



CMS NOTES de la SMC

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FROM THE ASSOCIATE EXECUTIVE DIRECTOR'S DESK

Joseph Khoury
University of Ottawa, Ottawa



This was supposed to be my first message as the new Executive Director of the Canadian Mathematical Society. As many of you know by now, I informed the Executive Committee and the Board of Directors in October 2008 about my decision not to assume the position effective January 1, 2009 for reasons beyond my control. I would like to take this opportunity to express my deepest gratitude for all the support I have received in my role as Associate Executive Director from the Executive Office staff and all the officials and members of the CMS. In particular, I am deeply moved by the support of my friend and colleague Graham Wright, who was willing to alter his retirement plans for this period until a new Executive Director takes office. For three decades, Graham's dedication, leadership and incredible energy has transformed the CMS and helped shape most of the Society's policies and practices.

2008 was in particular a hard year for the CMS. The Executive Office space was reconfigured in August, as a result of demolition of part of the Office and there were two actual moves within four months. The Society has experienced a budget deficit

for the second year in a row, and my decision not to assume the Executive Director position did not make things easier. The determination and hard work of the Executive Office staff, the efforts made by the Dean of Science and the Chair of the Department of Mathematics and Statistics at the University of Ottawa and their staff got us through this hard time. On behalf of the CMS, I would like to thank the dedicated and hard working Executive Office staff, André Lalonde (Dean), Victor Leblanc (Chair) and their staff for their help on the many aspects of both moves, and their commitment to keep the connection between the University and the CMS.

In the November Issue of the NOTES, Graham Wright and I outlined the changes related to relocating the Executive Office. Shortly after the November issue was released, the University of Ottawa informed the CMS that the space occupied since September would be undergoing major renovations and would necessitate evacuating the building by the end of December. The space problem the University is experiencing made it impossible for the CMS to relocate on campus, at least for the coming few years. A number of other options were explored and visits took place to rental spaces that could possibly accommodate the Society's needs, in the University area and beyond. In

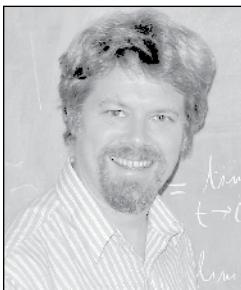
December 2008, the Board of Directors approved the move to a new location owned by the Pharmacists Association of Canada. A one year renewable lease was signed in December and the move took place over the Holiday period. The new address is:

Canadian Mathematical Society
1785 Alta Vista Drive, Suite 105
Ottawa, ON K1G 3Y6
CANADA

The main telephone number is (613) 733-2662. Staff e-mail addresses remain the same. Through the significant efforts of the Executive Office staff, particularly the Electronic Services Group (Alan Kelm and Steve La Rocque), the Office was up and running without major interruptions by the first week of January.

Rachel Cunningham resigned her position as Administrative Assistant in December so that she could pursue options in Europe. Taking into account the deficit situation and the space available at the new location, it was decided to not fill this position at this time. As you will appreciate, this decision puts more pressure on the staff and the Society is hoping for understanding and patience from members.

The CMS President, Anthony Lau, has written to Alan Rock, President of the University of Ottawa, requesting a meeting with him, or his delegate, to discuss the possibility of the Executive Office returning to



Ancestors

Recently I was browsing in the database of the Mathematics Genealogy Project. I was interested to see that the number of early entries has expanded remarkably since a few years back. Whereas previously the record got rather sketchy before about 1700, there is a good chance now that you can - should you be so inclined - trace your antecedents back to the fourteenth century.

Be warned: tracing a complete pedigree has got a lot more difficult! While in the last few centuries it is not unusual for a tree to branch once or twice, joint supervisors appears to have been the norm in Renaissance Europe. The only hope to keep your chart small enough for a T-shirt is to be strict about whom you include. If you only include doctorates in mathematics, this is not too hard; most of the early degrees in the database are in medicine, theology, and law. But if you include all doctorates (and the doctorate of medicine in those days was a research degree) things grow fast.

