

Jean-Morlet Chair - Conference
Arithmetic Statistics - Statistiques arithmétiques

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Title: *Average Ranks of Elliptic Curves after p -Extension*

Abstract: As E varies among elliptic curves defined over the rational numbers, a theorem of Bhargava and Shankar shows that the average rank of the Mordell–Weil group $E(\mathbb{Q})$ is bounded. If we now fix a number field K , is the same true of $E(K)$? I will report on recent progress on this question, answering this question in the affirmative for certain choices of K . This progress follows from a study of certain local invariants of elliptic curves, which loosely describe the failure of Galois descent for the associated p -Selmer groups.