



# INFO SHEET

June 28, 2011

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

CALENDAR		
<b>Wednesday, June 29</b>	<b>Summer Number Theory Seminar</b>  Time: 3:00 p.m. – 4:00 p.m. Place: Jeffery 422	<b>Speaker:</b> R. Balasubramanian, IMSC, India <b>Title:</b> Catalan's conjecture in imaginary quadratic fields  <b>Abstract Attached</b>
<b>Friday, July 1</b>	<b>Canada Day</b>	University offices will be closed
<b>Thursday, July 7</b>	<b>CYMS Seminar</b>  Time: 1:00 p.m. – 3:00 p.m. Place: Jeffery 422	<b>Speaker:</b> Ken-Ichiro Kimura, University of Tsukuba and Queen's University <b>Title:</b> Conjectures of Beilinson and Bloch on special values of L-functions  <b>Abstract Attached</b>
<b>Monday, July 11</b>	<b>Statistics Seminar</b>  Time: 11:00 a.m. Place: Jeffery 225	<b>Speaker:</b> Patrick Flandrin, CNRS, France <b>Title:</b> Shared bicycles: A data analysis perspective  <b>Abstract Attached</b>
<b>Thursday, July 14</b>	<b>CYMS Seminar</b>  Time: 1:00 p.m. – 3:00 p.m. Place: Jeffery 422	<b>Speaker:</b> Yasuhiro Goto, Hokkaido University of Education <b>Title:</b> Calculations on K3 surfaces with involution  <b>Abstract Attached</b>
<b>Monday, July 25</b>	<b>Conference Room</b>  Time: 10:00 a.m. Place: Jeffery 521	<b>Ph.D Oral Student:</b> James Chou <b>Title:</b> Constructing pairing-friendly algebraic curves of genus 2 with small $p$ - value  <b>Supervisor:</b> E. Kani

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

## Wednesday, June 29, 3:00 p.m. Jeffery 422

## Summer Number Theory Seminar

Speaker: R. Balasubramanian

Title: Catalan's conjecture in imaginary quadratic fields

**Abstract:** In 1844 Eugene Charles Catalan conjectured that equation  $x^m - y^n = 1$  has only two nontrivial solutions  $(x, y, m, n)$  in integers, viz,  $(\pm 3, 2, 2, 3)$ . An essential ingredient in this direction was developed by J. W. S. Cassels, who proved that when  $m$  and  $n$  are odd primes then any solution  $(x, y, m, n)$  satisfies  $m|y$  and  $n|x$ . Equipped with Cassels' criterion Preda Mihailescu used the theory of cyclotomic fields (annihilator of class groups) in ingenious way to settle the problem in 2002. We have obtained Cassels' criteria when  $x$  and  $y$  are allowed to take values in the ring of integers of an imaginary quadratic fields with class number  $1$ . Depending on time we may highlight on further strategy for solving Catalan's conjecture for these number fields.

**Thursday, July 7, 1:00 p.m. Jeffery 422**

**CYMS Seminar**

Speaker: Professor Ken-Ichiro Kimura

Title: Conjectures of Beilinson and Bloch on special values of L-functions

**Abstract:** In the first part I will explain about L-functions of algebraic varieties over number fields. In the second part I will talk about the conjectures of Beilinson-Bloch on special values of L-functions. I hope to have time to explain about some evidences for the conjectures.

**Monday, July 11, 11:00 a.m. Jeffery 225**

**Statistics Seminar**

Speaker: Patrick Flandrin

Title: Shared bicycles: A data analysis perspective

**Abstract:** Community shared bicycle systems, such as the Vélo'v program launched in Lyon in May 2005, are public transportation facilities that can be studied as a complex system. They generate digital footprints that reveal the activity in the city over time and space, making possible a quantitative analysis of movements of their users. A careful study relying on nonstationary statistical modeling and data mining permits first to model the time evolution of the dynamics of movements with Vélo'v in terms of cyclostationarity over the week, with nonstationary evolutions over larger time-scales, and second to disentangle the spatial patterns to understand and visualize the flows of Vélo'v bicycles in the city. Combined with socio-economic data, this study also gives insights on the social behaviors of the users of this intermodal transportation system, the objective being to help in designing and planning policy in urban transportation.

Biography: Patrick Flandrin is a CNRS Senior Researcher, working in the Physics Department of ENS de Lyon, France. His research interests are mostly in nonstationary signal processing (time-frequency/time-scale methods), scaling processes and complex systems. He published over 250 journal or conference papers in those areas, contributed several chapters to collective books and authored one book. He has been awarded the Philip Morris Scientific Prize in Mathematics (1991), the SPIE Wavelet Pioneer Award (2001), the Prix Michel Monpetit from the French Academy of Sciences (2001) and the Silver Medal from CNRS (2010). Fellow of IEEE (2002) and EURASIP (2009), he has been elected Member of the French Academy of Sciences in 2010.

**Thursday, July 14, 1:00 p.m. Jeffery 422**

**CYMS Seminar**

Speaker: Yasuhiro Goto

Title: Calculations on K3 surfaces with involution

**Abstract:** According to Nikulin, K3 surfaces with involution are classified by a triplet of three geometric invariants. Borcea calculated these invariants for a class of K3 surfaces in weighted projective 3-spaces. We review his calculations in detail and find a similar result for another class of K3 surfaces.