For instance, suppose that you are one of the more than forty-five thousand mathematicians (about a third of us) who can trace their mathematical ancestry back to Carl Friedrich Gauss. His supervisor was Pfaff, who was supervised by Kastner and Bode. Kastner was supervised by Hausen (1713), whose supervisors were Wichmannshausen (law) and Planer (medicine), while Bode was supervised by Busch, a theologian. So the "Gaussian" line stops there if you take the purist view.

But let's include other subjects. One of Planer's supervisors was Rudolph Camerarius; he can be traced through a chain of ten other medics (including Falloppio and Vesalius) and three theologians to Leo Oters, who obtained his doctorate in theology in Louvain in 1485. As far as I can tell, this is as far back as Gauss's line can be traced through doctoral supervisors alone.

However, if we permit MAs (in an age when a doctoral dissertation might well be supervised by a Master of Arts), then even more options are open. Planer's other supervisor was Pasch (an astronomer, and not the nineteenth-century discoverer of Pasch's Axiom.) Pasch's ancestry can be traced through two doctors of theology to

Christoph Notnagel, MA. After that, we can get back by any of several paths to Georg Rheticus, whose master's thesis was supervised by Copernicus (a doctor of law!) And Copernicus, in turn, was a great-great-great-grandstudent of Dr Heinrich von Langenstein, Doctor of Theology of the University of Paris, Class of Seventy-Five.

Thirteen-Seventy-Five.

NOTES DE LA SMC

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RÉDACTEURS EN CHEF

Robert Dawson, Srinivasa Swaminathan
notes-redacteurs@smc.math.ca

RÉDACTEURS-GÉRANT

Graham P. Wright
gpwright@smc.math.ca

RÉDACTION

Éducation : Edward Barbeau
notes-education@smc.math.ca
Critiques littéraires : Keith Johnson
notes-critiques@smc.math.ca
Réunions : Gertrud Jeewanjee
notes-reunions@smc.math.ca
Recherche : Vacant
notes-recherche@smc.math.ca
Assistante à la rédaction :
Solange Hupé

Note aux auteurs : indiquer la section choisie pour votre article et le faire parvenir au Notes de la SMC à l'adresse postale ou de courriel ci-dessous.

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EDITORS-IN-CHIEF

Robert Dawson, Srinivasa Swaminathan
notes-editors@cms.math.ca

MANAGING EDITOR

Graham P. Wright
gpwright@cms.math.ca

CONTRIBUTING EDITORS

Education: Edward Barbeau
notes-education@cms.math.ca
Book Reviews: Keith Johnson
notes-reviews@cms.math.ca
Meetings: Gertrud Jeewanjee
notes-reunions@cms.math.ca
Research: Vacant
notes-research@cms.math.ca
Editorial Assistant:
Solange Hupé

The Editors welcome articles, letters and announcements, which can be sent to the CMS Notes at the address below.

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

T: (613) 733-2662 F: (613) 733-8994
notes-articles@cms.math.ca
www.smc.math.ca www.cms.math.ca

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Nos ancêtres

Je fouillais dernièrement dans la base de données du Mathematics Genealogy Project. J'étais heureux de voir que le nombre d'entrées historiques avait considérablement augmenté depuis quelques années. Alors qu'il fut un temps où n'y avait pas grand-chose avant 1700, il est fort possible maintenant d'y retracer ses ancêtres – pour autant qu'on en ait le goût – aussi loin qu'au quatorzième siècle.

Attention : il est beaucoup plus difficile maintenant de brosser un portrait complet! S'il n'était pas inhabituel, il y a quelques années, d'avoir un arbre auquel s'ajoutaient une ou deux branches, il semble que les directions conjointes étaient la norme dans l'Europe de la Renaissance. Le seul espoir d'obtenir un tableau de taille raisonnable, c'est d'être strict quant aux personnes qu'on y ajoute. Si l'on n'y met que les titulaires de doctorats en mathématiques, ce n'est pas trop difficile, la plupart des premiers doctorats de la base de données étant en médecine, en théologie ou en droit. Mais si l'on y met tous les doctorats (le doctorat en médecine à cette époque étant un doctorat de recherche), la croissance est exponentielle.

