



February 15, 2011

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

CALENDAR		
Wednesday, February 16	Statistical Methods Seminar Time: 3:30 p.m. Place: Jeffery 110	Speaker: Bin Dong Title: Empirical Likelihood Method for Ratio Estimation Abstract Attached
Wednesday, February 16	Curves Seminar Time: 4:00 p.m. – 5:30 p.m. Place: Jeffery 319	Speaker: Mike Roth Title: Syzygies of algebraic varieties: introduction of main problems Abstract Attached
Thursday, February 17	Math Club Time: 5:30 p.m. – 6:30 p.m. Place: Jeffery 118	Speaker: Greg Smith Title: Finding the right proof? Abstract Attached
Friday, February 18	Number Theory Seminar Time: 11:30 a.m. – 12:20 p.m. Place: Jeffery 422	Speaker: Adam Felix, Queen's University Title: A new Method related to Primitive Roots Abstract Attached
Friday, February 18	Department Colloquium Time: 2:30 p.m. – 3:30 p.m. Place: Jeffery 234	Speaker: George Haller, McGill University Title: A Variational Theory of Lagrangian Coherent Structures Abstract Attached
Monday, February 21	Family Day	University offices are closed.
Monday, February 28	Algebraic Geometry Seminar Time: 4:30 p.m. – 5:30 p.m. Place: Jeffery 319	Speaker: Milen Yakimov, Louisiana State University Title: Quantum nilpotent algebras and Schubert cells 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, February 16, 3:30 p.m. Jeffery 110

Statistical Methods Seminar

Speaker: Bin Dong

Title: Empirical Likelihood Method for Ratio Estimation

Abstract: Empirical likelihood is a powerful nonparametric method of statistical inference that have been widely used in the statistical literature. In this talk we investigate the merits of empirical likelihood on various estimation problems arising from diagnostic test likelihood ratios, baseline cumulative hazard ratios, as well as copula models. This is the PhD work under the supervision of Professor David E. Matthews from University of Waterloo.

Wednesday, February 16, 4:00 p.m. Jeffery 319

Curves Seminar

Speaker: Mike Roth

Title: Syzygies of algebraic varieties: introduction of main problems

Abstract: Details: For the rest of the semester the curves seminar will be devoted to studying ----- syzygies of algebraic varieties, from the cohomological point of view. The first lecture is an introduction to some of the main problems we will be considering

Thursday, February 17, 5:30 p.m. Jeffery 118

Math Club

Speaker: Greg Smith

Title: Finding the right proof?

Abstract: What is the value of having different proofs for the same mathematical fact? And how do you know when the proof you've found is "good enough"?

In this talk we'll look at five different proofs of the same elementary statement, each time understanding something different about the question.

Friday, February 18, 11:30 a.m. Jeffery 422

Number Theory Seminar

Speaker: Adam Felix

Title: A New Method related to Primitive Roots

Abstract: We will introduce a new method that allows us to resolve some previous difficulties in generalizing Artin's conjecture for primitive roots. It will allow us to introduce a whole new set of functions f such that $\sum_{p \leq x} f(i_a(p)) \sim c_a \pi(x)$, where c_a is a constant and $i_a(p)$ is the index of a in $(\mathbb{Z}/p\mathbb{Z})^*$.

Friday, February 18, 2:30 p.m. Jeffery 234

Department Colloquium

Speaker: George Haller

Title: A Variational Theory of Lagrangian Coherent Structures

Abstract: Lagrangian Coherent Structures (LCS) are distinguished invariant manifolds that govern the evolution of complex material patterns in moving fluids and solids. Examples of such patterns include oil spills, plankton populations, schools of fish and moving crowds. Because of their finite lifetime and aperiodic nature, LCS have been challenging to locate, predict or control.

In this talk, I describe a new variational theory that enables a mathematically rigorous extraction of LCS from physical flow data. In this approach, hyperbolic LCS are defined as invariant surfaces that extremize an appropriate finite-time normal repulsion or attraction measure in the governing dynamical system. Solving this variational problem leads to computable sufficient and necessary criteria for LCS. I also discuss constrained LCS problems, as well as the robustness of LCS under perturbations, such as numerical errors or data imperfection. Finally, I show applications to oceanic and atmospheric flow data.

Monday, February 28, 4:30 p.m. Jeffery 319

Algebraic Geometry Seminar

Speaker: Milen Yakimov

Title: Quantum nilpotent algebras and Schubert cells

Abstract: Quantized universal enveloping algebras of simple Lie algebras were studied in great detail in the last 25 years. By considering subalgebras of those De Concini, Kac, and Procesi defined quantizations of certain families of universal enveloping algebras of nilpotent Lie algebras. The latter are less well understood. We will discuss results for their spectra, and in particular a proof of a conjecture of Goodearl

and Lenagan which implies that the spectra of these quantum nilpotent algebras are normally separated. We will also prove that these algebras are catenary which is a quantum counterpart of Gabber's theorem that enveloping algebras of finite-dimensional solvable Lie algebras are catenary. The algebras under question can be viewed as quantizations of the algebras of functions on Schubert cells. This gives a relation between their spectra and open Richardson varieties.