

abstract

JOINT IAS/PU NUMBER THEORY SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

Suppose E is a rational elliptic curve and p is a given prime. It is of interest to know that there exists a square free integer D such that the D -th quadratic twist E_D of E such that the p -Selmer group of E_D is trivial. The existence of such a D seems not yet known in general. It amounts to a nonvanishing statement in characteristic p for the special parts of the L -function of E and its quadratic twists.

In characteristic 0, the analogous result states that there exists a D such that E_D has rank zero. There are several apparently different proofs of this fact, due to Waldspurger, Bump-Friedburg-Hoffstein, and Murty-Murty.

In this talk, we'll revisit the proofs for the characteristic zero statement, and show how all the various proofs ultimately rely on one common ingredient. We will sketch a new approach result, which seems to be simpler than the others, and reveals some underlying algebraic structure that seems not to have been previously studied, and which seems well suited for applications in characteristic p .