

1087-11-93

Chantal David and **Ethan Smith*** (ecsmith13@liberty.edu). *Group structures of elliptic curves over finite fields, II.*

If E is an elliptic curve over the finite field \mathbb{F}_p , then it is well known that as an abstract group $E(\mathbb{F}_p) \simeq \mathbb{Z}/m\mathbb{Z} \times \mathbb{Z}/mk\mathbb{Z}$ for some unique positive integers m and k . Given a group G of this shape, we consider the problem of determining the frequency to which the group G arises as the group of points on some elliptic curve over some prime finite field. Conditional upon a certain hypothesis concerning the distribution of primes in short intervals, we show an asymptotic formula for this problem when the exponent of the group is not too small compared to the size of the group. This is joint work with Chantal David. Time permitting, I will also briefly discuss recent progress (with V. Chandee, C. David, and D. Koukoulopoulos) on some unconditional results related to this problem. (Received November 29, 2012)