



# CMS NOTES de la SMC

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## FROM THE PRESIDENT'S DESK

Anthony To-Ming Lau  
*University of Alberta, Edmonton*



I would like to start the New Year by thanking all those who have contributed to the Canadian Mathematical Society by generously volunteering their time or by donating to the Society.

The CMS Winter Meeting 2008, hosted by Carleton University, was a great success with over 470 participants. This conference covered a broad cross-section of the Canadian mathematical sciences community. The quality of the plenary speakers was simply outstanding: David Acheson (Oxford), Fan Chung (UC San Diego), Gilles Godefroy (Paris), Sorin Popa (UCLA), Laurent Saloff-Coste (Cornell), Mark Sapir (Vanderbilt), Keith Taylor (Dalhousie). Patrick Hayden (McGill) presented the public lecture. In addition, there were 23 special sessions, including a Contributed Paper Session.

At this Meeting, we celebrated the winners of the following prizes: Ravi Vakil (Stanford) - Coxeter-James Prize, Matthew Greenberg (Calgary) - Doctoral Prize, Harley Weston (Regina) - Adrien Pouliot Award, Hermann Brunner (Memorial) - David Borwein Distinguished Career Award, Dmitry Jakobson (McGill), Nikolai Nadirashvili (Chicago) and Iosif Polterovich (Montréal)

- G. de B. Robinson Award, and Bill Sands (Calgary), the first recipient of the re-named Graham Wright Award for Distinguished Service. All prizes and awards were presented during the Banquet on December 6. Congratulations to all recipients!

I would like to express my gratitude to the sponsors of this meeting: CRM, the Fields Institute, MITACS and PIMS.

Before the CMS Meeting, the CMS Committee for Women in Mathematics also organized the 4th workshop - Connecting Women in Mathematics Across Canada, which took place at the University of Ottawa on December 4 and 5, 2008.

The Scientific Directors, Matthias Neufang and Benjamin Steinberg (Carleton), had worked very hard to put together an attractive and varied program and they deserve our considerable thanks. Such a meeting requires much dedication and drive and would not have been possible without the hard work of the meeting directors, the session organizers and especially the CMS staff.

In October 2008, the CMS delegates (Alejandro Adem, Roland Speicher, Nicole Tomczak-Jaegermann, Bruce Reed and I) were invited to Jeju, Korea to attend the 2008 Global KMS International Conference. Unfortunately, at the last minute, Bruce Reed was unable to attend.

Alejandro Adem was one of the three plenary speakers and Bernard Hodgson from Laval University was an invited speaker in the Math Education session. Roland Speicher, Nicole Tomczak-Jaegermann and I were invited speakers in a joint CMS/KMS session in Functional Analysis. The size of the conference was similar to our summer/winter meetings with around 400 participants and there were 13 sessions. We all enjoyed the wonderful hospitality of KMS. Before the meeting, we were all invited to visit the Korean Institute of Advanced Studies in Seoul.

The CMS was informed in November 2008 that it had to vacate the current temporary space by December 31, 2008. Graham Wright and Joseph Khoury explored various options and, taking into account the current situation and the recommendations by the Executive Committee, the Board of Directors, at its meeting in December, approved that the CMS Executive Office move to 1785 Alta Vista Drive (Suite 105). The new space is only 1500 square feet, significantly less than that occupied at the University of Ottawa. However, the fact that the Administrative Assistant position is not being filled at this time allows more flexibility in accommodating the staff in the new location. A one-year lease has been signed and the new space includes an office for the Executive Director. This will give the CMS the

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## Who Goes There?

When a mathematician is introduced to a stranger as a professor the latter's reaction depends on his/her appreciation of mathematics. Usually it is just a statement like "Oh! I was never good at math." If the stranger happens to be a person of authority the response depends very much upon the situation.

Many years ago I happened to stop driving on the freeway to Los Angeles to take a photograph. A policeman appeared and ordered me to get back into the car. He said that I was guilty of three violations: stopping on the freeway, pedestrian on the freeway and obstructing traffic. Examining my driver's license he asked me about my profession. I replied that I was a professor of mathematics at the University of Illinois at Chicago. After some further conversation with me and my family, he asked me, "Are you kind to your students?" I told him that I was always kind to my students. Then he let me proceed on my way with just a warning.

There are anecdotes of famous mathematicians who were put to test to prove that they are indeed professors. What they were asked to prove ranges from trivial to profound theorems. A. S. Besicovitch (1891-1970) had to flee from Russia under cover of darkness and made his way to Denmark where the border authorities wanted to test him; since none of the officers felt competent for this task, one of them was sent to the nearby village for a suitable knowledgeable person. Only a school teacher was found and all that he could ask Besicovitch was to state Pythagoras' theorem [1]. Besicovitch was allowed to enter Denmark. Later, he moved to England, where he subsequently became Rouse Ball professor of mathematics at Cambridge succeeding J. E. Littlewood.

An anecdote where serious mathematics was the subject of the test, the failure of which meant the death penalty, is given by George Gamow [2]. Describing childhood vicissitudes in Odessa, Gamow mentions how bad it was to find food at a certain time when people had to barter their family silver etc., for bread, butter or chicken. Igor Tamm, who later became a Nobel laureate in Physics, was a young professor of physics in Odessa. Once Igor arrived in a village and was negotiating with a villager as to how many chickens he could get for half a dozen silver spoons. The village had been captured by Makhno bands who were roaming the country harassing the Reds. Seeing Igor's city clothes, the capturers caught him and led him to their leader who thundered, "You communist agitator, undermining our Mother Ukraine! The punishment is death."

"But no," said Tamm, "I am a professor at the University of Odessa and have come here only to get some food."

"Rubbish! what kind of a professor are you?"

"I teach mathematics."

"Mathematics? All right! Then give me an estimate of the error one makes by cutting off a Maclaurin series at the  $n$ -th term. Do this, and you will go free. Fail, and you'll be shot!"

Igor Tamm could not believe his ears. With a shaking hand, and under the muzzle of a gun, he managed to work out the solution and handed it to the leader.

"Correct!" said the leader, "I see now that you really are a professor. Go home."

In between these extreme tests, we may encounter many other responses.

Steven Krantz [3] relates that he was once at a cocktail party chatting animatedly with a quite charming woman. The two were hitting it off -- up until the moment when she asked what Steven did for a living. He replied that he was a mathematician. Steven writes that she drew herself up haughtily and declared, "Then I am sure we have nothing in common!" And she walked away.

[1] I heard this story from John Cosgrave of Dublin, Ireland, who said that this anecdote was mentioned by Richard Rado at a meeting of the London Mathematical Society.

[2] George Gamow, *My World Line*, An informal autobiography, Viking Press, 1970. (p 19-20)

[3] Steven Krantz, *Mathematical Apocrypha Redux*, Mathematical Association of America, 2005. (p 256)

### NOTES DE LA SMC

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## Un métier périlleux?

Lorsque l'on présente un mathématicien à quelqu'un en le décrivant comme un professeur, la réaction de cette personne dépend souvent de son degré de connaissances mathématiques. Le plus souvent, elle s'exclame simplement « Oh! Je n'ai jamais eu la bosse des maths. » Si la personne en question fait figure d'autorité, sa réponse varie grandement selon la situation. Il y a longtemps, lors d'un voyage en Californie, je me suis arrêté sur l'autoroute menant à Los Angeles pour prendre une photo. Un agent m'a intercepté et ordonné de remonter dans ma voiture. Il m'a appris que j'avais commis trois infractions : arrêt sur une autoroute, marche sur l'autoroute et entrave à la circulation. En examinant mon permis de conduire, il m'a demandé ce que je faisais comme travail. Je lui ai répondu que j'étais professeur de mathématiques à l'Université de l'Illinois à Chicago. Après m'avoir posé quelques questions, à moi et aux membres de ma famille, il m'a demandé : « Êtes-vous gentil avec vos étudiants? » Je lui ai répondu bien sûr que j'étais toujours gentil avec mes étudiants. Il m'a ensuite laissé partir en ne me servant qu'un avertissement.

Plusieurs mathématiciens célèbres ont raconté des anecdotes à propos de gens qui leur ont posé des questions pour savoir s'ils étaient vraiment des professeurs. Ces questions allaient de questions toutes simples à la démonstration de théorèmes complexes. A. S. Besicovitch (1891-1970), qui a fui la Russie en pleine nuit, s'est fait intercepter à la frontière danoise par les douaniers, qui ont voulu le mettre à l'épreuve. Comme aucun des douaniers ne se sentait à la hauteur de la tâche, on envoya chercher une personne plus compétente dans le village voisin. Or, on n'a trouvé qu'un enseignant de mathématiques, qui s'est contenté de demander à Besicovitch d'énoncer le théorème de Pythagore [1]. C'est ainsi que Besicovitch est entré au Danemark. Plus tard, il est déménagé en Angleterre, où il est devenu titulaire de la chaire de mathématiques Rouse Ball à Cambridge, occupée avant cela par J. E. Littlewood.

George Gamow [2] raconte une autre anecdote, à propos d'une épreuve mathématique d'un tout autre ordre, cette fois, où l'échec entraînait ni plus ni moins que la peine de mort. Décrivant les malheurs de son enfance à Odessa, Gamow raconte à quel point il était difficile de trouver à manger à une certaine époque, au point où les gens devaient échanger leur argenterie et leurs trésors de famille contre du pain, du beurre ou du poulet. Le Nobel de physique Igor Tamm était à cette époque un jeune professeur de physique à Odessa. Un jour, Igor négociait avec un villageois, dans un village voisin, la valeur (en poulets) de six cuillères d'argent. Les bandes de Makhno, qui pourchassaient les Rouges dans tout le pays, avaient pris le village. En voyant les habits de citadin d'Igor, les envahisseurs l'ont capturé et mené à leur chef, qui s'est mis en colère : « Espèce d'agitateur communiste, qui assassine notre Mère Ukraine! Pour votre punition, vous mourrez! » « Mais je ne suis pas un fauteur de trouble, dit Tamm, je suis professeur à l'Université d'Odessa et je suis seulement venu au village chercher de quoi manger! »

« Balivernes! Qu'enseignez-vous? »

« Les mathématiques. »

« Les mathématiques? D'accord! Alors estimez-moi l'erreur que l'on fait en coupant la suite de Maclaurin à  $n$ -th term. Si vous trouvez la solution, je vous libère. Si vous n'y arrivez pas, je vous fais abattre. »

Igor Tamm n'en croyait pas ses oreilles. La main tremblante et le fusil sur la tempe, il a réussi à résoudre le problème et à remettre sa feuille au chef.

« Correct! dit le chef. Je vois maintenant que vous êtes vraiment un professeur. Partez! »

Entre ces deux tests extrêmes, les réactions de toutes sortes affluent.

Steven Krantz [3] raconte qu'il était un soir à un cocktail, discutant de façon animée avec une jeune femme plutôt charmante. Ils semblaient bien s'entendre tous les deux, jusqu'à ce qu'elle demande à Steven comment il gagnait sa vie. Il a répondu qu'il était mathématicien. En se redressant avec arrogance, décrit Steven, elle a déclaré : « Alors nous n'avons certainement rien en commun! » Et elle est partie.

[1] C'est John Cosgrave, de Dublin, en Irlande, qui m'a raconté cette anecdote, que lui avait raconté Richard Rado lors d'une réunion de la London Mathematical Society.

[2] George Gamow, *My World Line, An informal autobiography*, Viking Press, 1970.  
(pp. 19-20).

[3] Steven Krantz, *Mathematical Apocrypha Redux*, Mathematical Association of America, 2005. (p. 256)



## Letters to the Editors Lettres aux Rédacteurs

The Editors of the NOTES welcome letters in English or French on any subject of mathematical interest but reserve the right to condense them. Those accepted for publication will appear in the language of submission. Readers may reach us at [notes-letters@cms.math.ca](mailto:notes-letters@cms.math.ca) or at the Executive Office.

Les rédacteurs des NOTES acceptent les lettres en français ou anglais portant sur un sujet d'intérêt mathématique, mais ils se réservent le droit de les comprimer. Les lettres acceptées paraîtront dans la langue soumise. Les lecteurs peuvent nous joindre au bureau administratif de la SMC ou à l'adresse suivante : [notes-lettres@smc.math.ca](mailto:notes-lettres@smc.math.ca).

### Biorthogonal Systems in Banach Spaces

by Peter Hajek, Vincent Montesinos Santalucia,

Jon Vanderwerff and Václav Zizler

CMS Books in Mathematics, Springer 2008.

339 pages \$112.36 CDN ISBN 978-0-387-68914-2

Review by Joseph Diestel, University of Mississippi

The objective of the book under review is to explore the global structure of a Banach space and its relationship with possible coordinate systems it might have. In this the authors succeed admirably.

The very first chapter is a 44 page introduction dealing with separable Banach spaces. It provides not only a sound basis to proceed but also introduces many of the kinds of orthogonal systems they will be using throughout. This chapter, with a few additional topics, could be the basis of a quarter-long seminar for functional analysis students. There's no fooling around! For instance, on page 14 we see the Pelczynski-Plichko theorem to the effect that every separable Banach space contains a  $k$ -Markushevich basis for each  $k > 1$ . The delicate proof of this theorem occupies center stage for the next **six** pages. In this, we are introduced to an aspect of this book that is worth mentioning: the authors do not avoid complicated proofs; rather they rise to the occasion and show the reader the intricacies that can be encountered.

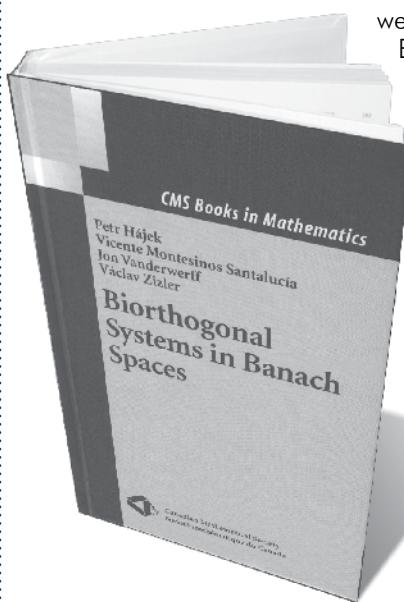
(There are a number of different kinds of systems studied throughout the book, a limited number, to be sure, but too many to spend time in this review defining each. Rather we hope that the mathematical setting will entice the readers to take a long look at the book itself.)

This first chapter is followed by a chapter on the topic of universality. The authors quickly cover the basics of descriptive set theory needed to discuss questions like:

Does there exist a separable reflexive Banach space that is universal for all separable reflexive Banach spaces? Along the way they have a short section giving an account of the classification of all  $C(K)$  spaces where  $K$  is a countable compact metric space. Granted, this four page discussion merely outlines the proof of the Bessaga-Pelczynski-Samuel result, but it does so in such a way that the attentive reader can understand the main lines of the argument and, if so disposed, flesh out the complete argument from what's given if said reader is willing to put the time and effort into the project.

A chapter 'reviewing' the weak topology and renormings follows. This chapter is chock full of delicious tidbits most functional analysts know albeit here they are presented with an eye to be used to help construct biorthogonal systems in non-separable Banach spaces.

The third chapter also contains a succinct treatment of *projectional resolutions of the identity*, wherein a space is split into a long direct sum of smaller closed linear subspaces. The objective is to work effectively in the smaller spaces and then piece together the results and say something substantial about their direct sum. The seminal work of Dan Amir and Joram Lindenstrauss (on



weakly compact sets and the Banach spaces they generate) demonstrated how such could be done with striking consequences.

Biorthogonal systems in non-separable Banach spaces are the topic broached in the fourth chapter and are the main topic of discussion for the rest of this monograph.

It is somehow to be expected that the axioms of set theory might interfere with the possibility of certain constructions and the authors deftly circumnavigate these difficulties whenever possible. They do give the pertinent axioms, and discuss their roles in the subject matter at hand, in the fourth chapter. This is no easy task but they 'give it a go' and successfully indicate how such axioms can affect the hopes and expectations one might have on entering the study of biorthogonal systems in non-separable spaces.

The fifth chapter is about Markushevitch bases. Applications to renorming theorems as well as existence of quasi-complements are presented. The subject matter is necessarily technical yet the authors never skirt the issues and, with the aid of limiting and substantial examples, demonstrate the efficacy of Markushevitch bases.

The book ends with four chapters dealing with varying topics in which biorthogonal systems have proven useful.

Weakly compactly generated spaces are given their due in the seventh chapter. Close on the heels of this, is a chapter on transfinite sequences: herein the subject of measure theory (via the study of spaces of measures) is shown to be a fertile area for application of the techniques developed thus far. Of course, disjointness arguments in measure theory lead to decompositions of spaces and so celebrated results of Grothendieck, Pelczynski and Rosenthal are featured players in the story. Not accidentally, this is the reviewer's favorite chapter. Starting with a beautiful presentation of topics from what might be called the classical theory of weak compactness in the non-reflexive Lebesgue spaces, the authors effect a smooth transition to the topic of transfinite unconditional bases and applications to renorming.

The book closes with a catch-all chapter entitled 'More Applications'. Like many of the earlier discussions, the topics contained in this chapter offer ample lines of further research. In this it is typical of much of the book.

