Mathematics, Statistics, and Computer Science **@ UIC**

Number Theory Seminar

Elliptic curves with 2-torsion contained in the 3-torsion field

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Abstract: There is a modular curve X'(6) of level 6 defined over Q whose rational points correspond to j-invariants of elliptic curves E over Q for which Q(E[2]) is a subfield of Q(E[3]). In this talk I will characterize the j-invariants of elliptic curves with this property by exhibiting an explicit model of X'(6). The motivation is two-fold: on the one hand, X'(6) belongs to the list of modular curves which parametrize non-Serre curves (and is not well-known), and on the other hand, the set of rational points of X'(6) gives an infinite family of examples of elliptic curves with non-abelian "entanglement fields," which is relevant to the systematic study of correction factors of various conjectural constants for elliptic curves over Q. This is based on joint work with J. Brau (Cambridge University, UK).

The seminar ends at 12:30.

Tuesday, September 2 at 11:00 AM in SEO 427