



Theoretical Statistics and Mathematics Unit

Seminar

Date: October 21, 2016

Time: 04:15 PM

Venue: L-Infinity, Stat-Math Unit (5th Floor, A.N. Kolmogorov Bhavan)

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Short average distribution of a prime counting function over
families of elliptic curves

Abstract

Let E be an elliptic curve defined over \mathbb{Q} and let N be a positive integer. Now, $M_E(N)$ counts the number of primes p such that the group $E_p(F_p)$ is of order N . In an earlier joint work with Balasubramanian, we showed that $M_E(N)$ follows Poisson distribution when an average is taken over a family of elliptic curve with parameters A and B where $A, B > N^{1/2} (\log N)^{1+\gamma}$ and $AB > N^{3/2} (\log N)^{2+\gamma}$ for a fixed integer l and any $\gamma > 0$. In this talk, we explain that the same result holds even if we take A and B in the range $\exp(N^{\epsilon^2/20l}) > A, B > N^\epsilon$ and $AB > N^{3/2} (\log N)^{6+\gamma}$ for any $\epsilon > 0$.

All are cordially invited