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Wei Ho* (who@math.columbia.edu). *How many rational points does a random curve have?*

Although algebraic curves are very well-studied objects in modern number theory and algebraic geometry, there remain many open questions about some of their most basic properties! In this talk, I will discuss the idea of rational points on a curve and indicate why this concept is particularly fascinating and rewarding for a certain class of curves called elliptic curves.

One of the most beautiful and useful features of an elliptic curve is that its set of rational points forms a finitely generated abelian group. How often is this group finite? If it is infinite, what is its rank?

The "minimalist conjecture," originating in work of Goldfeld from 1979, suggests that a "random" elliptic curve has a 50% chance of having only finitely many rational points. I will give an overview of recent results in this direction, led by the work of Bhargava and Shankar bounding the "average" rank of an elliptic curve. (Received September 20, 2012)