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The Lang–Trotter conjecture

Given a normalized Hecke eigenform f of weight k and level N, let $a_n(f)$ denote its n-th Fourier coefficient. The generalized Lang–Trotter conjecture predicts that for $k > 3$, and a given value c, the number of n such that $a_n(f) = c$, is finite. If c is odd and $N = 1$, we will prove this conjecture. By connecting this to Serre's epsilon conjecture, we resolve it for all levels of the form $2^a N_0$ with $N_0 = 1, 3, 5, 15$ or 17.

This is joint work with V. Kumar Murty.