (KTH Royal Institute of Technology-Sweden) on a version of this conjecture for two cubics (elliptic curves).