Supposons par exemple que vous soyez l'un des plus de 45 000 mathématiciens (environ le tiers d'entre nous) dont l'ancêtre mathématique est Carl Friedrich Gauss. Son directeur était Pfaff, lui-même dirigé par Kastner et Bode. Kastner a été dirigé par Hausen (1713), dont les directeurs étaient Wichmannshausen (droit) et Planer (médecine), tandis que Bode avait pour directeur Busch, un théologien. La lignée gaussienne s'arrête donc là, si vous êtes puriste.

Admettons que vous acceptiez d'autres domaines. L'un des directeurs de Planer était Rudolph Camerarius, que l'on peut retracer par une chaîne de dix autres médecins (dont Falloppio et Vesalius) et trois théologiens, jusqu'à Leo Outers, qui a obtenu son doctorat en théologie à Louvain en 1485. À ma connaissance, c'est le plus loin que l'on peut remonter dans la lignée gaussienne à partir des directeurs de thèse uniquement.

Toutefois, si vous ajoutez les maîtrises (à une époque où une thèse de doctorat pouvait très bien être supervisée par le titulaire d'une maîtrise en arts), les options se multiplient. L'autre directeur de Planer était Pasch (un astronome et non pas celui qui a découvert l'axiome de Pasch au dix-neuvième siècle). Pour retracer l'ancêtre de Pasch, il faut reculer de deux docteurs en théologie jusqu'à Christoph Notnagel, M.A. Après quoi, on peut remonter

de plusieurs façons jusqu'à Georg Rheticus, dont la thèse de maîtrise a été dirigée par Copernic (docteur en droit!), à son tour un arrière-arrière-arrière-grand-étudiant de Heinrich von Langenstein, docteur en théologie de l'Université de Paris, promotion de soixante-quinze.

Treize cent soixante-quinze.

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/

BOOK REVIEW Two new biographies

Lewis Carroll in Numberland

by Robin Wilson,
W.W. Norton and Co., 2008,
208 pages \$ 24.95 US ISBN 978-039306270

and

Kelvin: Life, Labours and Legacy

edited by Raymond Flood, Mark McCartney
and Andrew Whitaker,
Oxford University Press, 2008,
352 pages \$110.00 US ISBN 978-0199231256



reviewed by Noël-Ann Bradshaw University of Greenwich, UK

"Begin at the beginning," the King said, very gravely, "and go on till you come to the end: then stop."

This is the rather apt quote at the beginning of the first of these two books about nineteenth-century mathematicians, either of which would make an ideal late Christmas gift. Robin Wilson's book is a charming account of the mathematics and writings of Charles Dodgson. Although not an ardent Alice fan I found the background of Dodgson's life fascinating and this, coupled with the relevant excerpts from his writings and copies of the original illustrations, enabled me to appreciate the mind behind Alice. Indeed reading Robin's book has prompted me to re-read Carroll in a new light.

The introduction contains eight mathematical snippets from three of Dodgson's books: *Alice*, *The Hunting of the Snark* and *Sylvie and Bruno Concluded*. References are included to gravity, map-making, and the construction of Fortunatus's Purse amongst others.

The rest of the book is divided into eight fits, reminiscent of the *Hunting of the Snark*, followed by a conclusion. Each chapter, brimming with examples of Dodgson's writings from letters and other unpublished works, reveals more about this man as a mathematician. We follow him from a child, through school and university studies to a somewhat reluctant lecturer.

The chapter entitled 'Successes and Failures' contains a number of the photographs that he took, both of his family and the Liddell children. These definitely come under successes as the quality of composition is quite remarkable. It is no wonder that Robin points out that if Dodgson hadn't been known for Alice he would have been known for his photographs even before his mathematics.

Although a popular book, it also contains a serious account of Dodgson's mathematics. However this is recounted in such a way as to make it palatable for all. In fact, such is the array of mathematical topics that Dodgson worked on that there is bound to be something of interest for everyone even if not all the subtleties are grasped. Undergraduates might be particularly interested in Dodgson's method for calculating determinants, Wimbledon lovers his method for determining order of play in tennis tournaments and would-be spies his matrix cipher; there is also general information about his ideas for revising the electoral voting system, details of his ingenious methods of improving his memory and paradoxes and puzzles galore.