It is plain that this book is about mathematics '*in the works*'. I believe the authors have tried to communicate this throughout their book and have succeeded.

## **Crimes and Mathdemeanors**

by Leith Hathout

A.K.Peters, 2007.

197 pages \$18.95 CDN ISBN 1568812604

*Review by Viktoriya Krakovna, Dept. of Mathematics,  
University of Toronto*

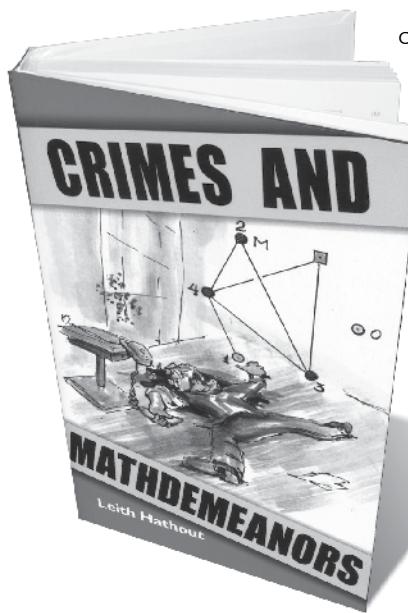
In Leith Hathout's captivating book, we see math and mystery come together in a most delightful way. The readers of \*Crimes and Mathdemeanors\* are invited to match wits with Ravi, a 14-year-old detective who is notorious for coming up with original solutions to cases that leave the police befuddled. As the title suggests, the conflicts to be resolved range from real crimes to misdemeanours like a racetrack owner refusing to honour the winnings of a group of students, or a coach cheating in a school basketball tournament. Hathout's hero is "a kid detective like Encyclopedia Brown who solves mysteries based not just on logic, but on serious mathematics". All manner of puzzles, large and small, are tackled by Ravi using logic, number theory, combinatorics, probability, graph theory and geometry.

Imagine the unveiling of a new casino in Las Vegas. A highlight of the upcoming opening night is a promotional game "The Odds are in Your Favor", and one lucky contestant has been selected by lottery to play it. The player receives a shuffled deck of cards, 55 "Win" cards and 45 "Lose" cards. He draws all the cards one by one - every time "Lose" is drawn, he loses half his pot, and when "Win" is drawn, he gains an amount equal to half of his pot. The amount of his pot at the end is his to keep.

While everyone is eagerly awaiting the opening night, tragedy strikes - the owner, "Slick" Bambino, is killed. Ravi arrives at the scene with his father, a district attorney. The police explain that there are three suspects suggested by fingerprint evidence. The chief suspect is a casino owner across the street, who presumably felt threatened by the new rival. On the night of the crime he was seen at his own casino by several witnesses, but the police are expecting to "break that alibi soon enough". The other two are Mr. White, an accountant from Florida who was selected to play the promotional game and put down a pot of \$100,000, and Slick's wife, to whom he owed a significant amount of alimony.

Ravi has a clear idea of who is likely to be the murderer. Do you?

The book is a collection of detective stories like this, each of which consists of several sections. First, it presents the pieces of the puzzle - the same clues that Ravi receives, which are sufficient for him to solve the problem, - and invites us to put the facts together before reading on. The Analysis section simplifies the question for the lazy reader by illustrating how the mystery boils down to a math problem. Finally, the Solution section explains Ravi's reasoning in detailed steps understandable to beginners. Often, there is also an Extension, which suggests a generalization of the problem or some related problems for the reader to consider. The whole story is written in a light and insightful manner that is entertaining for both fresh and experienced students of mathematics. The book is intended primarily for high school students, aiming to kindle their enthusiasm for



challenging and fun math problems.

Ravi is an encouraging role model to young people who want to get better at math. Professional detectives - that is, those who don't know him already - are somewhat surprised to have a kid walk in and start contradicting their tried-and-true methods, and some even find him a nuisance.

"Detective Myers eyed Ravi with some suspicion, cocking an eyebrow. He obviously did not appreciate

a teenager wasting his time". However, before long they come to respect him for his ability to find subtle errors in their reasoning and to make a case against an elusive suspect where they thought it was impossible.

This might seem like an uncommon situation that arises from Ravi's extraordinary mental prowess, but in fact his success is in large part due to his unprejudiced and creative approach to every problem. The young readers can see that, contrary to common opinion, it is not necessary to possess intellectual superpowers to become a good problem-solver, but attention to detail and willingness to question one's intuition go a long way.

\*Crimes and Mathdemeanors\* is an exciting excursion into recreational math. It's quite nice to see an interesting problem crystallizing out of a detective story (though occasionally it seems like the story is fitted to the problem, and not vice versa). Unlike a textbook, which usually only presents the correct solution, a story in this book shows distinct approaches to the problem by different people, and explains exactly why the naive way does not work. This way, it offers a glimpse into the thought process involved in problem-solving, with its failures and dead ends, instead of just showing the final result. In addition, the book creates a sense of challenge and competition with the protagonist, inviting the reader to think about the problem as hard as Ravi does, instead of just skipping through to the solution.

The interesting blend of detective story and math problem is delightful to explore even for those who are very familiar with the mathematical ideas involved. However, it is particularly exciting for less experienced readers, who get to discover just how much more fun math can be than chugging away on the calculator, or solving large quantities of word problems according to a set procedure. A math problem can take the form of a unique and engaging puzzle that inspires one to think creatively, and has a cool story to it as well! As Hathout acknowledges, "Doubtless, some of the stories may have seemed far-fetched, or even a bit contrived. However, my hope is that they made the mathematics behind them seem both enjoyable and practical."

## Number Theory and Polynomials

Edited by James McKee and Chris Smyth

London Math. Soc. Lect. Notes #352

Cambridge Univ. Press, Cambridge UK 2008

ISBN 978-0-521-71467-9 \$75.00 US

Number Theory and the study of polynomials have a long history of mutual support. In April 2006 the Heilbronn Institute for Mathematical Research at Bristol University held a workshop to further research in the intersection of these two areas. One consequence of that workshop is this volume which reports on many of the topics lying in this intersection. Some of these are: the Schur-Siegel-Smyth trace problem, Mahler measures, the merit factor problem, Barker sequences, K3 surfaces, self-inversive polynomials, Newman's inequality algorithms for space polynomials, the integer transfinite diameter, divisors of polynomials, non-linear recurrence sequences, polynomial ergodic averages, and the Hansen-Mullen primitivity conjecture. It is worth noting that this is an area of active research in Canada, and that Canadians were authors or coauthors of the papers in this volume on the 3rd, 4th and 9th of these topics. Also worth noting is that the sponsoring institute is named after Hans Heilbronn, the last ten years of whose distinguished mathematical career were spent as a professor at the University of Toronto.

## Hard Problems: The road to the world's toughest math contest (DVD)

Directed by George Csicsery

Mathematical Association of America,

ISBN 978-0-8838-59025 \$24.95 U.S.

Hard Problems is a video which follows the selection, training and participation of the U.S. team for the 2006 Mathematics Olympiad held in Ljubljana, Slovenia. At its most basic level this is a recruiting tool for encouraging talented high school students in the United States to become involved in mathematics competitions. It shows how these competitions are organized at the national and international level, how competently and fairly they are administered and what the students involved gain from their experience. Since the Canadian IMO training program is similar to the US one this would be a natural choice for a video to show during high school visits and outreach programs aimed at talented 13-18 year olds. There is very little actual mathematics discussed in the video. The emphasis is more on the individual participants and on the social aspects of the training. One notices that, in spite of the efforts of the organizers to balance things, these competitions are still mostly a boys' sport. Also that independent and specialized high schools have taken a lead in encouraging their students to participate. Most of all, one becomes interested in the development of the individual team members and wonders how their future careers will unfold. (In this regard the effect on the viewer is very much like that of the Michael Apted film "Seven Up!" and its successors.)

## The Mathematician's Brain

by David Ruelle

Princeton Univ. Press, Princeton NJ 2007

ISBN 978-0-691-129822 \$22.95 US

David Ruelle is a mathematical physicist who from 1964 to 2000 was a professor at the Institut des Hautes Étude Scientifiques at Bures-sur-Yvette near Paris. *The Mathematician's Brain* gives Ruelle's view of the fundamentals of mathematics and of the many mathematicians he has known in his career. The mathematical topics covered are mostly familiar – the Erlangen program, algebraic geometry, set theory and infinity, foundations.

The mathematicians mostly are those who have passed through or been on the staff of IHES during Ruelle's tenure and include many stars. Ruelle's mathematical reflections are of a philosophical nature – indeed an interesting review of this volume in the November issue of the Notices of the AMS was written by a philosopher and deals rather critically with these. The biographical parts of the book are fascinating and full of insights and amusing anecdotes. In the former category are the first hand accounts of the rise of IHES and of Alexandre Grothendieck's life there and after. In the latter is René Thom's occasionally misplacing his Fields medal.

## Additive Combinatorics

Edited by Andrew Granville, Mélvyn Nathanson  
and József Solymosi

CRM Proceedings and Lecture Notes # 43

American Mathematical Society, Providence RI, 2007

ISBN 978-0-8218-4351-2 \$99.00 (US)

One of the most celebrated recent results in additive number theory is the Green-Tao theorem that there are arbitrarily long arithmetic progressions in the set of prime numbers. This result and the techniques used to prove it are part of additive combinatorics which was the subject of a conference and workshop at the Centre de recherches mathématiques in the spring of 2006. This volume in the CRM proceedings and lecture notes series contains the proceedings of the conference and also surveys of open problems in the area and new research. The list of authors represented here includes some of the most important researchers in the area such as Tao and Green, and also Gowers, Bourgain, Szemerédi and others. The subject has continued to expand with later conferences held at Princeton, the Fields Institute and MSRI, Berkeley. This volume would serve as an excellent introduction for researchers considering moving into this promising area.

Over six years ago, I was invited along with Peter Taylor, the Executive Director of the Australian Mathematical Trust in Canberra, Australia, to be a cochairman of a proposed ICMI Study on the use of challenges both within and without the school classroom. This was an appealing assignment for a number of reasons, not the least of which was the opportunity to work with a colleague that I have known for a long time and respected a great deal.

The Australian Mathematical Trust came into being through the prodigious energy, persistence and enthusiasm of the late Peter O'Halloran. During a sabbatical visit to the University of Waterloo over thirty years ago, he was inspired by the Waterloo contests to inaugurate a similar menu of competitions in Australia. He recruited a major bank to support the contests both in cash and through publicity, and the competitions got off to a roaring start. Eventually, other ventures including a publication and distribution program followed, a Trust was set up at the University of Canberra, a regular magazine, *Mathematics Competitions*, was established, and the contests were adopted all over the Pacific region. Peter, himself, traveled widely, attending conferences and giving workshops all over the world. (One indication of O'Halloran's dynamism was that, in 1988, only seven years after entering its first team, Australia played host to the International Mathematical Olympiad.)

Given the background of the two of us, the ICMI Executive wanted to make sure that the ICMI Study would not be dominated by the competition sector. While competitions have become more accepted in the world of education over the years

as their reach has spread to ordinary school children and they became used as a tool to interest and focus students towards mathematics, it was clear that they are not the only locus of challenge in mathematics. Indeed, it was the goal of Peter Taylor and me that we should seek out the broadest possible representation of those involved in the use of challenge, so that the Study would be definitive.

Let me first describe what an ICMI Study is. These Studies were inaugurated two decades ago by the International Commission on Mathematical Instruction. They were designed to explore thoroughly some area of contemporary interest by gathering together a group of experts to prepare a Study Volume that would both provide an assessment of the current situation and provide a guide for further developments. An International Program Committee is selected for each, which meets to prepare a Discussion Document. This lays out the topics for discussion and invites individuals to submit papers. On the basis of these submissions, some of them are invited to attend a Study Conference where work on the Study Volume begins. Our Study, the sixteenth in the series, was inaugurated in 2002; the IPC met in Modena, Italy, November 2003 to prepare the Discussion Document, which after some fine tuning at the ICME Congress in Copenhagen in 2004, was issued to solicit papers. The Conference itself took place in Trondheim, Norway in July 2006, and the Study Volume, *Challenging Mathematics In and Beyond the Classroom* (Springer, 2008), should be out by the time you read this. The Conference website is [www.amt.edu.au/icmis16.html](http://www.amt.edu.au/icmis16.html), where visitors can access the Discussion Document and Pre-Conference Papers.



## Letter to the Editor

The May issue of the Notices of the AMS includes an article on the first black Ph.D. in mathematics. This was Ebert Cox, who completed the degree at Cornell in 1925. An attentive reader would have noticed the supervisor's name: William Lloyd Garrison Williams. Was this "our" Lloyd Williams, honoured in the naming of the Jeffery Williams Lecture?

Lloyd Williams was a seminal figure in the history of the CMS. Born into a Quaker family in the US Midwest, he was named after the famous campaigner for the abolition of slavery. He completed a Ph.D. at Chicago under L. E. Dickson, the thesis being published in the Transactions in 1921. He attended the ICM in Toronto in 1924, and joined the Mathematics Department at McGill that fall, evidently having taught at Cornell during the intervening three years. Here he remained until his return to the US in 1966.

Somewhere around 1943, in an office shared by Williams and Gordon Pall, the idea of the Canadian Mathematical Congress--the forerunner of the CMS--was born. The first meeting of the Congress was in Montreal in 1945, and included lectures by such luminaries as Einstein, Von Neumann and G. D. Birkhoff. Williams canvassed banks and insurance companies and raised the necessary funds, \$5000, continuing as Treasurer until 1966.

This information comes from "Mathematics in Canada", a volume published in 1995 (edited by yours truly) to mark the fiftieth anniversary of the CMS, and especially from the delightful article contributed by his daughter, Christine Ayoub.

Peter Fillmore  
Dalhousie University

In the end, about forty-five folks attended the Conference and participated in writing the Study. There were three working groups at Trondheim, one of which looked at non-classroom challenges, including but not restricted to contests, while the other two treated the classroom side, one from the perspective of students and the other from the perspective of educators and policy makers. We sketched out eight chapters; teams were assigned to write them, and after a long process of electronic consultation, the final volume was put together.

We felt that the time was ripe for an ICMI Study. Thanks in part to technology and improved communication, as well as to an increased feeling that engaging students in an appropriate way was important for their mathematical growth, the past thirty years has seen a flowering of programs, such as contests, mathematical clubs, exhibitions, rallies, websites and publications. However, any systematic stocktaking and research was at best desultory, and it seemed appropriate to review what was currently happening and to indicate possible future directions.

As always, at an international gathering, one discovers for the first time what some of one's own countrymen are up to, and this was no exception for me. Apart from the fact that the commission for the study was issued by Bernard Hodgson (Laval University), at that time the Secretary-General of ICMI, who took an active part in the initial deliberations, participants included Viktor Freiman (Université de Moncton), Margo Kondatrieva (Memorial University), Ralph Mason (University of Manitoba), Valeria Pandelieva (Ottawa teacher) and Neela Sukthankar (MathGym, Toronto).

### **Challenges outside of the Classroom.**

The opening chapter of the Study gives several examples of challenging problems, their sources and how they might be used. Many, but not all, were designed for contests, but even those for high powered contests, can be stepped down for use by regular students. Sometimes, situations arising in ordinary classroom discourse can be turned into challenges that are accessible to many students; in other cases, textbook questions can be tweaked into challenges. Even open research questions have bits that can be broken off for students, such as the Erdős conjecture that  $4/n$  can be written as the sum of three distinct integer reciprocals when  $n \geq 3$  (the only hard part is when  $n = 1 \pmod{24}$ ). The chapter concludes with an analysis by Alexander Karp of the Teachers' College at Columbia University on the appropriate use of problems that takes into account the cultural-educational level of students, their pedagogical characteristics and one's pedagogical goals.

The second chapter provides many examples across the globe of environments for challenging mathematics. Some, such as the Tournament of the Towns, have spread to many countries; Canada was one of the first jurisdictions outside of Eastern Europe to take part in the Tournament. A good example of an "inclusive" or open competition is the Ontario Mathematics Olympics; the journal *Crux with Mayhem* is

a leading purveyor of challenging mathematics; the non-competitive SNAP mathematics fairs, a brainchild of Andy Liu, now occurs across Canada. An appendix gives a detailed description of two longrunning and successful ventures, the Mathematics Houses in Iran, that developed from a prototype in Isfahan and enjoy local and national government support, and the Archimedes mathematics organization in Serbia which organizes activities for young mathematicians, does teacher professional development, sponsors public events and issues magazines and other publications.

Viktor Freiman was the lead author of the third chapter on technological environments beyond the classroom. He himself was one of the creators of the CASMI interactive site in 2000 ([www.umoncton.ca/casm](http://www.umoncton.ca/casm)) based on the belief that tackling challenging problems is important in the learning of mathematics, growth and understanding is developed through communication among students and technology can create authentic learning situations attractive to a large number of youth. This chapter takes up the different dimensions of technology - the design of materials, maintenance of sites, establishment of an interactive community.

