Séminaire de théorie des nombres

Le 8 juin 2009 à 14h

Independence of modular points on elliptic curves

Exposé d'Alexandru Buium (University of New Mexico)

Résumé : Given a correspondence between a modular curve and an elliptic curve A we show that there are not too many relations among the CM-points of A. In particular we show that the intersection of any finite rank subgroup of A with the set of CM-points of A is finite. We further analyse this phenomenon by proving a local version of this global result with an effective bound and valid also for certain infinite rank subgroups. Furthermore we will give similar local results for intersections between subgroups of A and isogeny classes in A. The local results are proved using a technique based on "arithmetic differential equations". All of this is joint work with B. Poonen.