Departmental Colloquium

Divisibility and solvability in the arithmetic of genus one curves.

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Abstract: Genus one curves, defined over the rationals, need not have rational points. The set of all such curves, whose Jacobian is a fixed elliptic curve E, forms a group, called the Weil-Chatelet group. It has an important subgroup, the Tate-Shafarevich group, formed by those curves which have points over all completions of the rationals.

This talk will address two aspects of the arithmetic of genus one curves: (1) (with J. Stix) the divisibility of the elements of the Tate-Shafarevich group inside the Weil-Chatelet group; (2) (with A. Wiles) the existence of points defined over number fields with solvable Galois group over the rationals on genus one curves that correspond to elements of the Tate-Shafarevich group; we aim to extend this result to the whole Weil-Chatelet group.

Friday, February 23 at 3:00 PM in SEO 636