

NUMBER THEORY & COMBINATORICS SEMINAR

Monday – December 3, 2012

12:00 noon in E575

Speaker: MARK THOM

Title: SQUAREFREE VALUES OF TRINOMIAL DISCRIMINANTS

Abstract: The discriminant of a trinomial of the form $x^n \pm x^m \pm 1$ has the form $\pm n n^{\pm(n-m)} n - m m m$ when n and m are co-prime. We determine necessary and sufficient conditions for identifying primes whose squares never divide the discriminants arising from co-prime pairs (n, m) .

These conditions are adapted into an exhaustive search method, which we use to corroborate a heuristic estimate of the density of all such primes among the odd primes.

The same results are used to produce a heuristic estimate of the density of squarefree values of these discriminants.

We'll also look at an unlikely seeming family of divisors of the discriminants, arising from an elementary identity on them.

This is joint work with David Boyd and Greg Martin.