



Newsletter

Winter 2009

AARMS Summer School 08 and 09



*Participants in the 2008 AARMS Summer School
in Fredericton*

The seventh annual AARMS Summer School was held at UNB-Fredericton July 13 to August 9, 2008. We offered four demanding graduate level courses: Computational Methods for PDES, by Anne Bourlioux, Université de Montréal (assisted by her student Pascal Turbis); Tropical Geometry by Diane Maclagan, University of Warwick; Mathematical Finance, by Mark Reesor, University of Western Ontario; and Representation Theory of Algebras by Ralf Schiffler, University of Connecticut.

More than 30 students took classes; although most were based at Canadian universities, we were happy to welcome young mathematicians from Mexico, Brazil, Jamaica, Russia, England, the Netherlands and the United States.

The next Summer School runs July 13 to August 7, 2009. We will then offer Algebraic Topology by Gustavo Granja (Lisbon); Topological Combinatorics by Daniel Matei (Bucharest); Introduction to Quantum Computing by David Kribs (Guelph); and Cryptography by Mike Jacobson (Calgary).

Barry Monson, Summer School Director

News from the Atlantic Algebra Centre

The second year of the Atlantic Algebra Centre (AAC) culminated in an International workshop "Graded Algebras and Superalgebras" at Memorial University (Aug 29 - Sept 2, 2008) attracting mathematicians from 10 different countries with more than 20 lectures and research talks.

The third year started with a mini course by the Fellow of Bulgarian Academy of Sciences, Professor Vesselin Drensky (Sept 5 - 10, 2008) entitled "Introduction to PI-Algebras". Another mini course "Introduction to Affine Group Schemes" was delivered (Nov - Dec 2008) by Dr Mikhail Kotchetov of MUN. The mini courses were attended by honors, MSc and PhD students, pdfs and faculty.

AAC also hosted the VI Annual meeting "Combinatorial Algebra meets Algebraic Combinatorics" (Jan 16-18, 2009), attended by 22 mathematicians from Canada, Slovenia and USA. It was organized jointly with Dalhousie (Dr Sara Faridi) and had several speakers and participants from the universities of Atlantic Canada.

Future plans include the 3rd Undergraduate Algebra Competition (March 2009) and the mini course "Algebraic Coding Theory" by Professor Sergio Lopez from University of Ohio, March 30-April 3, 2009. In May 2009 AAC will host a mini course "Nonassociative Algebras" by Professor Alberto Elduque from University of Zaragoza, Spain. As usual, we will be happy to provide partial support to the students from Atlantic Canada.

In June 2009 AAC organizes an International Workshop/Core session of Summer CMS meeting "Groups and Hopf Algebras".

Yuri Bahturin, AAC Director

News

Grade 12 Mathematics Exam Workshop Project 2008

The first workshop in this series was held in 2005 and most participating teachers were from District 18 (Fredericton and surroundings). The project has expanded since then and gone through several changes of name and focus.

The goals of the project are simple: to provide a forum where teachers can participate in preparation of examination problems and grading schemes which they consider appropriate to use in final examinations for Math 120 (Advanced math with an introduction to calculus) and Math 122 (Trig and 3-space); to provide feedback to students, in June, about their readiness for post-secondary mathematics; to provide feedback to teachers. Students who score at least 70% on one of the sample exam papers may request exemption from the mathematics placement tests at UNB, Mount Allison or Saint Mary's University.

The New Brunswick Department of Education supports the concept of a workshop to prepare item banks of examination questions, but does not support a common examination.

Some school districts are reluctant to permit participation in a project which they perceive as a common examination prepared by university professors. We trust that word will spread that teachers have ownership of this project. The papers really are prepared - and critiqued - by high school teachers. UNB provides editorial, type setting and distribution services.

Several teachers have expressed concern about "exemption policies". Under these policies, many strong students choose to avoid the valuable experience of writing a final exam. Weaker students are more likely to write final exams, and teachers are concerned that the average performance of these students will reflect badly on their schools.

Evaluation sheets are completed by participants in the workshop and again by all teachers who use the examination materials. Feedback continues to be favourable. There is one recurring issue - raised each year by a few teachers. We plan to address this problem by adding a second, smaller workshop in 2009. The next paragraph outlines reasons for a second workshop.

Item banks and grading schemes prepared in the two-day workshop invariably have small problems that must be edited. For example, some problems have grammatical errors; other problems are worded in such a way that students must make (unstated) assumptions; many solutions / grading schemes omit an equally valid approach to the problem. The sample papers occasionally have too many occurrences of the same number (e.g. $x = 2$ appears, in some form, on three different problems). Too many problems have wording identical to problems used in previous years or in text books. The UNB editors try to rectify these problems - often consulting with local teachers. Each year, a few teachers request that they have more ownership of the final edits to the item bank and sample exam papers. This is a reasonable request. Consequently, in 2009, we plan to hold a second workshop with eight teachers (four per course) drawn from across the province. Their mandate will be to carefully review penultimate versions of the item banks and sample exam papers. This second workshop will be held in late April, in conjunction with the workshop to grade papers for the Fryer, Galois, Hypatia and Euclid Mathematics Competitions.

www.math.unb.ca/~maureen/NBMath12ExamWorkshop/

Maureen Tingley

Acadia Seeks MSc Candidate in Math/Biology

Applications are sought for a Masters' candidate in the Mathematics & Statistics Department of Acadia University. The successful candidate will be co-supervised by faculty member in the Mathematics and Statistics Department and in the Biology Departments of Acadia University. The candidate will be expected to participate as a member of an interdisciplinary team of ecologists, oceanographers and computer scientists that are creating a web-enabled Platform for Ocean Knowledge Management (POKM). This research will entail assisting in the development of statistical models of marine predator movement behaviour that integrate oceanographic information obtained from general circulation models. The successful candidate will work closely with oceanographers and computer scientists from