Robin has brilliantly captured Dodgson's sense of humour through the excerpts that he quotes and the stories he retells. This is particularly apparent in his letters to his family and to the children and students to whom he writes and also in his dealings with his Oxford colleagues. There are also numerous references to Dodgson the teacher and copious examples of the problems he sets his students and the undergraduate lecture notes he writes. Indeed I have already used one of his problems with my first-year undergraduates and plan to use many more.

All in all this is a very charming and enjoyable book that anyone would be delighted to receive.

Kelvin: Life, Labour and Legacy is a rather different book but equally enjoyable. It contains contributions from sixteen authors, each presenting a different part of the life and work of William Thomson (Lord Kelvin). Rather than mentioning each chapter individually, here is a brief outline.

The book begins with an introductory biography by Mark McCartney who gives us wonderful insights into the young Thomson's life and his relationship with his family. This chapter and several others are peppered with excerpts from letters to and from Thomson. Raymond Flood is particularly skilled in using these to give a delightful account of Thomson's dealings with Tait over the publication of the Treatise on Natural Philosophy as is Alastair Wood in his account of the friendship that developed with Stokes.

Several chapters are devoted to Kelvin's physical and mathematical discoveries within the areas of electromagnetism, thermodynamics, engineering, statistics and navigation and also included are fascinating accounts of Kelvin's many and varied worldwide collaborations.

In the final chapter, 'Kelvin – the Legacy', Andrew Whitaker compares the view of Kelvin at the beginning of the twentieth century with that at the end and gives a moving account as to why it is that Kelvin has been, but should not be, held in comparatively low regard.

This is a beautiful book that would grace any mathematician's or physicist's bookshelves.

Noël-Ann Bradshaw

University of Greenwich
(Noël-Ann's car is called Kelvin)

Reprinted by permission from the Newsletter of the London Mathematical Society, Jan. 2009.

Mathematics and Technology

by Christiane Rousseau and Yvan Saint-Aubin,
Springer Verlag 2008.
582 pages \$ 59.95 US ISBN 978-0387692159

Reviewed by Theodore Kolokolnikov, Dalhousie University,
Dept. of Mathematics.

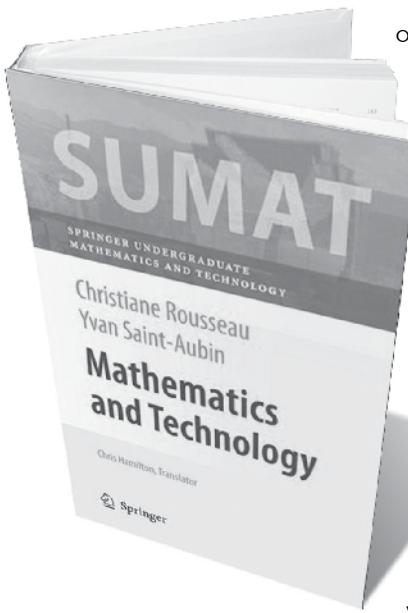
As its title suggests, *Mathematics and Technology* presents a collection of applications of mathematics to some specific problems in everyday life. The breadth of topics covered is impressive, and includes cryptography, error-correcting codes, GPS signals, image compression (fractal compression and jpeg standard), sound encoding, random number generation, web searching, DNA and quantum computing, robotic motion, calculus of variations, and many others.

The book is organized into fourteen chapters, each covering a particular application, plus an extra chapter "science ashes", that covers a variety of shorter topics. Each chapter includes interesting historical notes and references at the end. Many exercises of various difficulty (from elementary to term projects) are also included. Illustrations enliven the exposition. At the beginning of every chapter, the authors conveniently summarize the topics covered, the amount of class time required, as well as the prerequisite background. All chapters are completely independent of each-other and can be read in any order. This organization makes it easy to pick topics to adapt for teaching a particular class.

Despite the book size (over 550 pages), the material is presented in a very concise way. Every effort was made to make the topics accessible to anyone with just basic knowledge of calculus and linear algebra. Each chapter starts with relatively easy material before moving on to more advanced topics. Many topics are introduced first through concrete examples. This then serves as a springboard to more abstract ideas and generalizations. Along the way, the relevant mathematical theory is covered as needed.

