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Kevin L James* (kevja@clemson.edu), BOX 340975, Clemson, SC 29634-0975. *Some recent averaging results related to the Lang-Trotter conjecture.*

Let E be an elliptic curve and let $a_p(E) = p + 1 - \#E(\mathbb{F}_p)$. For any integer r Lang and Trotter have conjectured that

$$\#\{p < X : a_p(E) = r\} \sim C_{E,r} \frac{\sqrt{X}}{\log X},$$

where $C_{E,r}$ is an explicit constant depending only on E and r . It has been proved by Fouvry and Murty and David and Pappalardi that a similar asymptotic holds if one averages over all elliptic curves. In this talk, we will discuss some recent averaging results related to the Lang-Trotter Conjecture. (Received September 11, 2006)