### **Challenging mathematics from the student perspective.**

The fourth chapter of the book, produced by a team under the leadership of Arthur Powell of Rutgers University, takes up didactical issues such as the nature and appropriateness of challenge, as well as psychological and cognitive issues. The tone is set by this quote from the 1996 book, *Handbook of Educational Psychology* (Macmillan, 1996) by R.E. Mayer and M.C. Whitrock:

Problem solving is cognitive processing directed at achieving a goal when no solution method is obvious to the problem solver. According to this definition, problem solving has four main characteristics. First, problem solving is cognitive — it occurs within the problem solver's cognitive system and can be inferred indirectly from changes in the problem solver's behaviour. Second, problem solving is a process — it involves representing and manipulating knowledge in the problem solver's cognitive system. Third, problem solving is directed — the problem solver's thoughts are motivated by goals. Fourth, problem solving is personal — the individual knowledge and skills of the problem solver help determine the difficulty or ease with which obstacles to solutions are overcome. (p. 47)

Expert problem solvers are distinguished in their possession of schemas that allow them to see underlying structure, analogies with other situations, identify significant aspects and exploit appropriate techniques. The job of the instructor is to orchestrate strands of tasks that favour the development of such schemas. One example is based on the taxicab problem (the number of ways of getting to a particular lattice point from the origin in a grid without backtracking), which can be related to similar problems and lead to an appreciation of Pascal's triangle. Such regimes can be helpful in achieving social goals. In 2004, the city of Buenos Aires started a Back-to-School program for older

adolescents. Although many do not know basic algorithms and some even have criminal records or drug problems, this strategy of fostering mathematical autonomy helps them get back on track.

The Study Group looked in detail at a number of case studies. Most notable among these are (1) the Laboratory of Mathematical Machines in Modena, Italy, which invites classes of students for hands-on investigations with replicas of mathematical devices, (2) *Hands-on Universe*, an international internet project for teaching of astronomy, (3) MATH.en.JEANS, a network of French mathematical clubs with an annual national congress where students present the fruits of mathematical investigations, (4) the *Creative Problems Solving in Mathematics* course at a high school in Quincy, IL where students take a sequence on geometry, and (5) *Maths à Modeler*, which sets up research situations for teaching mathematics, studies their effectiveness and trains supervisor of the students.

#### **Challenging mathematics from the teacher perspective.**

The Study Volume then turns to questions of teacher formation. There are many bases to be covered here. First, teachers themselves must be exposed to and develop a taste for mathematical challenges; secondly, they should appreciate the importance of their use; thirdly, they need to deal with practical issues of weaving them into the regular syllabus; fourthly, they must know how to suitably design appropriate challenges; fifthly, they must understand student psychology and what can be expected of them; sixthly, they should be able to identify and apply pedagogical options. Research issues involve identification of barriers that may prevent teachers from using challenge, teacher beliefs about the nature of mathematics, motivation of teachers, and psychological factors. With respect to the last, Vygotsky's concept of the *Zone of Proximal Development*, which looks at the psychic distance between the experience and knowledge that the student brings and the challenge at hand is a particularly fruitful notion in educational research. A separate chapter discusses some case studies in detail.

Finally, if challenges are to become an important part of the school regime, then methods of assessment must be devised to check on the ability of pupils to deal with them. This is probably the hardest task and one which in most places has not been tackled in an effective way. We looked at four situations, in Singapore, Norway, Brazil and Iran. Singapore introduced a problem-solving curriculum in 1992, and has national examinations of students in Grades 6, 10 and 12. Test items are classified as procedural or challenging; of 196 items used between 2000 and 2004 that were released to the public, about one quarter are challenging. Even the Foundation Mathematics examinations for weaker students have challenging items, such as the following: *Small candles cost \$2 each. Large candles cost \$3 each. Alice bought an equal number of small candles and large candles. She spent \$60 altogether. How many candles did she buy altogether?*

Norway revamped its curriculum a decade ago, and has been experimenting since then with different examination formats. Currently, the written national examination has three sections devoted to basic skills, problem solving and a project. The system has some unusual features:

... there is a certain system for arranging written examinations. Due mainly to the cost ..., a student presents for only one of the exams, in English, mathematics or Norwegian. The students are given notice of which one of these subjects they will be examined in only two weeks prior to the examination and the choice itself is made in a national draw.

Another line of development is the introduction of what we might call "preparation time". Two days before the examination, information on possible topics covered by the project part of the exam is given to the students. This development must be seen as a step to make the whole exam more comprehensive.

There is also an oral examination, with the teachers given information one week in advance. The teacher selects a topic and prepares, and the student is given two days notice of the subject and topic. The oral examination begins with a presentation by the student, which is followed by questions from the teacher and an external examiner.

The strategy in Brazil is different. Rather than build challenge into the regular examinations, there is a Brazilian mathematics olympiad for public schools for which there are powerful incentives for all students in Grades 5 through 8 to take part. The objectives of the Olympiad are to stimulate and promote mathematical study, identify young people with talent who might be encouraged to take up mathematics and science, contribute to inservice professional development, foster integration of public schools with public universities and scientific organizations, and promote social inclusion. Having the challenging tests voluntary but widely accepted is one way of tackling the trauma introduced by regular high stakes testing. The Iran situation, as described to us, was not so innovative, consisting of a fairly traditional mix of national examinations and high school competitions.

I am convinced that the creation of a more challenging environment for students is the correct path to follow. Unfortunately, the factors against this "taking" in many jurisdictions are formidable: the lack of mathematical experience and imagination of many teachers, an accountability regime that depends on frequent, skills-based and high stake testing, a school and social environment that often works against intellectual values and the fostering of curiosity and persistence. Yet, as this Study indicates, in many countries there are initiatives that have already produced much that is worthwhile and points the way for future ventures. It will be interesting to see what happens during the next decade.

# NEWS FROM THE FIELDS INSTITUTE

## Fields Institutes supported activities:

**March 1, 2009** -- 3:00 p.m.

Royal Canadian Institute Sunday Lectures  
Florin Diacu, University of Victoria  
University of Toronto  
Co-sponsored by the Fields Institute  
[www.yorku.ca/rcl/Site/Winter%2009%20Tor.html](http://www.yorku.ca/rcl/Site/Winter%2009%20Tor.html)

**March 31, 2009**

Keyfitz Lectures in Mathematics and the Social Sciences  
Maya Bar-Hillel, Center for the Study of Rationality, Hebrew University of Jerusalem.  
University of Toronto  
[www.fields.utoronto.ca/programs/scientific/keyfitz\\_lectures/bar-hillel.html](http://www.fields.utoronto.ca/programs/scientific/keyfitz_lectures/bar-hillel.html)

**April 20-22, 2009**

Fields Waterloo Workshop on Computational Methods for Hyperbolic Problems  
University of Waterloo.  
[www.fields.utoronto.ca/programs/scientific/08-09/hyperbolicprob/](http://www.fields.utoronto.ca/programs/scientific/08-09/hyperbolicprob/)

**April 29-May 1, 2009**

Third Annual Meeting of the Prairie Network for Research in Mathematical Sciences and Student Workshop  
University of Saskatchewan  
[math.usask.ca/%7Ebremner/PN2009.html](http://math.usask.ca/%7Ebremner/PN2009.html)

**May 1-3, 2009**

Workshop on Smooth Structures in Logic, Category Theory and Physics  
University of Ottawa  
[www.fields.utoronto.ca/programs/scientific/08-09/smoothstructures/](http://www.fields.utoronto.ca/programs/scientific/08-09/smoothstructures/)

**May 3-5, 2009**

Nonparametric Statistics Conference  
Carleton University  
[www.fields.utoronto.ca/programs/scientific/08-09/nonparametric/](http://www.fields.utoronto.ca/programs/scientific/08-09/nonparametric/)

**May 8-10, 2009**

Workshop on Connections in Geometry and Physics  
Perimeter Institute  
[www.fields.utoronto.ca/programs/scientific/08-09/geomphysics/](http://www.fields.utoronto.ca/programs/scientific/08-09/geomphysics/)

**May 11-13, 2009**

The 4th Workshop on Theory of Quantum Computation, Communication, and Cryptography (TQC 2009)  
Institute for Quantum Computing, University of Waterloo  
[www.iqc.ca/quantumworld/index.php?id=12](http://www.iqc.ca/quantumworld/index.php?id=12)

**May 11-15, 2009**

Fields Cryptography Retrospective Meeting  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/08-09/crypto/](http://www.fields.utoronto.ca/programs/scientific/08-09/crypto/)

**May 11-15, 2009**

Workshop on Discrete and Computational Geometry  
Carleton University  
[www.fields.utoronto.ca/programs/scientific/08-09/discretecompgeo/](http://www.fields.utoronto.ca/programs/scientific/08-09/discretecompgeo/)

**May 11-21, 2009**

Summer School in Applied Probability  
Carleton University  
[www.fields.utoronto.ca/programs/scientific/08-09/appliedprobSS/](http://www.fields.utoronto.ca/programs/scientific/08-09/appliedprobSS/)

**May 21-23, 2009**

Extremal Graph Theory Workshop  
University of Waterloo  
[www.fields.utoronto.ca/programs/scientific/](http://www.fields.utoronto.ca/programs/scientific/)

**May 22-23, 2009**

Discrete Mathematics Days 2009  
University of Ottawa  
[www.fields.utoronto.ca/programs/scientific/08-09/discrete\\_math/](http://www.fields.utoronto.ca/programs/scientific/08-09/discrete_math/)

**May 25 - 28, 2009**

2nd Canadian Discrete and Algorithmic Mathematics Conference (CanADAM)  
CRM, Montréal, Quebec  
[www.crm.umontreal.ca/CanaDAM2009/index\\_e.shtml](http://www.crm.umontreal.ca/CanaDAM2009/index_e.shtml)

**May 25-29, 2009** (tentative dates)

Distinguished Lecture Series  
Jean-Christophe Yoccoz, Collège de France  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/08-09/o-minimal/DLS/](http://www.fields.utoronto.ca/programs/scientific/08-09/o-minimal/DLS/)

**May 27- 28, 2009** -- 3:30 p.m.

Distinguished Lecture Series in Statistical Science  
David Spiegelhalter, Winton Professor of the Public Understanding of Risk, Centre for Mathematical Sciences, Cambridge  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/08-09/DLSS/](http://www.fields.utoronto.ca/programs/scientific/08-09/DLSS/)

**May 27-28, 2009**

A Symposium and Workshop in Honour of James C. Fu  
University of Manitoba  
[www.stats.umanitoba.ca/events/1/](http://www.stats.umanitoba.ca/events/1/)

**May 27-31, 2009**

Workshop on Geometry Related to the Langlands Programme  
University of Ottawa  
[www.fields.utoronto.ca/programs/scientific/08-09/Langlands/](http://www.fields.utoronto.ca/programs/scientific/08-09/Langlands/)

## NEWS FROM THE FIELDS INSTITUTE

**May 29-30, 2009**

Appalachian Set Theory Workshop  
Fields Institute  
[www.math.cmu.edu/%7Eeschimme/Appalachian/Index.html](http://www.math.cmu.edu/%7Eeschimme/Appalachian/Index.html)

**Summer School: June 15-27, 2009**

**Conference: June 28 - July 3, 2009**

Summer School and Conference in Geometric Representation Theory and Extended Affine Lie Algebras  
University of Ottawa

[www.fields.utoronto.ca/programs/scientific/08-09/geomrep/](http://www.fields.utoronto.ca/programs/scientific/08-09/geomrep/)

**June 22 - 26, 2009**

Workshop on Finiteness Problems in Dynamical Systems  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/08-09/o-minimal/finiteness/](http://www.fields.utoronto.ca/programs/scientific/08-09/o-minimal/finiteness/)

**June 22-26, 2009**

OCCAM-Fields-MITACS Workshop  
University of Toronto  
[www.fields.utoronto.ca/programs/scientific/08-09/biomedical/](http://www.fields.utoronto.ca/programs/scientific/08-09/biomedical/)

**Summer 2009**

Conference on Geophysical Dynamics  
University of Waterloo  
[www.fields.utoronto.ca/programs/scientific/](http://www.fields.utoronto.ca/programs/scientific/)

**July 6-10, 2009**

Operator Structures in Quantum Information Workshop  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/](http://www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/)

**July 26-31, 2009**

Quantum Marginals and Density Matrices Workshop  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/](http://www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/)

**August, 2009 (dates tba)**

Canadian Quantum Information Student Conference  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/](http://www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/)

**August 10-14, 2009**

Multivariate Operator Theory Workshop  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/09-10/multiop/](http://www.fields.utoronto.ca/programs/scientific/09-10/multiop/)

**August 10-14, 2009**

Mathematics in Experimental Quantum Information Processing  
Workshop held at Institute for Quantum Computing, Waterloo  
[www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/](http://www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/)

**August 17-21, 2009**

Canadian Quantum Information Summer School  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/](http://www.fields.utoronto.ca/programs/scientific/09-10/quantuminfo/)

**August 24- 27, 2009**

Conference on Quantum Computing and Quantum Control  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/09-10/CQIQCIII/](http://www.fields.utoronto.ca/programs/scientific/09-10/CQIQCIII/)

**October 3-4, 2009**

Southern Ontario Groups and Geometry Workshop  
Fields Institute  
[www.fields.utoronto.ca/programs/scientific/09-10/SOGG/](http://www.fields.utoronto.ca/programs/scientific/09-10/SOGG/)

## CANADIAN ABSTRACT HARMONIC ANALYSIS SYMPOSIUM 2009

(LAUFEST)

**Organizers:** Brian E. Forrest (Waterloo),  
Volker Runde (Edmonton),  
Keith F. Taylor (Halifax)

**Dates:** May 11-15, 2009

**Venue:** Edmonton

The Canadian Abstract Harmonic Analysis Symposium is a series of annual meetings that started 1997 in Vancouver. As Anthony To-Ming Lau, one of the driving forces behind the series, has turned 65 on August 29, 2008, the CAHAS 2009 will be held in an extended format to honor his contributions to mathematics

### Plenary Speakers:

1. H. Garth Dales (Leeds)
2. Kenneth R. Davidson (Waterloo)
3. Fereidoun Ghahramani (Winnipeg)
4. Eberhard Kaniuth (Paderborn)
5. Viktor Losert (Vienna)
6. Matthias L. Neufang (Ottawa)
7. Alan L. T. Paterson (Oxford)
8. John S. Pym (Sheffield)
9. Joseph Rosenblatt (Urbana-Champaign)
10. Zhong-Jin Ruan (Urbana-Champaign)
11. Roger R. Smith (College Station)
12. Nico Spronk (Waterloo)
13. Wataru Takahashi (Tokyo)
14. Nicole Tomczak-Jaegermann (Edmonton)
15. George A. Willis (Newcastle)

### Website:

[www.math.ualberta.ca/~laufest/](http://www.math.ualberta.ca/~laufest/)

# Call for Nominations The NSERC John C. Polanyi Award

Introduced in 2005, this award pays tribute to the extraordinary research accomplishments and the pursuit of excellence exemplified by Dr. John C. Polanyi. It recognizes and supports a university researcher, or team of researchers, whose work has led to a recent outstanding Canadian advance in any field of the natural sciences or engineering.

The deadline for nominations is: **March 2, 2009**.

Researchers in Canadian universities and in government or corporate research laboratories are eligible to be nominated for this award, which celebrates Canada's most recent outstanding advances and raises public awareness of the major developments that Canadian researchers make to science and engineering and to Canada's quality of life.

The winning individual or team will receive a **research grant of \$250,000**.

For more information and instructions on how to prepare a nomination, visit [www.nserc-crsng.gc.ca/en/polanyi](http://www.nserc-crsng.gc.ca/en/polanyi).

For specific inquiries, contact at 613-995-5829 or [polanyi@nserc-crsng.gc.ca](mailto:polanyi@nserc-crsng.gc.ca).



## Atlantic Association for Research in the Mathematical Sciences

### AARMS SUMMER SCHOOL 2009

The eighth annual Summer School sponsored by the Atlantic Association for Research in the Mathematical Sciences (AARMS) will take place at the University of New Brunswick in Fredericton, New Brunswick, Canada from July 12 through August 8, 2009. The school, which offers courses in the mathematical sciences and their applications, is intended for graduate students and promising undergraduate students from all parts of the world. Each participant will be expected to register for two courses, each with five ninety-minute lectures per week. These are graduate courses, approved by the University of New Brunswick, and we will facilitate transfer credits to the extent possible.

For 2009, the following courses are planned:

Algebraic Topology, by Gustavo Granja of the Instituto Superior Técnico, Lisbon, Portugal.

Cryptography, by Mike Jacobson, University of Calgary.

Introduction to Quantum Computing, by David Kribs, University of Guelph.

Topological Combinatorics, Daniel Matei, Institute of Mathematics (Simion Stoilow) of the Romanian Academy, Bucharest, Romania.

For more information, or to express interest in attending, send e-mail to Barry Monson ([bmonson@unb.ca](mailto:bmonson@unb.ca)) and/or visit the school's

website: <http://www.aarms.math.ca/summer>.

# CMS/CSHPM SUMMER MEETING 2009

## RÉUNION D'ÉTÉ 2009 DE LA SMC ET DE LA SCHPM

**St. John's, Newfoundland**

**June 6-8, 2009**

**www.cms.math.ca**

**Host: Memorial University of Newfoundland**

**Meeting Directors: David Pike and Danny Dyer (Memorial)**

The Canadian Mathematical Society (CMS, [www.cms.math.ca](http://www.cms.math.ca)), the Canadian Society for History and Philosophy of Mathematics (CSHPM, <http://cshpm.org/>) and Memorial University of Newfoundland ([www.math.mun.ca](http://www.math.mun.ca)) invite the mathematical community to the CMS/CSHPM Summer Meeting 2009. The program will include ten plenary, prize and public lectures, and a wide variety of sessions, including a Contributed Paper session.

