


INFO SHEET

March 1, 2011

QUEEN'S UNIVERSITY AT KINGSTON
 Department of Mathematics and Statistics
<http://www.mast.queensu.ca>

CALENDAR		
Wednesday, March 2	Curves Seminar Time: 4:00 p.m. – 5:30 p.m. Place: Jeffery 319	Speaker: Mike Roth Title: Syzygies of algebraic varieties Abstract Attached
Thursday, March 3	Math Club Time: 5:30 p.m. – 6:30 p.m. Place: Jeffery 118	Speaker: Mike Roth Title: (some) Mathematics of doodling. Abstract Attached
Friday, March 4	Number Theory Seminar Time: 11:30 a.m. – 12:20 p.m. Place: Jeffery 422	Speaker: Hector Pasten, Queen's University Title: Heights in diophantine geometry Abstract Attached
Friday, March 4	Department Colloquium Time: 2:30 p.m. – 3:30 p.m. Place: Jeffery 234	Speaker: Ernst Kani, Queen's University Title: Euler's Idoneal Numbers and Some Generalizations Abstract Attached
Monday, March 7	Algebraic Geometry Seminar Time: 4:30 p.m. – 5:30 p.m. Place: Jeffery 319	Speaker: Valdemar Tsanov, Queen's University Title: Automorphic Cusp Forms and Cuspidal Singularities Abstract Attached

Items for the Info Sheet should reach Anne (burnsa@mast.queensu.ca) by noon on Monday. The Info Sheet is published every Tuesday.

Wednesday, March 2, 4:00 p.m. Jeffery 319
Curves Seminar

Speaker: Mike Roth

Title: Syzygies of algebraic varieties

Abstract: We will continue discussing the main problems of interest in the syzygies ----- of varieties.

Thursday, March 3, 5:30 p.m. Jeffery 118
Math Club

Speaker: Mike Roth

Title: (some) Mathematics of doodling

Abstract: This talk will explore some mathematical questions raised by doodling.

Friday, March 4, 11:30 a.m. Jeffery 422
Number Theory Seminar

Speaker: Hector Pasten

Title: Heights in diophantine geometry

I will give a short survey on the basic properties of heights on varieties over a number field, in particular heights on abelian varieties. Some applications will be given.

Friday, March 4, 2:30 p.m. Jeffery 234

Department Colloquium

Speaker: Ernst Kani

Title: Euler's Idoneal Numbers and Some Generalizations

Abstract: In trying to find large primes, Euler discovered in 1778 a class of numbers which he called *numeri idonei* (convenient numbers). To his great surprise he found that there were only 65 such idoneal numbers less than 10,000, and he conjectured that there were no others. This conjecture is still open. In this talk I will review what is known about idoneal numbers. In addition, I will explain how idoneal numbers arise in a problem in algebraic geometry, and how this leads to generalizations of idoneal numbers.

Monday, March 7, 4:30 p.m. Jeffery 319

Algebraic Geometry Seminar

Speaker: Valdemar Tsanov

Title: Automorphic Cusp forms and Cuspidal Singularities

Abstract: The purpose of this talk is to show that cusp forms and cusp singularities are not merely homonyms but are related on a deeper level. More specifically, we'll discuss the relation between Fuchsian triangle groups and their automorphic forms, and quasi-homogeneous singularities of affine plane curves. The prototypical example is the modular group $\mathrm{PSL}(2, \mathbb{Z})$: the quotient of the nonzero tangent bundle on the upper-half plane by the action of $\mathrm{PSL}(2, \mathbb{Z})$ is biholomorphic to the complement of the plane curve $z^3 - 27w^2 = 0$. This can be shown using the fact that the algebra of modular forms is doubly generated and $\Delta = g_2^3 - 27g_3^2$ is the cusp form of minimal degree. This result is generalized to include all (p, q, ∞) -triangle groups and, respectively, curves of the form $z^q + w^p = 0$, for p, q coprime. An interesting biproduct is a geometric structure on the complement of a (p, q) -torus knot. The proof uses ideas of Milnor and Dolgachev, which they introduced in their studies of the spectra of the algebras of automorphic forms of cocompact triangle groups (and, more generally, uniform lattices). It turns out that the same approach, with some modifications, allows to handle the cuspidal case.