

CALENDAR		
Wednesday, October 27	Curves Seminar Time: 3:30 p.m. – 5:00 p.m. Place: Jeffery 319	Speaker: Professor Luca Chiantini, University of Siena Title: Algebraic Statistics and the Geometry of Tensors Abstract Attached
Wednesday, October 27	Seminar on Free Probability and Random Matrices Time: 3:30 p.m. – 5:00 p.m. Place: Jeffery 102	Speaker: James Mingo, Queen's University Title: The Moebius Function and the Weingarten Function, Part II Abstract Attached (Note change of day)
Friday, October 29	Number Theory Seminar Time: 11:30 a.m. – 12:20 p.m. Place: Jeffery 422	Speaker: Adam Felix, Queen's University Title: Elliptic curve analogues of Fomenko's conjecture Abstract Attached
Friday, October 29	Department Colloquium Time: 2:30 p.m. Place: Jeffery 234	Speaker: Boris Levit, Queen's University Title: Nonparametric estimation in the white Gaussian noise: some new results and open questions Abstract Attached
Monday, November 1	Algebraic Geometry Seminar Time: 4:30 p.m. – 5:30 p.m. Place: Jeffery 319	Speaker: Gregory G. Smith, Queen's University Title: Eulerian numbers and Laurent polynomials Abstract Attached
Monday, November 1	Seminar on Free Probability and Random Matrices Time: 4:30 p.m. – 6:00 p.m. Place: Jeffery 102	Speaker: Michael Brannan, Queen's University Title: Quantum symmetries and a strong form of Haagerup's inequality 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, October 27, 3:30 p.m. Jeffery 319
Curves Seminar

Speaker: Professor Luca Chiantini

Title: Algebraic Statistics and the Geometry of Tensors

Abstract: The first part of the talk will be devoted to a short discussion of the foundations of Algebraic Statistics. Mainly I will show how some problems on random variables can be rephrased in terms of the Geometry of subvarieties in some space of tensors.

The second part will be devoted to the introduction of some geometric techniques for the study of secant varieties, and their application to the identifiability of models.

Wednesday, October 27, 3:30 p.m. Jeffery 102
Seminar on Free Probability and Random Matrices

Speaker: James Mingo

Title: The Moebius Function and the Weingarten Function, Part II

Abstract: Two of the most important functions in free probability are the Moebius function and the Weingarten function. The Moebius function is used to write cumulants in terms of moments and the Weingarten function is used to calculate integrals against the Haar measure of the unitary group $U(n)$.

I will explain the background to these functions and show how they are related by a simple equation.

Friday, October 29, 11:30 a.m. Jeffery 422

Number Theory Seminar

Speaker: Adam Felix

Title: Elliptic curve analogues of Fomenko's conjecture

Abstract: I will discuss an elliptic curve analogue of Fomenko's conjecture. In my previous talk, we derived several results and a necessary divisibility criterion. We now extend this to the elliptic curve case.

Friday, October 29, 2:30 p.m. Jeffery 234

Department Colloquium

Speaker: Boris Levit

Title: Nonparametric estimation in the white Gaussian noise: some new results and open questions

Abstract: We will discuss some explicit formulas in the minimax estimation in the white Gaussian noise, for infinite dimensional ellipsoidal and cuboidal functional classes. Provided the classes are properly calibrated effecting their respective embeddings, these results allow a useful numerical comparison of different functional classes, including "very smooth" ones vs. "barely smooth". This type of comparison provides a few tips for a better understanding of directions in which future research in nonparametric estimation may be going. In particular, some problems of immediate interest will be proposed.

Monday, November 1, 4:30 p.m. Jeffery 319

Algebraic Geometry Seminar

Speaker: Gregory G. Smith

Title: Eulerian numbers and Laurent polynomials

Abstract: Duistermaat and van der Kallen prove that there are no nontrivial Laurent polynomials all of whose powers have a zero constant term. Motivated by this result, Sturmfels asks for an effective version: Can we enumerate the Laurent polynomials that have the longest possible sequence of powers with zero constant terms? In this talk, we'll show that the attractively simple answer is given by the Eulerian numbers. The proof involves reinterpreting the problem in terms of toric geometry.

Monday, November 1, 4:30 p.m. Jeffery 102

Seminar on Free Probability and Random Matrices

Speaker: Michael Brannan

Title: Quantum symmetries and a strong form of Haagerup's inequality

Abstract: Haagerup's inequality is an important inequality in the field of operator algebras, having many interesting and surprising applications. In this talk we will give an overview of Haagerup's inequality and its connection to free probability theory. We will then go on to outline the proof of the following new result: Consider an n -tuple of operators in a C^* -probability space whose joint $*$ -distribution possesses a certain degree quantum symmetry - namely we require that the $*$ -distribution be invariant under the operation of free complexification and the natural coaction of the hyperoctahedral quantum group. Then it follows that the non-self-adjoint operator algebra generated this family always satisfies a strong form of

Haagerup's inequality.

We will conclude by showing how this result generalizes work of Kemp and Speicher (2007) on strong Haagerup inequalities for $*$ -free, identically distributed families of R -diagonal operators, and by discussing some applications to strong Haagerup inequalities for free unitary quantum groups.