All scientific talks and most social events will take place at the Memorial University of Newfoundland; the registration desk will be located in the lobby of the Inco Innovation Building. The banquet will take place at the Woodstock Colonial Restaurant in Paradise, NL ([www.thewoodstock.com](http://www.thewoodstock.com)).

The Meeting is immediately followed by the International Conference on Nielsen Theory and Related Topics (June 9 - 13, 2009, St. John's, Newfoundland). This conference continues a series of meetings extending back 30 years in which researchers bring each other up to date, make new mathematical connections and establish new and rekindle old working relationships for future research projects.

Information: [keppelma@unr.edu](mailto:keppelma@unr.edu)

Organizing Committee: Philip Heath (Chair), Robert F. Brown, Evelyn Hart, Edward Keppelmann

### Prizes and Awards

Jeffery-Williams Prize - Stephen Kudla (Toronto)

Krieger-Nelson Prize - Yael Karshon (Toronto)

Excellence in Teaching Award - to be announced

### Plenary Speakers

Elizabeth Billington (Queensland)

Michael Mackey (McGill)

Susan Montgomery (USC)

Michael Sigal (Toronto)

Gaoyong Zhang (Polytechnic Univ.; New York)

CSHPM - Jeremy Gray (Open Univ.; Warwick, UK)

### Public Lecture

Helaman Ferguson (Sculptor)

### Business Meetings

Executive Committee Meeting: Thursday, June 4

Development Group Luncheon: Friday, June 5,

Memorial University

Board of Directors Meeting: Friday, June 5;

Memorial University

### Social Events

Welcoming Reception: Friday, June 5; Memorial University  
Banquet: Sunday, June 7; Woodstock Colonial Restaurant  
(Paradise, NL)

Complimentary coffee and juice will be available during the scheduled breaks.

### Registration

The registration form will be available shortly  
[www.cms.math.ca/Events](http://www.cms.math.ca/Events).

Registration fees are given in Canadian dollars. Payment may be made by cheque (Canadian or US dollars), or by VISA or MasterCard. To qualify for the reduced rate, payment must be received by March 15; for the registration to be processed before the meeting, payment must be received by May 15. Receipts will be provided at the meeting.

	ONLINE	ONSITE
	Early rate until March 15	Regular rate Mar15 - May15
Prize Lecturer (incl. 2 free banquet tickets)	\$ 0	\$ 0
Plenary, Public Lecturer (incl. 1 free banquet ticket)	\$ 0	\$ 0
Students	\$100	\$125
Postdoc, Retired, K-12 Teachers, Unemployed	\$150	\$180
CMS/CSHPM/AMS members, Organizers, Speakers		\$350
Non-Members	\$465	\$515
One-day fee (onsite only)	-	\$195
Banquet ticket	\$ 60	\$ 60

### Advantages to Pre-Registration:

- reduced fees for early registration until March 15
- your name appears on the list of participants on the meeting web site
- your Meeting Package is waiting for you at the reception on Friday evening
- no waiting in line early Saturday morning to process your registration!
- banquet tickets are available now but may no longer be available on site

### Refund Policy

Participants wishing to cancel their registration must notify the CMS ([meetings@cms.math.ca](mailto:meetings@cms.math.ca)) in writing by May 15 to receive a refund less a \$40 processing fee. Those whose contributed paper has not been accepted will upon request be fully refunded.

### Submission of Abstracts

For abstracts of talks to be published on-line and in the meeting programme, they have to be submitted by April 15, 2009, using the on-line form at [cms.math.ca/forms/abs-s09](http://cms.math.ca/forms/abs-s09). The organizers appreciate the cooperation of all speakers in observing this important deadline.

# CMS/CSHPM SUMMER MEETING 2009

## RÉUNION D'ÉTÉ 2009 DE LA SMC ET DE LA SCHPM

### Accommodation

The hotels listed below are offering rooms at a reduced group rate during the conference as well as three days prior and three days after the conference. To be eligible for the reduced room rates, participants must make their reservations before the date indicated, quoting the group code. Reservations made after the deadline will be on a space available basis and the group rate may no longer apply.

Rates are per room per night and are quoted in Canadian dollars. Reservations must be guaranteed by a one-night deposit or a major credit card. It is recommended to clarify payment and cancellation policies when making the reservation, as these vary from hotel to hotel.

### Quality Hotel Harbourview

([www.choicehotels.ca/hotels/hotel?hotel=CN246](http://www.choicehotels.ca/hotels/hotel?hotel=CN246))

2 Hill O'Chips, St. John's, Newfoundland and Labrador,

Canada A1C 6B1

Phone: 709-754-7788; Fax: 709-754-5209

Complimentary high-speed internet access and local calls

**Group code:** Canadian Mathematical Society

**Rates:** \$132 per night (plus 16% applicable taxes), quadruple occupancy

**Parking:** complimentary underground parking

**Check-in:** 2:00 pm

**Check-out:** 11:00 am

### Extended Stay Deluxe Hotel Downtown

([www.extendedstaydeluxe.com/minisite/?HotelID=969](http://www.extendedstaydeluxe.com/minisite/?HotelID=969))

222 LeMarchant Road, St. John's, Newfoundland and

Labrador, Canada A1C 2H9

Phone: 709-754-7888; Fax: 709-754-7695

Kitchen with refrigerator, microwave, and stovetop; on-site guest laundry;

Complimentary daily continental breakfast (6-10 am), airport shuttle and local calls;

Wireless Internet - one time fee of \$4.99 per stay

Booking deadline: March 5, 2009

**Group code:** Canadian Mathematical Society

**Rates:** \$144.99 per night (plus 16% applicable taxes), single or double occupancy

**Parking:** complimentary parking

**Check-in:** 3:00 pm

**Check-out:** 11:00 am

### Residences of Memorial University

Conference Services, Room 316C, Hatcher House, St. John's, NL, A1B 3P7

Phone: 709-737-7657

Please complete the online reservation form and fax it to MUN Conference Services at 709-737-6705. The form also provides information regarding internet access, parking permits and other services offered by MUN.

**Rates:** \$33.00 per night single accommodation, \$54.00 per night double accommodation. (plus applicable taxes)

**Check-in:** 3:00 pm

**Check-out:** 11:00 am

### Travel

A taxi fare from the airport to downtown costs approximately \$25.

A taxi fare from downtown to the university campus costs approximately \$20.

Detailed information regarding the city of St. John's, and the province of Newfoundland and Labrador, including tourism information, local weather and climate, site and street maps, and itineraries for self-guided tours, are available at the following websites:

- Destination St. John's  
[www.destinationstjohns.com](http://www.destinationstjohns.com)
- Newfoundland and Labrador Tourism  
[www.newfoundlandlabrador.com](http://www.newfoundlandlabrador.com)
- Canada Weather Forecast  
[www.weatheroffice.ec.gc.ca](http://www.weatheroffice.ec.gc.ca)

### Graduate Student Travel Support

Limited funds are available to partially fund the travel and accommodation costs for bona fide graduate students at a Canadian or other university. Preference is given to Canadian students. To apply for this funding, applicants should submit a letter written by their supervisor or departmental graduate advisor, providing the following: name of student, area of study and level, how the student will benefit from the meeting, whether or not the student be speaking, and what support is available from other sources.

This letter should be sent before March 15, 2009 to [gradtravel-s09@cms.math.ca](mailto:gradtravel-s09@cms.math.ca). Applicants will be notified in late March of the funding decision. If successful, the student will receive a cheque for reimbursement of expenses after the meeting and upon completion and submission of the standard Travel Expense Claim Form, along with appropriate original receipts.

For more information, please contact the Meeting Committee at [gradtravel-s09@cms.math.ca](mailto:gradtravel-s09@cms.math.ca).

### Exhibits

Exhibits will be open from 9:30 am to 4:00 pm on Saturday and Sunday in the IIC Building.

The Joint Exhibit features books and other products from publishers and other companies and organizations not represented at the meeting. Order forms will be available at the exhibit for your convenience. We will forward any orders to the corresponding company after the meeting. Books and other materials that will be displayed at this Joint Exhibit will be donated to the host university.

We invite participants to visit the CMS Membership Booth and Book Display and the CSHPM information table, located in the registration area.

# CMS/CSHPM SUMMER MEETING 2009

## RÉUNION D'ÉTÉ 2009 DE LA SMC ET DE LA SCHPM

### Sponsors

Support from the following organizations is gratefully acknowledged. Additional information regarding support for this meeting will be posted to the meeting web site as it becomes available.

le Centre de Recherches Mathématiques (CRM)  
The Fields Institute  
MITACS  
Pacific Institute for the Mathematical Sciences (PIMS)

The Canadian Mathematical Society and the Canadian Society for History and Philosophy of Mathematics wish to acknowledge the contributions of the Meeting Directors and the Session Organizers.

### SESSIONS

#### Algebraic Combinatorics

#### Combinatoire algébrique

Org: Karen Meagher, Steve Kirkland (Regina)

#### Algebraic Geometry and Topology (Canada/Korea)

#### Géométrie algébrique et topologie (Canada/Corée)

Org: Alejandro Adem (UBC), Jong Hae Keum (KIAS)

#### Algebraic Group Actions and Invariant Theory

#### Actions algébriques des groupes et théorie des invariants

Org: Eddy Campbell (Memorial), Jianjun Chuai (Memorial), David Wehlau (RMC; Queen's)

#### Combinatorial Designs and Related Topics

#### Designs combinatoires et sujets connexes

Org: Václav Linek (Winnipeg), Nabil Shalaby (Memorial)

#### Financial Mathematics

#### Mathématiques financières

Org: Rogemar Mamon (Western), Cody Hyndman (Concordia)

#### Geometric Harmonic Analysis and Partial Differential Equations

#### Analyse harmonique géométrique et équations aux dérivées partielles

Org: Jie Xiao (Memorial)

#### Graph Searching

Org: Anthony Bonato (Laurier), Danny Dyer (Memorial), Gary MacGillivray (Victoria)

#### Groups and Hopf Algebras

#### Groupes et algèbres de Hopf

Org: Yuri Bahturin, Mikhail Kotchetov (Memorial), David Radford (Illinois), Earl Taft (Rutgers)

#### History and Philosophy of Mathematics (CSHPM)

#### Histoire et philosophie des mathématiques (SCHPM)

Org: Tom Drucker (Wisconsin-Whitewater)

#### History of the Relationship Between Mathematics and the Physical Sciences (CSHPM)

#### Liens historiques entre les mathématiques et les sciences physiques

Org: Tom Archibald (SFU)

#### Interactions between Algebraic Geometry and Ring Theory

#### Interactions entre la géométrie algébrique et la théorie des anneaux

Org: Jason Bell (SFU), Colin Ingalls (UNB)

#### Mathematical Physics

#### Physique mathématique

Org: Marco Merkli, Chris Radford (Memorial)

#### Mathematics Education

#### Éducation mathématique

Org: Sherry Mantyka (Memorial)

#### Nielsen Theory and its Applications

#### La théorie de Nielsen et ses applications

Org: Philip Heath (Memorial), Evelyn Hart (Colgate Univ.), Edward C. Keppelmann (Nevada-Reno)

#### Nonlinear Dynamics and Applications

#### Dynamique non linéaire et ses applications

Org: Gail Wolkowicz (McMaster), Yuan Yuan, Xiaoqiang Zhao (Memorial)

#### Numerical Analysis and Scientific Computing

#### Analyse numérique et computations scientifiques

Org: Jahrul Alam (Memorial), Wenyuan Liao (Calgary)

#### Paraconsistent Logic

#### Logique paraconsistente

Org: Peter Schotch (Dalhousie)

#### Reaction-Diffusion Systems and Their Applications

#### Systèmes de réaction-diffusion et leurs applications

Org: David Iron, Theodore Kolokolnikov (Dalhousie), Chunhua Ou (Memorial)

#### Topological Algebra, Topology, and Functional Analysis

#### Algèbre topologique, topologie et analyse fonctionnelle

Org: Alex Karassev (Nipissing), Gábor Lukács (Manitoba), Paul Szeptycki (York)

#### Contributed Papers

#### Communications libres

Org: to be determined / à venir

# CMS/CSHPM SUMMER MEETING 2009

## RÉUNION D'ÉTÉ 2009 DE LA SMC ET DE LA SCHPM

**St. John's (Terre-Neuve-et-Labrador)**

**6-8 juin 2009**

**www.smc.math.ca**

**Hôte : Université Memorial de Terre-Neuve**

**Directeurs de la réunion : David Pike et Danny Dyer (Memorial)**

La Société mathématique du Canada (SMC) ([www.smc.math.ca](http://www.smc.math.ca)), la Société canadienne d'histoire et de philosophie des mathématiques (SCHPM, <http://cshpm.org/>) et l'Université Memorial ([www.math.mun.ca](http://www.math.mun.ca)) invitent la communauté mathématique à la Réunion d'été 2009 de la SMC et de la SCHPM. Au programme : dix conférences (plénières, publique et de lauréats) ainsi qu'une grande diversité de sessions, y compris une session de communications libres.

Toutes les activités scientifiques et la plupart des activités sociales se dérouleront à l'Université Memorial; le kiosque d'inscription principal sera situé dans l'entrée du pavillon 'Innovation'. Le banquet se tiendra au restaurant Woodstock Colonial à Paradise ([www.thewoodstock.com](http://www.thewoodstock.com)).

L'International Conference on Nielsen Theory and Related Topics se tiendra immédiatement après la Réunion (9 - 13 juin 2009, St. John's, Terre-Neuve). Ce congrès est la suite d'une série de rencontres qui a commencé il y a une trentaine d'années, où les chercheurs mettent leurs connaissances à jour par leurs échanges, établissent de nouvelles connexions mathématiques et nouent de nouvelles relations de travail ou en ravivent d'anciennes pour entreprendre des projets de recherche.

Information : [keppelma@unr.edu](mailto:keppelma@unr.edu)

Comité organisateur : Philip Heath (président), Robert F. Brown, Evelyn Hart, Edward Keppelmann

### Prix

Prix Jeffery-Williams - Stephen Kudla (Toronto)

Prix Krieger Nelson - Yael Karshon (Toronto)

Prix d'excellence en enseignement de la SMC - à venir

### Conférenciers pléniers

Elizabeth Billington (Queensland)

Michael Mackey (McGill)

Susan Montgomery (USC)

Michael Sigal (Toronto)

Gaoyong Zhang (Polytechnic Univ.; New York)

SCHPM - Jeremy Gray (Open Univ.; Warwick, UK)

### Conférence publique

Helaman Ferguson (Sculpteur)

### Séances de travail

Réunion du Comité exécutif : le jeudi 4 juin

Lunch du Groupe de développement : le vendredi 5 juin; Université Memorial

Réunion du Conseil d'administration : le vendredi 5 juin; Université Memorial

### Activités sociales

Réception d'accueil : le vendredi 5 juin, Université Memorial

Banquet : le dimanche 7 décembre, Woodstock Colonial

Restaurant (Paradise, Terre-Neuve)

Du café et des jus seront servis durant les pauses prévues à l'horaire.

### Inscription

Vous pourrez bientôt vous procurer le formulaire d'inscription au [www.smc.math.ca/Events/f](http://www.smc.math.ca/Events/f).

Les tarifs sont indiqués en dollars canadiens dans le tableau. Nous acceptons les paiements par chèque (dollars CAN ou US), VISA ou MasterCard. Le paiement doit nous parvenir au plus tard le 15 mars pour que vous ayez droit aux tarifs réduits, et au plus tard le 15 mai pour que nous ayons le temps de traiter votre paiement avant le congrès. Les reçus seront remis sur place.

	EN LIGNE	SUR PLACE
	Inscr. hôtes jusqu'au 15 mars	Tarif normal 15 mars - 15 mai
Conférencier primé (2 billets pour le banquet)	0 \$	0 \$
Conférencier (conf. plénière ou publique) (1 billet pour le banquet)	0 \$	0 \$
Etudiants	100 \$	125 \$
Étudiants postdoctoraux, retraités, enseignants (mat., prim., sec.), sans emploi	150 \$	180 \$
Membres (SMC,SCHPM) organisateurs et conférenciers de la SMC	310 \$	350 \$
Non-membres	465 \$	515 \$
Tarif quotidien (sur place seulement)		195 \$
Billet pour le banquet	60 \$	60 \$

### Avantages de la préinscription :

- Tarifs réduits pour les personnes qui s'inscrivent au plus tard le 15 mars
- Votre nom figurera dans la liste des participants sur le site du congrès
- Votre trousse d'inscription sera déjà prête à votre arrivée le vendredi soir
- Vous n'aurez pas besoin de faire la file pour vous inscrire à la première heure samedi matin!
- Les billets pour le banquet sont en vente maintenant, mais il pourrait ne plus en rester sur place

### Politique de remboursement

Les participants qui désirent annuler leur inscription doivent en aviser le bureau administratif de la SMC ([reunion@smc.math.ca](mailto:reunion@smc.math.ca)) par écrit au plus tard le 15 mai pour se voir rembourser leurs frais d'inscription (moins 40 \$). Les participants dont les communications libres n'auront pas été acceptées seront remboursés intégralement sur demande.