For example the chapter on fractal image compression starts with a discussion of iterated maps. Fern leaf is used as an example, and a simple Mathematica program is included that generates it. It goes on to prove convergence of contracting maps. This is then generalized to Banach fixed-point theorem. Some key ideas of real analysis such as metric spaces are introduced in the process. This is followed by a discussion of the Hausdorff distance between sets, and fractal dimension. Finally, fractal image compression is presented, along with a concrete example and comparison to other popular techniques. At the end are 16 exercises that explore the topics in more detail and provide further examples. The whole chapter is around 40 pages, including more than a dozen illustrations.

Despite a wide range of applications covered, many topics are treated with much depth. As an example, the chapter



on encryption first discusses the RSA algorithm. But it also has more advanced sections on primality testing using probabilistic methods, and factorization using quantum computers (Shor's algorithm).

What is the intended audience? Initially, the authors developed this book for a course on mathematics and technology. But it can be used much more widely. For teachers of undergraduate mathematics,

this book can provide valuable material to motivate much of the standard mathematics curriculum. To give but one example, a chapter on Google's PageRank algorithm for web searching can be used as a nice way of introducing eigenvalues. For students, many chapters can be used as a source for projects or independent study. Finally, *Mathematics and Technology* can be used to motivate high school students to pursue mathematics (or other sciences). Unlike some popularizations of mathematics, *Mathematics and Technology* actually gives a taste of what mathematics is all about. It walks through detailed examples that are interesting and relevant to everyday life. And it does so in a way that is accessible to high school students, without hiding the mathematical intricacies involved.

In conclusion, *Mathematics and Technology* is a delightful book. The breadth as well as depth of topics covered means there is something for everyone. It is written with great care and the material never feels dry or pedantic. Highly recommended.



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 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.

Partially Hyperbolic Dynamics, Laminations, and Teichmüller Flow

Edited by Giovanni Forni, Mikhail Lyubich,
Charles Pugh & Michael Shub
Fields Institute Communications 51
x + 339pp. AMS 2007
ISBN 978-0-8218-4274-4

Roughly speaking, the main goal of dynamical systems theory is to describe the statistical behavior of trajectories of a typical system of some natural class. Tremendous progress in this direction was made in the 1960-1970's by Smale, Anosov, Sinai, Ruelle and others, who achieved this goal for uniformly hyperbolic systems. These are systems for which all recurrent orbits diverge (uniformly) exponentially rapidly, either in forward or backward time. The systems exhibit sensitive dependence on initial conditions, and generate horseshoes, strange attractors, and a variety of complex behaviors. Paradoxically, this extreme instability makes them both tractable and statistically robust. A natural extension of this class relaxes the property of exponential divergence of all recurrent orbits leading to the class of partially hyperbolic systems.

This volume consists of contributions by participants of a Workshop on "Partially Hyperbolic Dynamics, Laminations, and Teichmüller Flow" held in the Fields Institute in January 2006. The contents are both surveys and research papers on non-uniform and partial hyperbolicity, on dominated splitting and beyond (in Part I), Teichmüller dynamics with applications to interval exchange transformations and on the topology of moduli spaces of quadratic differentials (in Part II), foliations and laminations, and other miscellaneous papers (in Part III). Taken together these papers provide an idea of the state of the art in some of the most active topics at the crossroads between dynamical systems, smooth ergodic theory, geometry and topology, suitable for advanced graduate students and researchers.

Protecting Information

From Classical Error Correction to Quantum Cryptography
by Susan Loepp and William K. Wootters
xv + 287 pp. Cambridge 2006 US\$80 (Hardback) \$29.99 (Paper)

Protecting information transmission has become a subject of primary importance nowadays. Its study is intimately related to a number of central ideas in mathematics, computer science and physics. Quantum cryptography, in which eavesdropping is detected by the unavoidable disturbance of delicate quantum signals caused by the eavesdropping, was proposed in the 1980s and since then has been investigated and developed in a number of laboratories in the world. Information transmission must also be protected against noise (as in cell phones).

