PENG-JIE WONG, National Center for Theoretical Sciences
Square-free orders for elliptic curves modulo p

Let E be an elliptic curve defined over $\mathbb{Q}$, and let $\bar{E}(\mathbb{F}_p)$ denote the mod p reduction of E. There is a question of finding the number of primes $p \leq x$ such that $|\bar{E}(\mathbb{F}_p)|$ is square-free, which appears as an intermediate problem between the cyclicity problem for $\bar{E}(\mathbb{F}_p)$ and Koblitz's conjecture on the primality of $|\bar{E}(\mathbb{F}_p)|$. In this talk, we will discuss Cojocaru's work and talk about some of the average results, improvements, and short interval variants for such a square-freeness problem.