### Envoi de résumés

Pour pouvoir publier votre résumé en ligne et dans le programme de la Réunion, nous devons le recevoir au plus tard le 15 avril 2009. Veuillez utiliser le formulaire électronique au [smc.math.ca/forms/abs-s09](http://smc.math.ca/forms/abs-s09). Les organisateurs remercient les conférenciers de bien vouloir respecter cette importante échéance.

# CMS/CSHPM SUMMER MEETING 2009

## RÉUNION D'ÉTÉ 2009 DE LA SMC ET DE LA SCHPM

### Hébergement

Les hôtels ci-dessous offrent des chambres à un tarif de groupe préférentiel pour la durée du congrès ainsi que pour les trois jours qui précèdent et qui suivent l'événement. Pour y avoir droit, vous devez réserver avant les dates limites indiquées en mentionnant le code de groupe. Les réservations faites après la date limite ne seront acceptées que s'il reste des chambres, et il se pourrait que le tarif préférentiel ne soit plus en vigueur.

Les tarifs sont par nuit, par chambre, et sont indiqués en devises canadiennes. Toute réservation doit être garantie par le paiement d'une nuit ou par une carte de crédit reconnue. Nous vous recommandons de vérifier les modalités de paiement et d'annulation au moment de faire votre réservation, car celles-ci varient d'un établissement à l'autre.

#### Hôtel Quality Harbourview

([www.choicehotels.ca/hotels/hotel?hotel=CN246](http://www.choicehotels.ca/hotels/hotel?hotel=CN246))  
2 Hill O'Chips, St. John's, Terre-Neuve, Canada A1C 6B1  
Téléphone : 709-754-7788; Fax: 709-754-5209  
Internet haute vitesse et appels locaux gratuits

**Code de groupe :** Canadian Mathematical Society

**Tarifs :** 132 \$ la nuit (plus taxes de 16 %), quatre personnes

**Stationnement :** stationnement souterrain gratuit

**Arrivée :** 14 h

**Départ :** 11 h

#### Hôtel Extended Stay Deluxe Downtown

([www.extendedstaydeluxe.com/minisite/?HotelID=969](http://www.extendedstaydeluxe.com/minisite/?HotelID=969))  
222 LeMarchant, St. John's, Terre-Neuve, Canada A1C-2H9  
Téléphone : 709-754-7888; Fax: 709-754-7695  
Cuisinette avec réfrigérateur, micro-ondes et cuisinière; service de buanderie sur place;  
Aussi compris : déjeuner continental tous les matins (6 h -10 h), navette entre l'hôtel et l'aéroport et appels gratuits;  
Internet sans fil – tarif unique de 4,99 \$ par séjour  
Date limite : 5 mars 2009

**Code de groupe :** Canadian Mathematical Society

**Tarifs :** 144,99 \$ la nuit (plus taxes de 16 %), une ou deux personnes

**Stationnement :** gratuit

**Arrivée :** 15 h

**Départ :** 11 h

#### Résidences de l'Université Memorial

Conference Services, Room 316C, Hatcher House,  
St. John's (T.-N.-L.) A1B 3P7  
Téléphone : 709-737-7657  
Veuillez remplir le formulaire de réservation en ligne et le retourner par fax aux Services des conférences de l'Université Memorial au 709-737-6705. Vous trouverez aussi sur le formulaire de plus amples renseignements sur l'accès internet, les permis de stationnement et d'autres services offerts par l'Université.

**Tarifs :** 33 \$ la nuit pour une chambre simple et 54 \$ pour une chambre double (plus taxes exigibles), pour une ou deux personnes.

**Stationnement :** gratuit

**Arrivée :** 15 h

**Départ :** 11 h

### Déplacements

Le trajet en taxi de l'aéroport au centre-ville coûte autour de 25 \$. Un taxi du centre-ville à l'université coûte environ 20\$.

Vous trouverez des renseignements détaillés concernant la ville de St. John's et la province de la Terre-Neuve (renseignements touristiques, température et climat locaux, cartes de la ville et des attractions touristiques, circuits touristiques piétonniers, etc.) sur les sites web suivants :

- Destination St. John's ([www.destinationstjohns.com](http://www.destinationstjohns.com))
- Terre-Neuve-et-Labrador ([www.newfoundlandlabrador.com/fr/](http://www.newfoundlandlabrador.com/fr/))
- Service météorologique du Canada ([www.meteo.gc.ca](http://www.meteo.gc.ca))

### Déplacements pour étudiants diplômés

Les étudiants diplômés du Canada ou de l'étranger ont accès à un fonds limité pour financer une partie de leurs frais de déplacement et de séjour. La préférence est toutefois accordée aux étudiants canadiens. Toute demande de financement doit être accompagnée d'une lettre du superviseur de l'étudiant ou de la personne responsable des études supérieures de son département, dans laquelle il ou elle indiquera le nom de l'étudiant, son domaine et son niveau d'études, en quoi la Réunion sera profitable à l'étudiant, si l'étudiant présentera une communication et si l'étudiant a accès à d'autres sources de financement.

La lettre doit parvenir à la SMC avant le 15 mars 2009 ([gradtravel-s09@smc.math.ca](mailto:gradtravel-s09@smc.math.ca)). Les décisions seront annoncées à la fin d'octobre. Si une subvention est accordée à l'étudiant, ce dernier se verra rembourser ses dépenses après la Réunion sur présentation du formulaire de remboursement approprié accompagné des reçus originaux.

Pour de plus amples renseignements, veuillez communiquer avec la responsable des Réunions ([gradtravel-s09@cms.math.ca](mailto:gradtravel-s09@cms.math.ca)).

### Salon des exposants

Le salon des exposants sera ouvert de 9 h 30 à 16 h le samedi et le dimanche au pavillon 'Innovation'.

Exposition conjointe : On y présentera des produits de maisons d'édition et d'autres entreprises et organismes non représentés à la Réunion. On trouvera des bons de commande sur place, qui seront transmis aux entreprises concernées après la Réunion. Les livres et autres produits qui seront présentés à cette occasion seront offerts à l'université hôte.

Nous vous invitons à visiter le comptoir d'adhésion et l'exposition de livres de la SMC, de même que la table d'information de la SCHPM, dans l'aire d'inscription.

### Commanditaires

Nous remercions les organismes ci-dessous de leur soutien financier. Nous publierons de plus amples renseignements sur le financement du congrès dès qu'ils nous parviendront.  
Centre de recherches mathématiques (CRM)

Institut Fields  
MITACS

Institut du Pacifique pour les sciences mathématiques (PIMS)  
Université Memorial de Terre-Neuve

La SMC et la SCHPM tient à remercier les directeurs de la Réunion et les organisateurs de sessions.

## BLOCK SCHEDULE

THURSDAY/JEUDI June 4 juin	SATURDAY/SAMEDI June 6 juin	SUNDAY/DIMANCHE June 7 juin	MONDAY/LUNDI June 8 juin
18:00-22:00 Executive Committee Meeting Réunion du Comité exécutif	8:00 – 16:30 <b>Registration/Inscription</b> 9:30 – 16:30 <b>Exhibits/Expositions</b>  8:30 – 9:00 <b>Opening/Ouverture</b> 9:00 – 9:45 <b>Jeremy Gray</b> <b>CSHMPM Plenary Lecture</b>	8:00 – 16:30 <b>Registration/Inscription</b> 9:30 – 16:30 <b>Exhibits/Expositions</b>  8:00 – 10:00 <b>Scientific Sessions</b>	8:00 – 16:00 <b>Registration/Inscription</b>  8:00 – 10:00 <b>Scientific Sessions</b>
		10:00 – 10:30 Break / Pause	
	10:30 – 12:00 <b>Scientific Sessions</b>	10:30 – 11:15 <b>Michael Sigal</b> <b>Plenary Lecture</b>	10:30 – 11:15 <b>Gaoyong Zhang</b> <b>Plenary Lecture</b>
	12:00 – 12:30 <b>Teaching Award Lecture</b>	11:30 – 12:15 <b>Stephen Kudla</b> <b>Jeffery-Williams Lecture</b>	11:30 – 12:15 <b>Yael Karshon</b> <b>Krieger-Nelson Lecture</b>
<b>FRIDAY/VENDREDI</b> June 5 juin	CMS AGM CSHMPM AGM		12:30 – 14:00 Lunch Break
11:00 AM – 13:00 Development Group Luncheon Lunch du groupe de développement (Junior Common Room, MUN)	14:00-15:00 <b>Scientific Sessions</b>	14:00-15:00 <b>Scientific Sessions</b>	14:00-15:00 <b>Scientific Sessions</b>
13:30 – 18:30 Board of Directors Meeting Réunion du conseil d'administration (Junior Common Room, MUN)	15:00 – 15:45 <b>Susan Montgomery</b> <b>Plenary Lecture</b>	15:00 – 15:45 <b>Elizabeth Billington</b> <b>Plenary Lecture</b>	15:00 – 15:45 <b>Michael Mackey</b> <b>Plenary Lecture</b>
	16:15 – 17:45 <b>Scientific Sessions</b>	16:15 – 17:15 <b>Scientific Sessions</b>	16:15 – 17:15 <b>Scientific Sessions</b>
18:30 -20:00 <b>Welcome Reception</b> <b>Réception d'accueil</b>	18:00 –19:00 <b>Helaman Ferguson</b> <b>Public Lecture</b>	18:30 Buses depart for banquet  19:00 - 19:30 <b>Reception (cash bar)</b> <b>Réception (bar payant)</b>	
	19:00 – 20:00 <b>Reception</b>	19:30 – 22:30 <b>Banquet</b> (Woodstock Colonial Restaurant, Paradise, NL)	

(as of January 12, 2009)

## OBITUARY NARAIN GUPTA (1936-2008)

Professor Narain Gupta was born in Jammu, India. He obtained his Bachelor's degree in his hometown, and his Master's degree in Mathematics and a degree in Law simultaneously in Aligarh University. He held a CSIR junior research fellowship in mathematics at Aligarh. Then he obtained his Ph.D from Australian National University, where he held a brief teaching position. He immigrated to Canada in July 1967 and joined the University of Manitoba, Winnipeg. His research was in the representation theory of combinatorial groups to which he made significant contributions. He became a Professor of Mathematics in 1973, a Distinguished Professor in 2000, and Professor Emeritus in 2005. He published more than a hundred papers and articles in leading



mathematical journals. His solution to a conjecture on the elusive dimension subgroup problem is regarded as one of his finest achievements, and is referred to in the Encyclopedia Britannica. Thus his work earned international recognition. His editorial contributions to journals include Communications in Algebra, Journal of Group Theory and the Journal of the Indian Mathematical Society. Books and monographs by him include volumes in Contemporary Mathematics, besides Burnside Groups and Related Topics published by the University of Manitoba. He passed away on April 11, 2008.

His wife, Chander Kanta Gupta, is also a Professor of Mathematics at the University of Winnipeg.

# CALL FOR APPLICATIONS - CMS EXECUTIVE DIRECTOR AND SECRETARY APPEL DE CANDIDATURES - DIRECTEUR ADMINISTRATIF ET SECRÉTAIRE DE LA SMC

The Canadian Mathematical Society (CMS), one of the leading mathematics organizations in Canada, seeks applications for the position of Executive Director and Secretary. This position offers a unique and exciting opportunity for an individual with energy, drive, initiative and enthusiasm to make a difference on the national stage.

The CMS works to enhance Canada's capacity to innovate and compete globally by promoting the discovery, learning and application of mathematics in Canada. With approximately 900 members from across Canada and beyond, the CMS supports efforts that identify and develop young mathematicians through its math competitions, math camps and other educational activities. The CMS enhances the practice of mathematics in Canada through national conferences and by publishing research journals, books, and newsletters in both print and electronic formats.

The work of the CMS is carried out by a large number of dedicated and enthusiastic volunteers, together with a small experienced staff of seven at the Executive Office in Ottawa.

## Responsibilities:

The Executive Director and Secretary must be an effective and experienced administrator, able to address different points of view with the tact and courtesy appropriate to a largely volunteer organization. The position is full-time and requires judgment, independence, travel, and flexibility in the scheduling of working hours.

The Executive Director and Secretary is appointed by the Board of Directors of the CMS, reports to the CMS President and represents the CMS to universities, governments, the corporate sector, institutes, and to other scholarly societies and officials. The Executive Director is responsible to the Executive Committee and the Board of Directors of the CMS for the operations of the CMS Executive Office and for the other administrative office throughout Canada. He/she works in close contact with the CMS President and has the responsibility for aspects of the Society's publications, meetings, fundraising, web site, projects, and operations. Some restructuring of the current duties in the position is possible, to align them with the skills of an outstanding applicant. The starting date is negotiable, but in any case no later than July 1, 2009. The ability to assume some duties on a part-time basis prior to July 2009 is an asset.

## Qualifications:

Experience in an academic and research environment or a doctoral degree in mathematics is preferable. The candidate should have: prior administrative or managerial experience; excellent organizational and interpersonal skills; very strong analytical and problem-solving skills; superior and proven communication skills (preferably in both English and French); experience in setting and managing budgets; and the ability to develop and implement program support and promote the work and programs of the CMS. Experience in fundraising and promotion is a valuable asset. The candidate will work principally out of the CMS Executive Office in Ottawa.

The deadline for applications is **February 27, 2009 at 4pm**. Please submit applications, including a resume, cover letter and names of at least three references by fax, email or mail to:

### Executive Director Search

Canadian Mathematical Society

1785 Alta Vista Drive, Suite 105

Ottawa, Ontario Canada K1G 3Y6

Attn: Dr Tony Lau, CMS President / président de la SMC

Tel: 613-733-2662 FAX: 613-733-8994

e-mail: president@cms.math.ca

La Société mathématique du Canada (SMC), l'un des principaux regroupements mathématiques du pays, cherche à pourvoir le poste de directeur administratif et secrétaire. C'est un poste unique et stimulant, idéal pour une personne énergique, dynamique, enthousiaste et ayant l'esprit d'initiative qui souhaite se distinguer sur la scène nationale.

La SMC a pour mission de rehausser la capacité du Canada d'innover et d'être concurrentiel à l'échelle mondiale en favorisant la découverte et l'apprentissage des mathématiques, et les applications qui en découlent, au Canada. Forte de ses quelque 900 membres du Canada et d'ailleurs, la SMC encourage les initiatives visant à dépister et à former de jeunes mathématiciens par l'entremise de concours, de camps et d'autres activités mathématiques éducatives. La SMC rehausse l'activité mathématique au pays par l'organisation de congrès nationaux et la publication de revues, de livres et de bulletins, en format papier et électronique.

Les activités de la SMC sont menées par un grand nombre de bénévoles dévoués et enthousiastes, appuyés par un personnel compétent de sept personnes au bureau administratif d'Ottawa.

## Responsabilités :

Le directeur administratif et secrétaire doit être une personne efficace et expérimentée, capable de gérer des points de vue diversifiés avec le doigté et la courtoisie nécessaire dans un organisme en grande partie bénévole. Le ou la titulaire de ce poste à plein temps doit posséder un bon jugement, être autonome, pouvoir se déplacer fréquemment et être souple quant à son horaire de travail.

Le directeur administratif et secrétaire est nommé par le conseil d'administration de la SMC, relève du président de la SMC et représente la SMC auprès des universités, des gouvernements, du secteur privé, des instituts et d'autres sociétés professionnelles et leurs dirigeants. Cette personne est redevable au comité exécutif et au conseil d'administration de la SMC pour ce qui est du fonctionnement du bureau administratif d'Ottawa et des autres bureaux de la SMC au Canada. Elle travaille en étroite collaboration avec le président de la SMC, et s'occupe de divers aspects des publications, des congrès, des activités de financement, du site internet, des projets et du fonctionnement. Une certaine restructuration des tâches actuelles du titulaire du poste est possible, de manière à tenir compte des compétences d'un candidat ou d'une candidate remarquable. La date d'entrée en fonction est négociable, mais ne doit pas dépasser le 1er juillet 2009. La possibilité d'assumer certaines tâches à temps partiel avant cette date est toutefois un atout.

## Qualifications :

La préférence sera accordée à une personne qui possède de l'expérience en milieu universitaire et en recherche, ou un doctorat en mathématiques. Cette personne possédera : de l'expérience en gestion; un sens aigu de l'organisation et un excellent sens des relations humaines; une très bonne capacité d'analyse et de résolution de problèmes; des compétences linguistiques exceptionnelles et éprouvées (préférablement en anglais et en français); de l'expérience en planification et en gestion budgétaire; des aptitudes pour l'élaboration et l'application de programmes qui soutiennent et stimulent les activités de la SMC. Une bonne connaissance des campagnes de financement et de promotion sera considérée comme un atout. Le bureau administratif de la SMC à Ottawa est le lieu de travail principal.

