

The distribution of elliptic curves over finite fields

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We present a new approach to “distributions” of elliptic curves over finite fields in terms of random matrix theory, giving an interpretation for the probability that an isogeny class of elliptic curves satisfies a given property, following the work of Gekeler for the Lang—Trotter conjecture. We then use this random matrix interpretation to prove several average results for distributions associated to elliptic curves over finite fields in a unified framework.

This is joint work with D. Koukoulopoulos and E. Smith.

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