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Elliptic curves with a given number of points modulo p

Let E be an elliptic curve, N a positive integer, and $M_E(N)$ the number of primes p for which the reduction of E modulo p possesses exactly N points over $\mathbb{F}_p$. We consider the problem of estimating $M_E(N)$. On average (over the set of all elliptic curves defined over $\mathbb{Q}$), we show upper bounds that are significantly better than the trivial bound. Under some hypotheses, we obtain an asymptotic formula for the average value of $M_E(N)$. This is joint work with Chantal David.