Les personnes intéressées ont jusqu'au **27 février 2009 à 16 h** pour poser leur candidature. Veuillez faire parvenir votre demande, accompagnée d'un curriculum vitae, d'une lettre de présentation et d'au moins trois références, par fax, par courriel ou par la poste à :

### Concours pour le poste de directeur administratif

Société mathématique du Canada

1785, chemin Alta Vista, bureau 105

Ottawa (Ontario) Canada K1G 3Y6

A/s de : Tony Lau, président de la SMC

Tél. : 613-733-2662 - Fax : 613-733-8994

Courriel : president@smc.math.ca

## CALL FOR SESSIONS – CMS WINTER MEETING 2009 APPEL DE SESSIONS – RÉUNION D'HIVER 2009 DE LA SMC

Les sessions autonomes jouent un rôle important dans le succès de nos réunions. Nous vous invitons à proposer des sessions autonomes pour la réunion qui se tiendra à Windsor (Ontario), du 5 au 7 décembre 2009. Votre proposition doit inclure une brève description de l'orientation et des objectifs de la session, le nombre de communications prévues et leur durée, ainsi que le nom, l'adresse complète, le numéro de téléphone, l'adresse courriel et les autres coordonnées de l'organisateur. Toutes les sessions seront annoncées dans les Notes de la SMC, sur le site web et, si possible, dans le Notices de l'AMS et les publications d'autres sociétés. Les conférenciers devront présenter un résumé qui sera publié sur le site web et dans le programme de la Réunion. Toute personne qui souhaiterait organiser une session est priée de faire parvenir une proposition au directeur de la Réunion avant la date limite indiquée ci-dessous.

**Date limite :** 31 mars 2009

Directeur de la Réunion :

**Dr. Daniel Britten**  
Mathematics & Statistics  
Lambton Tower, 10th Floor  
Windsor, ON N9B 3P4  
Tel: (519) 253-3000 Ext. 3013  
[britten@uwindsor.ca](mailto:britten@uwindsor.ca)

Les sessions suivantes ont été confirmées :

Algèbres de Banach et analyse harmonique abstraite  
Org: Zhiguo Hu, Mehdi Monfared (Windsor)

Analyse convexe et variationnelle  
Org: Heinz Bauschke, Shawn Wang (UBC Kelowna)

Algèbres de Lie et théorie des représentations  
Org: Nicolas Guay (Alberta), Michael Lau (Windsor)

Groupes de Lie et formes automorphiques  
Org: Hadi Salmasian, Wai Ling Yee (Windsor)

Modèles mathématiques en sciences environnementales  
Org: Rick Caron (Windsor)

Statistiques mathématiques  
Org: Chi Song Wong (Windsor)

Théorie matricielle et les statistiques  
Org: Ejaz Ahmed, Abdul Hussein (Windsor)

Mesure, probabilité et processus stochastique  
Org: Severien Nkurunziza, Tim Traynor (Windsor)

Théorie de contrôle non-linéaire  
Org: Andrew Lewis, Abdol-Reza Mansouri (Queen's)

Algèbres d'opérateurs  
Org: Mitja Mastnak (Saint Mary's), Dilian Yang (Windsor)

Self-supported sessions play an important role in the success of our meetings. We welcome and invite proposals for self-supported sessions for this meeting (December 5-7, 2009) in Windsor, Ontario. Proposals should include a brief description of the focus and purpose of the session, the expected number of the talks, as well as the organizer's name, complete address, telephone number, e-mail address, etc. All sessions will be advertised in the CMS Notes, on the web site and, if possible, in the Notices of the AMS and in publications of other societies. Speakers will be requested to submit abstracts, which will be published on the web site and in the meeting program. Those wishing to organize a session should send a proposal to the Meeting Director by the deadline below.

**Deadline:** March 31, 2009

Meeting Director:

**Dr. Daniel Britten**  
Mathematics & Statistics  
Lambton Tower, 10th Floor  
Windsor, ON N9B 3P4  
Tel: (519) 253-3000 Ext. 3013  
[britten@uwindsor.ca](mailto:britten@uwindsor.ca)

The following sessions have been confirmed for this conference:

Banach Algebras and Abstract Harmonic Analysis  
Org: Zhiguo Hu, Mehdi Monfared (Windsor)

Convex and Variational Analysis  
Org: Heinz Bauschke, Shawn Wang (UBC Kelowna)

Lie Algebras and Representation Theory  
Org: Nicolas Guay (Alberta), Michael Lau (Windsor)

Lie Groups and Automorphic Forms  
Org: Hadi Salmasian, Wai Ling Yee (Windsor)

Mathematical Models in Environmental Sciences  
Org: Rick Caron (Windsor)

Mathematical Statistics  
Org: Chi Song Wong (Windsor)

Matrix Theory and Statistics  
Org: Ejaz Ahmed, Abdul Hussein (Windsor)

Measure, Probability, and Stochastic Processes  
Org: Severien Nkurunziza, Tim Traynor (Windsor)

Non-Linear Control Theory  
Org: Andrew Lewis, Abdol-Reza Mansouri (Queen's)

Operator Algebras  
Org: Mitja Mastnak (Saint Mary's), Dilian Yang (Windsor)

# 2009 CANADIAN MATHEMATICS EDUCATION FORUM (CMEF 2009) FORUM CANADIEN SUR L'ENSEIGNEMENT DES MATHÉMATIQUES 2009 (FCEM 2009)

[www.cms.math.ca/Events/CMEF2009/](http://www.cms.math.ca/Events/CMEF2009/)

The 2009 Forum will be held in Vancouver, April 30 to May 3, 2009, at the SFU Vancouver Campus, 515 West Hastings Street, Vancouver, BC. It is being organized and cosponsored by the Canadian Mathematical Society (CMS) and by the Pacific Institute for the Mathematical Sciences (PIMS). Participation in the 2009 Forum is by invitation.

## Theme of the 2009 Forum

Almost every province is struggling with mathematics curriculum reform. It is generally felt that "getting it right" is a long-term process that requires sustained work, continuous partnership with teachers from design to implementation and adjustments, consultation with mathematicians and mathematics educators, support for teacher professional learning, access to rich resources, manageability and coherence of assessment policies and practices.

"Curriculum" in its many dimensions emerged as a recurring theme in the previous CMEFs. With a view to address some of the main concerns and challenges that were expressed there, it was decided to have the 2009 Forum focus on the ways in which resources and assessment define, inform and mould curriculum. This objective requires the participation and collaboration of people involved at the many relevant constituencies: the school systems, teachers at all levels, coordinators, school boards, colleges and universities, mathematics and statistics departments, faculties of education, Ministries of Education, parent groups and business and industry.

## Plenary Speakers

Rina Zazkis, joint with CtC (Faculty of Education, SFU)

Reconsidering Basic Mathematical Assumptions  
in Teacher Education

Hugh Burkhardt

(Shell Center for Mathematical Education, University of Nottingham)

Making School Mathematics Functional: A Stool Needs Three Legs

Steven Rasmussen (Key Curriculum Press)

The Vantage Point of Publisher: One View  
of Curriculum Development

## Sponsors

CMEF 2009 wishes to thank our sponsors for their generous support:

CAIMS

Canadian Mathematical Society

Centre de recherches mathématiques

Fields Institute

MITACS

Pacific Institute for the Mathematical Sciences (PIMS)

Simon Fraser University

## Co-organizers

Malgorzata Dubiel (SFU)

Viktor Freiman (Moncton)

Peter Taylor (Queen's)

[www.smc.math.ca/Reunions/FCEM2009](http://www.smc.math.ca/Reunions/FCEM2009)

Le Forum 2009 se tiendra à Vancouver du 30 avril au 3 mai 2009, au campus de Vancouver de l'Université Simon Fraser, situé au 515, rue Hastings Ouest, à Vancouver (Colombie-Britannique). Le Forum est organisé et commandité par la Société mathématique du Canada (SMC) et l'Institut du Pacifique pour les sciences mathématiques (PIMS). La participation au Forum 2009 est limitée aux personnes invitées.

## Thème du Forum 2009

La plupart des provinces sont aux prises avec une réforme des programmes de mathématiques. Dans l'ensemble, on s'entend pour dire que l'obtention d'un produit de qualité est un processus à long terme qui nécessite un travail soutenu, un partenariat continu avec les enseignants, de la conception à la mise en œuvre et aux ajustements, la consultation des mathématiciens et des enseignants de mathématiques, le perfectionnement des enseignants, l'accès à des ressources riches ainsi qu'une évaluation gérable et cohérente des politiques et pratiques d'évaluation.

Les programmes d'études ou curriculums sous toutes leurs formes sont ressortis comme thèmes récurrents des derniers forums. Afin d'aborder certaines des problématiques soulevées à ces occasions, les organisateurs ont décidé de faire porter le Forum 2009 sur l'influence des ressources et des évaluations sur la définition et l'évolution des programmes. L'atteinte de cet objectif dépendra de la participation et de la collaboration de représentants des nombreuses entités organisatrices, du milieu scolaire, des enseignants de tous niveaux, des coordonnateurs, des conseils et commissions scolaires, des collèges et universités, des départements de mathématiques et de statistique, des facultés d'Éducation, des ministères de l'Éducation, des groupes de parents et du secteur privé.

## Conférences plénierées

Rina Zazkis (Faculty of Education, SFU)

Repenser les hypothèses mathématiques de base en formation des enseignants

Hugh Burkhardt (Shell Center for Mathematical Education, University of Nottingham)

Rendre les mathématiques fonctionnelles à l'école : un tabouret doit avoir trois pattes

Steven Rasmussen (Key Curriculum Press)

Le développement des programmes du point de vue d'un éditeur

## Commanditaires

Le FCEM 2009 remercie ses commanditaires de leur grande générosité :

Centre de recherches mathématiques

Fields Institute

MITACS

Pacific Institute for the Mathematical Sciences (PIMS)

SCMAI

Société mathématique du Canada

Université Simon Fraser

## Coorganiseurs

Malgorzata Dubiel (SFU)

Viktor Freiman (Moncton)

Peter Taylor (Queen's)

opportunity to consider other options in the short or long-term. The University of Ottawa has indicated that in a few years the current space shortage should be resolved and it may then be possible to re-locate back on campus. The rental cost is just under \$49,000 which is considerably more than the current rate. Taking into account the savings from not filling the Administrative Assistance position, there should be no impact on the 2009 Budget proposal.

I would like to thank the staff of the CMS office for their hard work throughout the year and for their patience and understanding during the various moves and with the other changes within the CMS. Thank you!

During the last year, the very strong Canadian dollar had a significant impact on lowering the revenue from our journal publications, which was priced in US dollar for subscribers from outside Canada. As a consequence, the Society was operating on a deficit budget. An aggressive fund raising campaign was launched by David Rodgers and Gerri Jensen. Our thanks to David and Gerri for their very important voluntary services to the Society.

Presently, the CMS has 868 members, up from 795 in 2007. Among them, about 160 are retirees and 80 graduate students. However, in some major departments there are very few non-retired members. We will begin in early 2009 to focus on a "Membership Campaign". We will have representatives in each department to talk to colleagues and to encourage them to join CMS. As graduate students are very important for the future of mathematics, we will also try to have student representatives to talk to graduate students on membership.

If you are not already a member of CMS, please join us!

Joseph Khoury has informed the Executive Committee and the Board of Directors that, for personal reasons, he will be unable to assume the position of Executive Director effective January 1, 2009. Graham Wright offered to remain as Executive Director, but on a slightly reduced basis (approximately 75%) until June 30, 2009. During this period, Khoury agreed to continue in his role as the Associate Executive Director (on a part-time basis) and provide assistance to Graham. The Board of Directors approved both of these appointments.

The Executive Director position is now being advertised with a deadline of February 27, 2009. It is hoped to conduct interviews in March so that training could commence in April 2009, with the actual transition taking place on July 1, 2009.

I would like to thank Graham Wright for his 30 years of devotion to the Canadian Mathematical Society and for his willingness to change his retirement plan for us in the coming year.

In 2009, the CMS Summer Meeting will be held in St. John's, Newfoundland, June 6 and 8. There will be a special joint session with the Korean Mathematical Society organized by Alejandro Adem (UBC) and Jong Hae Keum (KIAS) in Algebraic Geometry and Topology. The 2009 Winter Meeting will be hosted by University of Windsor. In addition, there will be a Canadian Math Education Forum in Vancouver April 30 – May 3, 2009 and a joint meeting with the Mexican Mathematical Society August 13 – 15, 2009 in Vancouver. I look forward to seeing many of you there.

Wishing you all a very Happy New Year!

## NSERC - CMS Math in Moscow Scholarships

The Natural Sciences and Engineering Research Council (NSERC) and the Canadian Mathematical Society (CMS) support scholarships at \$9,000 each. Canadian students registered in a mathematics or computer science program are eligible.

The scholarships are to attend a semester at the small elite Moscow Independent University.

### Math in Moscow Program

[www.mccme.ru/mathinmoscow/](http://www.mccme.ru/mathinmoscow/)

### Application details

[www.cms.math.ca/Scholarships/Moscow](http://www.cms.math.ca/Scholarships/Moscow)

For additional information please see your department or call the CMS at 613-733-2662.

Deadline **March 31, 2009** to attend the Fall 2009 semester.

## Bourse CRSNG/SMC Math à Moscou

Le Conseil de Recherches en Sciences Naturelles et en Génie du Canada (CRSNG) et la Société mathématique du Canada (SMC) offrent des bourses de 9,000 \$ chacune. Les étudiantes ou étudiants du Canada inscrit(e)s à un programme de mathématiques ou d'informatique sont éligibles.

Les bourses servent à financer un trimestre d'études à la petite université d'élite Moscow Independent University.

### Programme Math à Moscou

[www.mccme.ru/mathinmoscow/](http://www.mccme.ru/mathinmoscow/)

### Détails de soumission

[www.smc.math.ca/Bourses/Moscou](http://www.smc.math.ca/Bourses/Moscou)

Pour plus de renseignements veuillez communiquer avec votre département ou la SMC au 613-733-2662.

Date limite le **31 mars 2009** pour le trimestre d'automne 2009.



# DU BUREAU DU PRÉSIDENT

par Anthony To-Ming Lau  
Université d'Alberta, Edmonton

Pour commencer la nouvelle année, j'aimerais remercier toutes les personnes qui ont contribué à l'essor de la Société mathématique du Canada par leurs généreux dons, en temps comme en argent.

La Réunion d'hiver 2008 de la SMC, tenue à l'Université Carleton, a connu un franc succès. Plus de 470 personnes y ont participé. Cette rencontre a réuni un auditoire très représentatif de la communauté mathématique canadienne. La qualité des conférenciers pléniers y était en outre tout à fait exceptionnelle : David Acheson (Oxford), Fan Chung (UC San Diego), Gilles Godefroy (Paris), Sorin Popa (UCLA), Laurent Saloff-Coste (Cornell), Mark Sapir (Vanderbilt) et Keith Taylor (Dalhousie). Patrick Hayden (McGill) a pour sa part prononcé la conférence publique. Quelque 23 sessions spéciales y étaient aussi organisées, dont une session de communications libres.

Lors de cette Réunion, nous avons félicité les lauréats des prix suivants : Ravi Vakil (Stanford) - prix Coxeter-James; Matthew Greenberg (Calgary) - Prix de doctorat; Harley Weston (Regina) - prix Adrien-Pouliot; Hermann Brunner (Memorial) - prix David-Borwein de mathématicien émérite pour l'ensemble d'une carrière; Dmitry Jakobson (McGill), Nikolai Nadirashvili (Chicago) et Iosif Polterovich (Montréal) - prix G. de B. Robinson. Bill Sands (Calgary) est quant à lui le premier lauréat du prix Graham-Wright pour service méritoire, tout récemment rebaptisé. Tous les prix ont été remis lors du banquet le 6 décembre. Félicitations à tous les lauréats!

Mes sincères remerciements aux commanditaires de cette Réunion : le CRM, l'Institut Fields, le Réseau MITACS et l'Institut PIMS.

Avant la Réunion, le Comité des femmes en mathématiques de la SMC a aussi organisé le 4e atelier Connecting Women in Mathematics Across Canada, qui s'est tenu à l'Université d'Ottawa les 4 et 5 décembre 2008.

Les directeurs scientifiques, Matthias Neufang et Benjamin Steinberg (Carleton), ont travaillé d'arrache-pied pour nous offrir un programme attrayant et varié. Ils méritent ainsi nos plus sincères remerciements. Une rencontre de cette envergure exige un dévouement et une vigueur sans pareil, et n'aurait jamais vu le jour sans le travail assidu des directeurs de la Réunion, des organisateurs de sessions et particulièrement du personnel de la SMC.

En octobre 2008, des représentants de la SMC (Alejandro Adem, Roland Speicher, Nicole Tomczak-Jaegermann, Bruce Reed et moi-même) ont participé à un congrès de la société coréenne de mathématiques (2008 Global KMS International Conference) à Jeju, en Corée. Malheureusement, Bruce Reed a dû annuler sa participation à la dernière minute. Alejandro Adem était l'un des trois conférenciers pléniers et Bernard Hodgson, de l'Université Laval, était invité à la session sur l'enseignement des mathématiques. Roland Speicher, Nicole Tomczak-Jaegermann et moi-même étions invités comme conférenciers à une session commune SMC/KMS sur l'analyse

fonctionnelle. Ce congrès s'apparentait en importance à nos Réunions semestrielles (environ 400 participants et 13 sessions). Nous avons tous apprécié la chaleureuse hospitalité de la société coréenne. Avant la Réunion, on nous a fait visiter l'Institut coréen d'études avancées, à Séoul.