This book is an undergraduate text providing an introduction to error correction and cryptography focusing on quantum aspects. No prior knowledge of quantum mechanics is assumed. A basic knowledge of complex number theory and linear algebra is the only prerequisite. After an overview of basic cryptography, quantum mechanics and quantum cryptography, there are chapters dealing with error-correcting codes, quantum key distribution, generalized Reed-Solomon codes, and quantum

computing. Such topics as Shor's quantum factoring algorithm are covered thus providing information about the current thinking in quantum information theory.

Applied Iterative Methods

by Charles L. Byrne
xx + 376 pp. A. K. Peters 2007

A typical iterative algorithm involves a relatively simple calculation, performed repeatedly. Adopting this method to a problem produces a sequence of approximate answers that, in the best case, converges to the solution of the problem. The idea of using such procedure for solving problems goes back to Archimedes who used the areas of inscribed and circumscribed regular polygons to estimate the area of a circle. His method of exhaustion to find the area of a section of a parabola is also an example of iterative procedure.

The iterative algorithmic method is one of the most fundamental processes used in numerical analysis. In this book the author presents a detailed mathematical treatment of iterative algorithms arising subjects such as optimization, convex analysis, and approximation theory. Problem solving in a diverse range of fields uses iterative methods; the most notable such fields are: medical imaging, emission and transmission tomography, magnetic-resonance imaging and intensity-modulated radiation therapy. Iterative optimization algorithms are employed in sonar, radar, satellite imaging and other forms of remote sensing. A unified treatment is given, in finite-dimensional settings, of many of the algorithms used in the problems arising in the above fields. The book is not a textbook, but rather a collection of essays on the subject. Exercises are appended to some chapters.

Nonlinear Analysis and Semilinear Elliptic Problems

by Antonio Ambrosetti and Andrea Malchiodi
xi + 316pp Cambridge Studies in Advanced Mathematics 104
Cambridge 2007 US \$75

The main purpose of nonlinear functional analysis is to develop abstract topological and variational methods to study nonlinear problems arising in applications. Many problems in science and engineering are described by nonlinear differential equations, which can be notoriously difficult to solve. Through the interplay of topological and variational ideas, methods of nonlinear analysis are able to tackle such fundamental problems.

This book discusses a selection of the most basic results dealing with the necessary topics such as the fundamental tools of the Leray-Schauder topological degree, local and global bifurcation and critical point theory. These are topics which graduate students working in this area should know.

After a first chapter on preliminary material, the book is divided into four parts. The first part is devoted to topological degree and bifurcation theory, Parts II and III are devoted to variational methods, namely to critical point theory. An account of Morse theory is included in the final chapter of Part III. Part IV collects a number of appendices dealing with problems relating to core of contemporary research. Exercises are included at the end of some of the chapters.

Essay on A and B

Peter Taylor
Queen's University, Kingston, ON
peter.taylor@queensu.ca

In the last class of my senior Math Explorations course, I asked students about their undergraduate mathematics experience. I was curious, because during past years of the course, I noticed patterns that were repeated by this year's class more strongly than ever. First, they were generally mathematically weak, unexpectedly so, given that they were third or fourth year mathematics majors (or joint majors). They seemed to "know" a lot, but could do little with it. Secondly, their weakness was especially pronounced in analysis, and they did not much enjoy problems in this area. (I will give an example at the end.) Thirdly, in the last three weeks, when groups of four chose their own problems to use in "working the class", they inevitably chose problems that might be found in recreational mathematics books.

Hey, there were a lot of positives. They loved being in mathematics, being part of the mathematics "culture"; they loved neat problems; they loved working together, solving problems together, presenting together. They were clever in lots of neat ways and were in fact a wonderful group to teach and have fun with.

From the discussion of that last class, I am sure I understand where much of their apparent weakness comes from. Briefly, in their first two years of honours mathematics, they have had too little time to "play". This was so in most of their mathematics courses, but it was particularly acute in the analysis sequence. They felt they never had the time to internalize the material, to throw the concepts into alternative forms and see what emerged, to be director of the show. They told me this with a good knowledge of what it means to "play" because that is what they have been doing all semester with the material. As you might expect from the title of the course, we work with problems from a range of areas: geometry, probability, calculus, algebra, number theory, logic — some of it even at the high school level, but always problems with a kick, a mystery, a challenge, an unexpected structural turn.

