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The square sieve and the Lang-Trotter conjecture

Let E be an elliptic curve defined over the rationals and without complex multiplication. Let K be a fixed imaginary quadratic field. We use the square sieve to find nontrivial upper bounds for the number of primes p of ordinary reduction for E such that $Q(\pi_p) = K$, where π_p is the Frobenius endomorphism of E at p . This represents progress towards a 1976 Lang-Trotter conjecture.

(This is joint work with E. Fouvry and M. Ram Murty)