
RICHARD LEYLAND, Queen's University
Galois Representations of CM Elliptic Curves

In our research we study to the following problem inspired by Mazur: Let E be an elliptic curve with complex multiplication defined over a number field F and let N be a positive integer. We wish to determine all elliptic curves E'/F with $\text{Gal}(\bar{F}/F)$ -isomorphisms $E[N] \cong E'[N]$. In addition, we ask if there are any $\text{Gal}(\bar{F}/F)$ -isomorphisms that are not induced by F -rational isogenies. In this poster we review some of the known results regarding isogenies of CM elliptic curves and Galois representations of CM elliptic curves.