

Some recent progress on the Birch–Swinnerton-Dyer conjecture

Christopher Skinner
Princeton, USA

Abstract

This talk will describe some recent work on the Birch–Swinnerton-Dyer conjecture, which famously asserts that the rank of the Mordell-Weil group of an elliptic curve E is equal to the order of vanishing of the Hasse-Weil L-function $L(E, s)$ of E at $s = 1$. Emphasis will be on results that pass from the rank of the Mordell-Weil group to the order of the L-function (the opposite direction to that of the celebrated works of Gross–Zagier and Kolyvagin) and on results about the conjectured value of the leading term of $L(E, s)$ at $s = 1$ (the Birch–Swinnerton-Dyer formula).