

Exposé court

105 *On ranks of quadratic twists of a Mordell curve*

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Ranks of elliptic curves is a classical topic and it has a vast literature in algebraic number theory. In this talk, we will consider the quadratic twists of the Mordell curve $E : y^2 = x^3 - 1$. For a square-free integer k , the quadratic twist is given by $E_k : y^2 = x^3 - k^3$. In the first part of this talk, we will see that there exist infinitely many k with more than one prime factors such that the rank of E_k is 0. Next, we will conclude by witnessing an infinite family of curves $\{E_k\}$ such that the rank of each E_k is positive.