Thursday, February 26, 12:30 p.m. Jeffery 422                      CYMS Seminar
Speaker: Andrija Perunicic                                    Title: Counting Points via Frobenius on Twisted D-Modules

Abstract: I will demonstrate how to count points on certain weighted-projective hypersurfaces using a Lefschetz fixed point theorem. In particular, I will show how to recognize the cohomology of the hypersurface in terms of D-modules, and use this to calculate the trace of Frobenius appearing in the fixed-point theorem. The D-modules involved appear in a form of mirror symmetry called Berglund-Hubsch duality, so I will examine possible applications to arithmetic mirror symmetry.

Thursday, February 26, 5:30 p.m. Jeffery 118                    Math Club
Speaker: Ram Murty                                              Title: Fun with Linear Algebra: Dedekind’s Determinant Revisited

Abstract: In 1896, Dedekind wrote a letter to Frobenius asking the following question. Let G be a finite abelian group of order n and f a complex-valued function on G. Evaluate the determinant of the n by n matrix whose rows and columns are parametrized by the elements of G and whose (a,b)-entry is f(ab') where b' denotes the inverse of b. The correspondence between Dedekind and Frobenius led to the
creation of representation theory. In this talk, we will highlight this development as well as compare two other determinants in combinatorics and number theory that are similar and indicate by simple linear algebra how all of the determinants can be evaluated by a single glance.

**Friday, February 27, 2:30 p.m. Jeffery 234**  
Department Colloquium  
Speaker: Alia Hamieh  
Title: Non-Vanishing of Rankin-Selberg L-Functions

**Abstract:** In this talk, we discuss various results on the non-vanishing in p-adic families of the central values of anticyclotomic twists of L-functions associated to automorphic forms on GL(2).

**Friday, February 27, 4:00 p.m. Jeffery 319**  
Grad Seminar  
Speaker: Kannappan Sampath  
Title: Equidistribution and Weyl’s theorem

**Abstract:** We will study Weyl's theorem on equidistribution and the differencing technique introduced by Weyl to prove equidistribution results for specific sequences.

**Monday, March 2, 4:30 p.m. Jeffery 319**  
Algebraic Geometry Seminar  
Speaker: Colin Ingalls  
Title: Noncommutative resolutions of discriminants of reflection groups

**Abstract:** This is joint work with R. Buchweitz and E. Faber. Let W be subgroup of GL(V) generated by reflections. Let S = k[V] be the polynomial ring and let z in S cut out the hyperplane arrangement of mirrors in V. The discriminant is the image of the hyperplane arrangement in the quotient V/W which is cut out by z^2. Let A be the skew group algebra W \rtimes k[V] and let e be the idempotent of kG corresponding to the trivial representation. Our main result is that End_{S^W}(S/zS) = A/AeA forms a noncommutative resolution of the discriminant since it is Koszul, has global dimension dim(V) -1, and its centre S^W/(z^2) is polynomial functions on the discriminant.