En novembre 2008, la SMC a appris qu'elle devait quitter les locaux qu'elle occupait temporairement au plus tard le 31 décembre 2008. Graham Wright et Joseph Khouri ont étudié diverses options. À sa réunion de décembre, après analyse de la situation en cours et des recommandations du Comité exécutif, le Conseil d'administration a donc approuvé le déménagement du bureau administratif de la SMC au 1785, avenue Alta Vista (bureau 105). Les nouveaux bureaux, d'une superficie de 1 500 pi<sup>2</sup>, sont beaucoup plus petits que ceux de l'Université d'Ottawa. Toutefois, le fait que le poste de l'adjointe administrative ne sera pas pourvu offre une certaine marge de manœuvre à l'installation du personnel dans ces nouveaux locaux. La SMC a signé un bail d'un an dans cet immeuble, qui comprend un bureau pour le directeur administratif. Ainsi, la SMC aura la liberté d'envisager d'autres options à court et à long terme. L'Université d'Ottawa a mentionné que son problème d'espace actuel devrait être réglé d'ici quelques années, et qu'elle pourrait peut-être accueillir à nouveau la SMC sur le campus à ce moment-là. Le coût de location s'élève à un peu moins de 49 000 \$ par année, ce qui dépasse largement le coût actuel. Compte tenu de l'économie du non-renouvellement du poste de l'adjointe administrative, cette décision ne devrait pas avoir d'incidence sur les prévisions budgétaires de 2009.

J'aimerais remercier le personnel du bureau de la SMC de tout le travail accompli durant l'année ainsi que de sa patience et de sa compréhension durant les déménagements et à l'égard des changements qui ont secoué la SMC. Merci!

Au cours de la dernière année, la force du dollar canadien a considérablement réduit les recettes tirées de nos publications, dont le prix est établi en dollars américains pour les abonnés de l'étranger. Par conséquent, la Société affichait un budget déficitaire. David Rodgers et Gerri Jensen ont lancé une vigoureuse campagne de financement. Je remercie sincèrement ces deux personnes de cette contribution bénévole fort importante pour la Société.

En ce moment, la SMC compte 868 membres, comparativement à 795 en 2007, dont 160 personnes à la retraite et 80 étudiants diplômés. Dans certains grands départements, toutefois, nous comptons très peu de membres non retraités. Au début de 2009, nous entreprendrons une grande campagne de recrutement. Dans tous les départements, nous demanderons à des membres d'encourager leurs collègues à se joindre à la SMC. Comme les étudiants diplômés sont d'une grande importance pour l'avenir des mathématiques, nous tenterons aussi de trouver des représentants étudiants qui inciteront les étudiants des cycles supérieurs à adhérer à la SMC.

Vous n'êtes pas membre de la SMC? N'attendez plus!

Joseph Khoury a informé le Comité exécutif et le Conseil d'administration que, pour des raisons personnelles, il ne pourrait assumer le poste de directeur administratif à compter du 1er janvier 2009. Graham Wright a offert de rester en poste, mais en réduisant sa charge de travail (à 75 % environ) jusqu'au 30 juin 2009. Durant cette période, M. Khoury a accepté de demeurer directeur administratif adjoint (à temps partiel) et de prêter main-forte à Graham. Le Conseil d'administration a approuvé les deux nominations.

Le poste de directeur administratif est donc à nouveau annoncé, et la Société recevra des candidatures jusqu'au 27 février. Nous espérons mener des entrevues en mars pour que la période de formation puisse commencer en avril et que la transition réelle se fasse le 1er juillet prochain.

J'aimerais remercier Graham Wright de ses 30 années de service dévoué envers la Société mathématique du Canada, et d'avoir accepté de modifier ses plans de retraite pour accommoder la Société au cours de l'année qui vient.

En 2009, la Réunion d'été de la SMC se tiendra à St. John's (Terre-Neuve-et-Labrador), du 6 au 8 juin. En collaboration avec la Société coréenne de mathématiques, Alejandro Adem (UBC) et Jong Hae Keum (KIAS) y organiseront une session spéciale sur la géométrie et la topologie algébriques. La Réunion d'hiver 2009 aura lieu à l'Université de Windsor. Par ailleurs, le Forum canadien sur l'enseignement des mathématiques aura lieu à Vancouver du 30 avril au 3 mai 2009, et un congrès conjoint avec la Société mexicaine de mathématiques se déroulera du 13 au 15 août 2009, aussi à Vancouver. J'espère vous voir ou vous revoir en grand nombre à ces occasions.

## BOOKS RECEIVED

We thank the publishers for the following books received from them:

**Wave Scattering by Time-Dependent Perturbations**  
by G.F. Roach, Princeton 2007  
304 pages US\$65 (cloth)

**Genomic Signal Processing**  
by Ilya Shmulevich & Edward Dougherty, Princeton 2007,  
312 pages US\$60 (cloth)

**The Design Inference: Eliminating Chance Through Small Probabilities**  
by William A. Dembski  
Cambridge 2006 243 pages  
US\$25 (paper)

**How To Prove It: A Structured Approach (2nd ed)**  
by Daniel J. Velleman  
Cambridge 2006 384 pages  
US\$30 (paper)

**An Introduction to Cryptography (2nd ed)**  
by Richard A. Mollin  
Chapman & Hall/CRC 2007  
413 pages

**Handbook of Mathematics for Engineers & Scientists**  
by Andrei Polyanin and Alexander Manzhirov  
Chapman & Hall/CRC 2007  
1509 pages

**Handbook of Finite Translation Planes**  
by Norman Johnson, Vikram Jha and Mouro Biliotti  
Chapman & Hall/CRC 2007  
861 pages

**Handbook of Combinatorial Designs (2nd ed)**  
Charles Colbourn and Jeffrey Dinitz, eds.  
Chapman & Hall/CRC 2007  
984 pages US\$129.95

**Synthetic Differential Geometry (2nd ed)**  
by Anders Kock  
LMS Lecture Notes 333  
Cambridge 2006 233 pages  
US\$55

**Handbook of Linear Algebra**  
edited by Leslie Hogben  
Chapman & Hall/CRC 2007

**Stats: Data and Models**  
by Richard DeVeaux, Paul Velleman and David Bock  
Pearson/Addison Wesley 2005  
808 pages

**Hesiod's Anvil**  
by Andrew J. Simpson  
MAA/Dolciani 2007  
344 pages

**Numerical Solution of PDEs (2nd ed)**  
by K.W. Morton and D.F. Mayers  
Cambridge 2005 278 pages  
\$43 US (paper)

**Certain Number-Theoretic Episodes in Algebra**  
by R. Sivaramakrishnan  
Chapman & Hall/CRC 2007  
632 pages

**Models of Parametric Statistical Inference**  
by Seymour Geisser  
Wiley 2006 192 pages

**Topics on Continua**  
by Sergio Macias  
Chapman & Hall/CRC 2005  
361 pages

**Analytic Tomography**  
by Andrew Markoe  
Cambridge 2006 400 pages

**Stability of Infinite Dimensional Stochastic Differential Equations with Applications**  
by Kai Liu  
Chapman & Hall/CRC 2006  
298 pages

**Nonstandard Methods and Applications in Mathematics**  
Nigel J. Cutland et al (eds)  
A.K. Peters 2006

**Logic Colloquium '03**  
Viggo Stoltenberg-Hansen et al (eds)  
A.K. Peters 2003 408 pages

**99 Points of Intersection**  
by Hans Walser  
MAA 2006 153 pages

**An Invitation to Modern Number Theory**  
by Steven J. Miller and Ramin Takloo-Bighash  
Princeton 2006 502 pages

**Elliptic Theory on Singular Manifolds**  
by Vladimir E. Nazaikinskii et al  
Chapman & Hall/CRC 2006  
356 pages

**Introduction to Abstract Algebra (3rd ed)**  
by W. Keith Nicholson  
Wiley 2007 511 pages

**General Theory of Algebraic Equations**  
by Etienne Bezout  
translated by Eric Feron  
Princeton 2006 337 pages

**Geometric Algebra for Physicists**  
by Chris Doran and Anthony Lasenby  
Cambridge 2007, 579 pages.  
US \$80 (paper)

## CALL FOR NOMINATIONS

### CJM/CMB - Associate Editors

The Publications Committee of the CMS solicits nominations for Associate Editors for the Canadian Journal of Mathematics (CJM) and the Canadian Mathematical Bulletin (CMB). The appointment will be for five years beginning January 1, 2009. The continuing members (with their end of term) are below.

The deadline for the submission of nominations is April 15, 2009.

Nominations, containing a curriculum vitae and the candidate's agreement to serve, should be sent to the address below.

## APPEL DE MISES EN CANDIDATURE

### JCM/BCM - Rédacteurs associés

Le comité des publications de la SMC sollicite des mises en candidatures pour des rédacteurs associés du Journal canadien de mathématiques (JCM) et Bulletin canadien de mathématiques (BCM). Le mandat sera de cinq ans et débutera le 1 janvier 2009. La liste des éditeurs qui sont en cours de mandat se trouve ci-dessous..

L'échéance pour proposer des candidats est le 15 avril 2009.

Les mises en candidature, accompagnées d'un curriculum vitae ainsi que du consentement du candidat(e), devrait être envoyées à l'adresse ci-dessous.

Address for Nominations / Addresse de mise en candidatures:

**Matthias Neufang, Chair / Président**

CMS Publications Committee / Comité des publications de la SMC

School of Mathematics & Statistics

The Fields Institute

222 College Street, 2nd Floor

Toronto, ON M5T 3J1

[mneufang@fields.utoronto.ca](mailto:mneufang@fields.utoronto.ca)

## CURRENT MEMBERS / MEMBRES ACTUELS

### CJM Editors-in-Chief / Rédacteurs-en-chef du JCM

H. Kim (Toronto) 12/2011; R. McCann (Toronto) 12/2011.

### CMB Editors-in-Chief / Rédacteurs-en-chef du BCM

Nantel Bergeron (York) 12/2010; Jianhong Wu (York) 12/2010.

### Associate Editors / Rédacteurs associés

K. Bezdek (Calgary) 12/2011; J. Colliander 12/2011; Luc Devroye (McGill) 12/2009; Alan Dow (York) 12/2010; George Elliott (Toronto) 12/2010; K. Hare (Waterloo) 12/2011; Stephen Kudla (Toronto) 12/2013; Vladimir Pestov (Ottawa) 12/2013; Thomas Ransford (Laval) 12/2009; Gordon Slade (UBC) 12/2013; Roland Speicher (Queen's) 12/2013; Ravi Vakil (Stanford University) 12/2009; Vinayak Vatsal (UBC) 12/2013; Jie Xiao (Memorial) 12/2013.



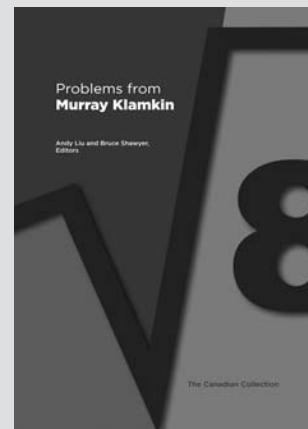
Mathematical Association of America Presents

## Problems from Murray Klamkin: The Canadian Collection

*Andy Liu & Bruce Shawyer, Editors*

Murray Klamkin was a dedicated problem solver and problem proposer, who left indelible marks on the problemist community. After working in industry and academe in the United States, he spent the last thirty of his eighty four years in Canada. He was famous for his Quickies, problems that have quick and neat solutions. In this book you will find all of the problems that he proposed for **CRUX with MAYHEM**, including all of his Quickies. His problems covered a very wide range of topics, and show a great deal of insight into what is possible in these areas. The problems are arranged into sets according to topic, and the lightly edited solutions are as published in **CRUX with MAYHEM**.

Problems from Murray Klamkin: The Canadian Collection is published by the Mathematical Association of America (MAA) in collaboration with the Canadian Mathematical Society (CMS). It is the first volume in the Canadian Collection.



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# CALL FOR NOMINATIONS / APPEL DE MISES EN CANDIDATURE

## Prix Adrien-Pouliot Award

2009

Nous sollicitons la candidature de personnes ou de groupe de personnes ayant contribué d'une façon importante et soutenue à des activités mathématiques éducatives au Canada. Le terme « contributions » s'emploie ici au sens large; les candidats pourront être associés à une activité de sensibilisation, un nouveau programme adapté au milieu scolaire ou à l'industrie, des activités promotionnelles de vulgarisation des mathématiques, des initiatives, spéciales, des conférences ou des concours à l'intention des étudiants, etc.

Les candidatures doivent nous être transmises via le « Formulaire de mise en candidature » disponible au site Web de la SMC : [www.cms.math.ca/Prix/info/ap](http://www.cms.math.ca/Prix/info/ap). Pour garantir l'uniformité du processus de sélection, veuillez suivre les instructions à la lettre. Toute documentation excédant les limites prescrites ne sera pas considérée par le comité de sélection.

Il est possible de renouveler une mise en candidature présentée l'an dernier, pourvu que l'on en manifeste le désir avant la date limite. Dans ce cas, le présentateur n'a qu'à soumettre des documents de mise à jour puisque le dossier original a été conservé. Les mises en candidature doivent parvenir au bureau de la SMC avant le **30 avril 2009**. Veuillez faire parvenir vos mises en candidature en six exemplaires à l'adresse ci-dessous :

Nominations of individuals or teams of individuals who have made significant and sustained contributions to mathematics education in Canada are solicited. Such contributions are to be interpreted in the broadest possible sense and might include: community outreach programmes, the development of a new program in either an academic or industrial setting, publicizing mathematics so as to make mathematics accessible to the general public, developing mathematics displays, establishing and supporting mathematics conferences and competitions for students, etc.

Nominations must be submitted using the Nomination Form available from the CMS Web site at: [www.cms.math.ca/Prizes/info/ap](http://www.cms.math.ca/Prizes/info/ap). To assure uniformity in the selection process, please follow the instructions precisely. Documentation exceeding the prescribed limits will not be considered by the Selection Committee.

Individuals who made a nomination last year can renew this nomination by simply indicating their wish to do so by the deadline date. In this case, only updating materials need be provided as the original has been retained. Nominations must be received by the CMS Office no later **April 30, 2009**. Please send six copies of each nomination to the address given below.

### The Adrien Pouliot Award / Le Prix Adrien-Pouliot

Canadian Mathematical Society / Société mathématique du Canada  
1785 Alta Vista Drive, Suite 105  
Ottawa, ON K1G 3Y6 Canada

The 2009 Adrien-Pouliot Award will be presented at the CMS Winter 2009 Meeting in Windsor, ON, December 5 to 7.  
Le prix Adrien-Pouliot seront présentés à la Réunion d'hiver 2009 de la SMC à Windsor (Ontario), du 5 au 7 décembre..

## Graham Wright Award for Distinguished Service Prix Graham-Wright pour service méritoire

2009

In 1995, the Society established this award to recognize individuals who have made sustained and significant contributions to the Canadian mathematical community and, in particular, to the Canadian Mathematical Society. The award was renamed in 2008, in recognition of Graham Wright's 30 years of service to the Society as the Executive Director and Secretary.

Nominations should include a reasonably detailed rationale and be submitted by **March 31, 2009**, to the address below.

En 1995, la Société mathématique du Canada a créé un prix pour récompenser les personnes qui contribuent de façon importante et soutenue à la communauté mathématique canadienne et, notamment, à la SMC. Ce prix était renommé à compter de 2008 en hommage de Graham Wright pour ses 30 ans de service comme directeur administratif et secrétaire de la SMC.

Pour les mises en candidature prière de présenter des dossiers avec une argumentation convaincante et de les faire parvenir, le **31 mars 2009** au plus tard, à l'adresse ci-dessous :

### Selection Committee / Comité de sélection

Graham Wright Award for Distinguished Service / Prix Graham-Wright pour service méritoire  
Canadian Mathematical Society / Société mathématique du Canada  
1785 Alta Vista Drive, Suite 105  
Ottawa, ON K1G 3Y6 Canada

# CALL FOR NOMINATIONS / APPEL DE MISES EN CANDIDATURE

*The CMS Research Committee is inviting nominations for three prize lectureships. These prize lectureships are intended to recognize members of the Canadian mathematical community.*

*Le Comité de recherche de la SMC lance un appel de mises en candidatures pour trois de ses prix de conférence. Ces prix ont tous pour objectif de souligner l'excellence de membres de la communauté mathématique canadienne.*

## Prix Coxeter-James Prize Lectureship

2010

The Coxeter-James Prize Lectureship recognizes young mathematicians who have made outstanding contributions to mathematical research. The selected candidate will deliver the prize lecture at the Winter Meeting.

The recipient shall be a member of the Canadian mathematical community. Nominations may be made up to ten years from the candidate's Ph.D.: researchers having their PhD degrees conferred in 1999 or later will be eligible for nomination in 2009 for the 2010 Coxeter-James prize. A nomination can be updated and will remain active for a second year unless the original nomination is made in the tenth year from the candidate's Ph.D.