Dalhousie University and the Bedford Institute of Oceanography. Inquiries are to be emailed, with the subject line POKM M.Sc. to:

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The first Canadian Hopf Algebras Conference

The first Canadian Hopf algebra conference: the role of Hopf algebras in Noncommutative Geometry was held at UNB, September 3-6, organized by Alain Connes, Piotr M. Hajac, Dan Kucerovsky, Henri Moscovici, and Bahram Rangipour. This conference was affiliated with the Centre for Noncommutative Geometry and Topology, UNB, Fredericton and attracted top researchers in the field from all over the globe. Speakers were from Alabama, Colorado, France, Hungary, Italy, Pennsylvania, Poland, and the UK. Local researchers also participated in the conference as audience and/or speakers. The conference achieved its goal which was to establish the new area of mathematics which emphasizes the use of Hopf algebras in noncommutative geometry.

The conference was designed in a unique way to let the participants interact with each other. They were accommodated in the same hotel. Lunches and dinners were mostly organized so that they could discuss scientifically as much as possible. At the end of each day before dinner there was a free discussion session led by one of the experts. New researches were initiated in these sessions. The participants still send the organizers their comments, mentioning the good time they had at UNB.

MITACS Annual Conference

The MITACS Annual Conference is taking place in Fredericton this year from May 31 to June 5 at the University of New Brunswick's Wu Centre. A highlight of this year's meeting will be a celebration of the 10th anniversary of MITACS. The conference will include a student poster session, scientific sessions and plenary speakers from the five MITACS thematic research areas (Biomedical & Health, Communication, Networks & Security, Information

Processing, Risk & Finance and Environment & Natural Resources), an internship showcase highlighting outstanding graduate interns from Atlantic Canada, a Math en Jeu tournament and an awards banquet

The Canadian mathematical sciences community, including graduate students and postdoctoral fellows, industry partners and government are invited to attend the 2009 MITACS Annual Conference. For more information, or to register, visit www.mitacs.ca/AC09.

For a discounted registration rate, please register by April 1, 2009. Please note that graduate students and post-docs are eligible for travel support to off-set the cost of attending; visit the conference website for details.

2009 Summer School on the Mathematics of Invasions in Ecology and Epidemiology

Location: Queens University

Dates: May 10-17

The summer school is aimed at graduate students in applied mathematics, biology and epidemiology, who wish to learn important mathematical techniques for modelling biological invasions. The emphasis will be on practical, hands-on experience for building and analyzing models, coupled with lectures on key techniques. Examples will be drawn from a variety of areas including ecological invasions of so-called 'pest' species, and the emergence of novel pathogens like SARS and avian influenza. A major focus will be on techniques for incorporating evolutionary change in the mathematical models.

Each student will be expected to develop and analyze a model of their choosing during the period of the summer school, in collaboration with a small group of other students. These modelling projects will then be presented to the entire group at the end of the period. In this way, we aim to provide students with a solid and practical set of tools for developing their own mathematical models in these related areas in the future.

Organizers: Dr Troy Day (Queen's), Dr Fred Brauer (UBC), Dr James Watmough (New Brunswick), Dr Jianhong Wu (York), Dr Rachel Bennett (Queen's).

Recent and Upcoming Events

Combinatorial Algebra Meets Algebraic Combinatorics: Sixth Annual Meeting

Organizers: Yur Bahturin, Nantel Bergeron, Sara Faridi, Tony Geramita, Mikhail Kotchetov

Location: Memorial University, St. John's

Date: January 16-18, 2009

Contact Information: Sara Faridi

Fifth Annual East Coast Combinatorics Conference

Organizer: Tim Alderson

Location: University of New Brunswick, St. John

Date: April 30 - May 1, 2009

Contact Information: Tim Alderson

International Conference on Nielsen Theory

Local Organizer: Philip Heath

Location: Memorial University, St. John's

Date: June 9-13, 2009

Contact Information: Philip Heath

International Symposium in Statistics (ISS) on Inferences in Generalized Linear Longitudinal Mixed Models

Organizer: Brajendra Sutradhar

Location: Memorial University, St. John's

Date: July 20-22, 2009

Contact Information: Brajendra Sutradhar

Coast to Coast Seminar Series - Winter Theme: Modelling and Differential Equations

Tuesdays at 3:30pm (Atlantic Time)

Location: your university videoconference facility

Contact Information: David Langstroth (dll@cs.dal.ca)

January 20: David Muraki, Andrea Blazenko, and Kevin Mitchell (SFU)

February 3: James Watmough (UNB)

February 17: Nicholas Kevlahan (McMaster)

March 3: David Iron (Dalhousie)

March 17: Thomas Wolf and Alexander Odesskii (Brock)

March 31: Lin Wang (UNB)

Key Dates

January 16	Combinatorial Algebra Meets Algebraic Combinatorics
February 1	Final Decision on 2009 Postdoctoral Fellowships
April 30	East Coast Combinatorics Conference
May 15	AARMS summer call for proposals
June 9	International Conference on Nielsen Theory
June 30	Mid term reports due from PDF Supervisors
July 20	International Symposium on Statistics (ISS)

AARMS Board of Directors

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AARMS Scientific Review Panel

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Yuri Bahturin (Memorial)

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*The dance can reveal everything mysterious that is hidden in music, and it has the additional merit of being human and palpable.
Dancing is poetry with **AARMS** and legs*

- Charles Baudelaire