Le prix Coxeter-James rend hommage aux jeunes mathématiciens qui se sont distingués par l'excellence de leur contribution à la recherche mathématique. La personne choisie prononcera sa conférence à la Réunion d'hiver.

Cette personne doit être membre de la communauté mathématique canadienne. Les candidats sont admissibles jusqu'à dix ans après l'obtention de leur doctorat : ceux qui ont obtenu leur doctorat en 1999 ou après seront admissibles en 2009 pour le prix Coxeter-James 2010. Toute mise en candidature est modifiable et demeurera active l'année suivante, à moins que la mise en candidature originale ait été faite la 10e année suivant l'obtention du doctorat.

## Prix Jeffery-Williams Prize Lectureship

2011

The Jeffery-Williams Prize Lectureship recognizes mathematicians who have made outstanding contributions to mathematical research. The prize lecture will be delivered at the Summer Meeting. The recipient shall be a member of the Canadian mathematical community. A nomination can be updated and will remain active for three years.

Le prix Jeffery-Williams rend hommage aux mathématiciens ayant fait une contribution exceptionnelle à la recherche mathématique. La personne choisie prononcera sa conférence à la Réunion d'été. Cette personne doit être membre de la communauté mathématique canadienne. Toute mise en candidature est modifiable et demeurera active pendant trois ans.

## Prix Krieger-Nelson Prize Lectureship

2011

The Krieger-Nelson Prize Lectureship recognizes outstanding research by a female mathematician. The prize lecture will be delivered at the Summer Meeting. The recipient shall be a member of the Canadian mathematical community. A nomination can be updated and will remain active for two years.

Le prix Krieger-Nelson rend hommage aux mathématiciennes qui se sont distinguées par l'excellence de leur contribution à la recherche mathématique. La lauréate prononcera sa conférence à la Réunion d'été. La lauréate doit être membre de la communauté mathématique canadienne. Toute mise en candidature est modifiable et demeurera active pendant deux ans.

The deadline for nominations is **June 30, 2009**. Nominations and reference letters should be submitted electronically, preferably in PDF format, by the appropriate deadline, to [research-prizes@cms.math.ca](mailto:research-prizes@cms.math.ca).

La date limite de mises en candidature est le **30 juin 2009**. Veuillez faire parvenir les mises en candidature et lettres de référence par voie électronique, de préférence en format PDF, avant la date limite à : [prix-recherche@smc.math.ca](mailto:prix-recherche@smc.math.ca)

Nominators should ask at least three referees to submit letters directly to the Chair of the CMS Research Committee by September 30, 2009. Some arms length referees are strongly encouraged. Nomination letters should list the chosen referees, and should include a recent curriculum vitae for the nominee, if available.

Les proposants doivent faire parvenir trois lettres de référence au président du Comité de recherche de la SMC au plus tard le 30 septembre 2009. Nous vous incitons fortement à fournir des références indépendantes. Le dossier de candidature doit comprendre le nom des personnes données à titre de référence ainsi qu'un curriculum vitae récent du candidat ou de la candidate, dans la mesure du possible.

Dr. Edward Bierstone  
Chair, Research Committee / Président, comité de recherches  
CMS Prize Lectureships / Prix de conférence de la SMC  
Department of Mathematics, University of Toronto  
40 St. George Street  
Toronto, Ontario M5S 2E4

The Nominating Committee wishes to announce its initial list of candidates for the 2009 elections. Each candidate named has agreed to stand for the position indicated and to furnish the committee with the biographical information requested.

Further nominations are sought and will be accepted by the Nominating Committee provided: (i) that each such person is supported in writing by at least five other members of the Society; ii) that the person has given written acceptance to stand for office and to supply the biographical information which will be requested by the Nominating Committee and (iii) that the information sought in (i) and (ii) is received by March 2, 2009.

Additional nominations together with supporting materials should be sent to the address below:

Le comité des mises en candidature a établi la liste initiale des candidats pour les élections de 2009. Chaque personne sur la liste a accepté d'être candidat(e) et de fournir au comité les renseignements biographiques désirés.

Les mises en candidature supplémentaires sont sollicitées et seront acceptées par la Comité des mises en candidature pourvu : (i) que la personne ait reçu l'appui par écrit d'au moins cinq autres membres de la Société; (ii) que la personne ait accepté par écrit d'être candidate et de fournir les renseignements biographiques qui lui seront demandés par le Comité; et (iii) que les renseignements prévus aux (i) et (ii) nous parviennent avant le 2 mars 2009.

Les mises en candidatures supplémentaires avec documents à l'appui doivent être envoyées à l'adresse ci-dessous.

**Nominating Committee Chair / Président du Comité des mises en candidatures**  
Canadian Mathematical Society  
Société mathématique du Canada  
1785 Alta Vista Drive, Suite 105, Ottawa, Ontario K1G 3Y6

### INITIAL SLATE / CANDIDATS PROPOSÉS

#### Executive Committee / Comité exécutif

**President Elect / Président élu (2009-2010) :**

**President / Président (2010-2012) :**

**Past President / Président sortant (2012-2013) :**

Jacques Hurtubise (McGill)

#### Vice Presidents / Vice-présidents (2009-2011)

Atlantic Provinces / Provinces de l'Atlantique :

Cathy Baker (Mount Alison)

Quebec / Québec :

Pengfei Guan (McGill)

Ontario :

Kumar Murty (Toronto)

Western Provinces and Territories / Provinces de l'Ouest et territoires:

Michael Lamoureux (Calgary)

#### Board of Directors / Conseil d'administration (2009-2013)

Atlantic / l'Atlantique (2 to be elected / 2 à élire)

Tim Alderson (UNB -St John)

Shannon Fitzpatrick (UPEI)

Hugh Thomas (UNB Fredericton)

Quebec / Québec (2 to be elected / 2 à élire)

Virginie Charette (Sherbrooke)

Chantal David (Concordia)

Bernard Hodgson (Laval)

Ontario (3 to be elected / 3 à élire)

Jim Colliander (Toronto)

Brian Forrest (Waterloo)

Maung Min-Oo (McMaster)

Stephen Watt (Western)

West / l'Ouest (3 to be elected / 3 à élire)

Martin Barlow (UBC)

Gerald Cliff (Alberta)

Paul Tupper (SFU)

Shelly Wismath (Lethbridge)

At large / de l'ensemble des membres (1 to be elected / 1 à élire)

Jerry Bona (Chicago Circle)

### CONTINUING MEMBERS / LES MEMBRES QUI CONTINUENT

The members elected in 2007 and continuing on the Board of Directors until June 30, 2011 are:

Les membres élus en 2007 qui demeurent au conseil d'administration jusqu'au 30 juin 2011 sont :

#### Atlantic / Atlantique

Roman Smirnov (Dalhousie)

Xiaoqiang Zhao (Memorial)

#### Quebec / Québec

Octav Cornea (Montréal)

Vojkan Jaksic (McGill)

#### Ontario

Nantel Bergeron (York)

Anna Lawniczak (Guelph)

Gregory Smith (Queen's)

#### West / l'Ouest

Christopher Bose (Victoria)

Clifton Cunningham (Calgary)

Douglas Farenick (Regina)

#### At large / de l'ensemble des membres

Alan Dow (North Carolina)

# EMPLOYMENT OPPORTUNITY

## Canada Research Chair (Tier II) – Modeling College of Arts & Science University of Saskatchewan



The College of Arts & Science at the University of Saskatchewan has a unique opportunity for a Tier II Canada Research Chair in the area of Mathematical Modeling. A Canada Research Chair appointment is one of the most prestigious opportunities of its kind in Canada. Applications or nominations are encouraged from individuals who would provide vision and leadership in one or more of the following areas: Image Analysis, Complex Simulations, High Performance Computing, Nuclear Science, and Climate Change. A successful candidate will have an excellent research track record in Applied Mathematics contributing to one or more application areas.

The selected candidate will be nominated for the Tier II Canada Research Chair and appointed to a tenure-track faculty position (the nature of the appointment will be determined at the time of hire). The candidate will be expected to establish an internationally leading research program, secure externally funded research, supervise postdoctoral fellows and graduate students, mentor junior faculty, and participate in graduate and undergraduate level teaching. It is also expected that the candidate will take advantage of the extraordinary opportunities that exist at the University of Saskatchewan for multi-disciplinary interactions and groundbreaking collaborative research partnerships. The University of Saskatchewan is home to the Canadian Light Source (CLS) synchrotron, the most ambitious science project in Canada in a generation. This new research tool, the Innovation Place Research Park, stimulating industrial/government partnerships, as well as the opportunity for innovative collaborative prospects at the twelve University Colleges, are unique in North America.

Located in the beautiful “river city” of Saskatoon in Canada’s high-growth province, and next door to a great untouched wilderness, the University of Saskatchewan and the College of Arts and Science is poised for unprecedented growth and transformation. Commitments to the growth of the graduate student and post-doctoral population are embedded in our Strategic Plan. The University forms a dynamic partnership of scholars dedicated to challenging old notions and creating new ideas to share with our students. We offer a thriving intellectual climate, countless opportunities for partnerships and collaboration in the heart of one of the world’s most charming campuses. To learn more about the College of Arts and Science visit: <http://artsandscience.usask.ca>.

Interested candidates should submit curriculum vitae, a research plan, a teaching dossier and the name, mailing address, email address and phone number of at least four references to:

**Attn: Kaelee Corcoran**

CRC Search Committee (Mathematical Modeling)  
College of Arts and Science  
University of Saskatchewan  
9 Campus Drive, Saskatoon, SK, S7N 5A5, Canada  
Email: [kaelee.corcoran@artsandscience.usask.ca](mailto:kaelee.corcoran@artsandscience.usask.ca) or phone: 306-966-8624.

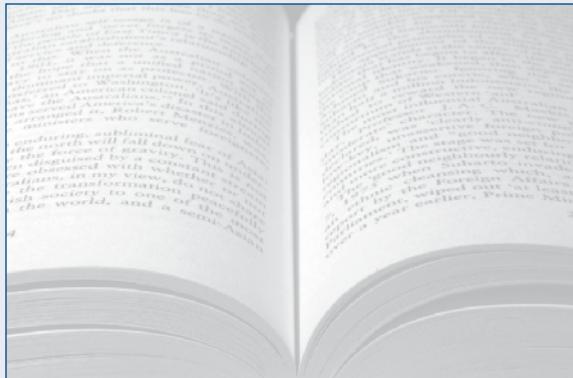
**Considerations of applications will begin March 2, 2009. The starting date is anticipated to be July 1, 2009.**

The University is committed to Employment Equity. Members of Designated Groups (women, Aboriginal people, people with disabilities and visible minorities) are encouraged to self-identify on their applications. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

# CALENDAR OF EVENTS / CALENDRIER DES ÉVÉNEMENTS

FEBRUARY	2009	FÉVRIER	JULY	2009	JUILLET
23-27	Modern Moduli Theory (MSRI, Berkeley, CA) <a href="http://www.msri.org/calendar/workshops/workshopInfo/472/show_workshop">www.msri.org/calendar/workshops/workshopInfo/472/show_workshop</a>		12-Aug 8	AARMS (Graduate) Summer School 2009, UNB-Fredericton <a href="http://www.aarms.math.ca/summer/">www.aarms.math.ca/summer/</a>	
MARCH	2009	MARS	27 - 30	The Society for Mathematical Biology Annual Meeting (UBC, Vancouver, BC) <a href="http://www.math.ubc.ca/research/MathBio/SMB2009/">www.math.ubc.ca/research/MathBio/SMB2009/</a>	
MAY	2009	MAI	13-15	Second CMS/SMM Meeting 2009 Host: Pacific Institute for the Mathematics Sciences (PIMS) University of British Columbia, Vancouver (BC) <a href="http://www.cms.math.ca/Events/CMS-SMM-2009/">www.cms.math.ca/Events/CMS-SMM-2009/</a>	AOÛT
8-10	Workshop on Connections in Geometry and Physics (Perimeter Institute for Theoretical Physics, Waterloo, ON) <a href="http://www.math.uwaterloo.ca/~gap/">www.math.uwaterloo.ca/~gap/</a>		12-16	Algebra, Geometry, and Mathematical Physics 5th Baltic-Nordic Workshop (Bedlewo, Poland) <a href="http://www.agmf.astralgo.eu/bd109/">www.agmf.astralgo.eu/bd109/</a>	OCTOBRE
10-15	ICMI (International Commission on Math Instruction) Study Conference on 'Proof and Proving in Mathematics Education' (Taipei, Taiwan) <a href="http://www.icmi19.com">www.icmi19.com</a>		5 - 7	CMS Winter Meeting 2009, Host: University of Windsor Hilton Hotel, Windsor (ON) <a href="http://www.cms.math.ca/Events/winter09/">www.cms.math.ca/Events/winter09/</a>	DÉCEMBRE
27-31	Fields Institute Workshop on Geometry Related to the Langlands Programme University of Ottawa, Ottawa, Canada <a href="http://www.fields.utoronto.ca/programs/scientific/08-09/Langlands">www.fields.utoronto.ca/programs/scientific/08-09/Langlands</a>		4 - 6	CMS Summer Meeting 2010 University of New Brunswick - Fredericton (NB) <a href="http://www.cms.math.ca/Events">www.cms.math.ca/Events</a>	JUIN
JUNE	2009	JUIN	19 - 27	International Congress of Mathematicians 2010 (Hyderabad, India) <a href="http://www.icm2010.org.in">www.icm2010.org.in</a>	AOÛT
9 - 13	International Conference on Nielsen Theory and Related Topics Memorial University of Newfoundland, St. John's (NL) <a href="mailto:keppelma@unr.edu">keppelma@unr.edu</a>				
14 - 20	47th International Symposium on Functional Equations (Gargnano, Italy) <a href="mailto:GianLuigi.Forti@mat.unimi.it">GianLuigi.Forti@mat.unimi.it</a>				
15-18	3rd International Conference On Maths and Stats (Athens, Greece) <a href="http://www.atiner.gr/">www.atiner.gr/</a>				
15-July 3	Summer School and Conference in Geometric Representation Theory and Extended Affine Lie Algebras (University of Ottawa) <a href="http://www.fields.utoronto.ca/programs/scientific/08-09/geomrep/">www.fields.utoronto.ca/programs/scientific/08-09/geomrep/</a>				
22-July 3	SMS Summer School on Computational and Experimental Approaches to Automorphic Forms (CRM, Université de Montréal, QC) <a href="mailto:benhima@CRM.UMontreal.ca">benhima@CRM.UMontreal.ca</a>				

## WANTED: Books for Review RECHERCHÉS : Livres pour critiques littéraires



### Have you written a book lately?

Would you like to see it reviewed in the CMS Notes? If so, please arrange to have a review copy sent to our Book Review Editor.

### Vous avez récemment écrit un livre?

Vous aimeriez une critiques littéraires de celui-ci dans les Notes de la SMC? Si oui, veuillez faire parvenir une copie au rédacteur des critiques littéraires.

**Keith Johnson**

Department of Mathematics and Statistics  
Dalhousie University  
Halifax NS B3H 3J5

## Tarifs et horaire 2009 Rates and deadlines

Deadlines for receipt of material are as follows / Les dates limites pour la réception des annonces sont les suivantes

Issue date/ date de parution	Content deadline / Date limite pour contenu		
February / février	December 1 / le 1 décembre		
March / mars	January 15 / le 15 janvier		
April / avril	February 15 / le 15 février		
May / mai	March 15 / le 15 mars		
September / septembre	July 15 / le 15 juillet		
October / octobre	August 15 / le 15 août		
November / novembre	September 15 / le 15 septembre		
December / décembre	October 15 / le 15 octobre		
Net rates / tarifs nets	Institutional Members / Library Membres institutionnels / Bibliothèques	Corporate Members Membres Organisationels	Others/Autres
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Inserts	195.00	375.00	495.00

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Surcharges apply for prime locations - contact [notes-ads@cms.math.ca](mailto:notes-ads@cms.math.ca). Subscription to the Notes is included with the CMS membership. For non-CMS members, the subscription rate is \$60 (CDN) for subscribers with Canadian addresses and \$60 (US) for subscribers with non-Canadian addresses.

Pour plus de 4 pages, ou pour l'impression et l'inclusion d'une copie prête à la reproduction, veuillez envoyer un exemple aux Notes de la SMC afin d'obtenir un estimé.

Des suppléments sont applicables pour des places de choix - communiquer avec [notes-ads@cms.math.ca](mailto:notes-ads@cms.math.ca). L'adhésion à la SMC comprend l'abonnement aux Notes de la SMC. Le tarif d'abonnement pour les non-membres est de 60 \$ CDN si l'adresse de l'abonné est au Canada et de 60 \$ US si l'adresse est à l'étranger.

# New and Noteworthy from Springer

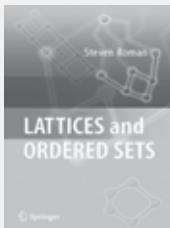
## Least-Squares

### Finite Element Methods

P. B. Bochev, Sandia National Laboratories, Albuquerque, NM, USA; M. D. Gunzburger, Florida State University, Tallahassee, FL, USA

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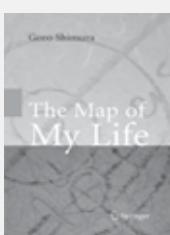


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