As a huge oversimplification, I suggest that there are two "streams" of students in our honours program and I will use the labels A and B to differentiate them. The A's are not hard to describe. They come to us with pretty good mathematical learning skills, and in particular a good sense of pace, of how long to listen before they know it is time to go off on their own. They are keen to explore concepts of proof and mathematical rigour, and they have some commitment to study mathematics further and more deeply, perhaps at the graduate level, perhaps in physics, bioinformatics, finance or neuroscience. They will be happy with a number of good lectures, but they do not need many of these. Mainly, they need a good set of problems, and some good faculty mentors. For the rest, they will learn by teaching one another. They are already quite independent. They comprise some 25% of our majors.

The remaining 75%, the B's are harder to characterize. They represent a large diversity of abilities, commitments, interests, destinations and needs. From their ranks will come many of our next cohort of leaders, and many of our most devoted alumni. They have a wonderful energy. They are the heart, though

perhaps not the soul, of the Department. Though their needs are diverse, I will try to identify a few of them. They do not need much specialized knowledge, but they need to learn how to learn and how to gain mastery; they need to learn how to think clearly, read incisively, and write and speak simply, perhaps elegantly and passionately; most of them arrive thinking university to be a super high school, so they are ripe for a transformative experience in first year; in their senior years, they do not require a narrow, specialized, comprehensive treatment of any branch of mathematics; rather they need to develop their skills of research and communication.

My view is that the first two years of our honours mathematics courses work extremely well for the A's. My judgment is based on my knowledge of the curriculum, my knowledge of those of my colleagues who have been teaching these courses for the past years, and many conversations I have had with A students. For the future PhD, these courses are a superb initiation into the soul of mathematics.

But I am convinced that the first two years of our program do not work nearly so well for the B-students. This dichotomy emerges from many factors, but a significant one (and one of current interest to me) is the fact that in those critical two years, the A-students play with the material and the B-students do not. The A's play out of interest and the desire to learn well, but most of all, they play because they already know how to play. Somehow it has been part of their mathematical lives for quite a while and that is perhaps a significant reason they came to be A's. The B's did not play much in high school because they never had to. And they failed to pick up that particular skill in university (although they could see their professors at play) because, faced with more to learn that they felt they could handle, they found themselves too often short of time.

The students who enrol in my explorations course (which is one of the courses in our teaching focus) are almost exclusively B's. With one or two exceptions, they tell me that the teaching focus courses (of which we have three) provide the first occasion in university mathematics courses in which they really felt able to play. Analysis courses were cited as a particular barrier for them in this regard. That is not surprising. Calculus is a harder subject to "get your hands on" than is algebra or geometry.

So, where am I headed with this? I begin with an impractical suggestion.

First suggestion: Offer two versions of our honours courses in the first two years: an A-course and a B-course. The A-course would be pretty much what we offer now, except that the teacher and students would be free to use a more research-based format. The B-course would have less material and more emphasis on mastery, on how to learn through play. Take calculus as an example. It is important to emphasize that this B-course would not be similar to the standard service courses we all offer. It would be theoretical and conceptual because these students do love the structure and beauty of the discipline.

This first suggestion is not a solution at all for a university, such as mine, of a fairly small size, particularly, in times of financial constraint. And for other reasons I'll soon mention, it is a bad idea anyway. So I move to the second suggestion.

Second suggestion: Offer only the B-version of the courses described above.

Come again? What will the A-students do?

They'll take the B-courses too.

But I thought the A-courses were just right for them.

They are. They were.

So we're shortchanging them?

Maybe. But maybe not. Perhaps it would be the best thing that could happen to them.

The point is, as I said before, that it does not matter a whole lot what we teach the A-students. They have an internal agenda and as long as they have good problems and good mentors, they will accomplish it. In many ways, the calculus course I took (from John Coleman) in the early sixties was a B-type course. It did not have a lot of material (it used Ralph Jeffery's slender little book), and we were pretty well left on our own to prove the theorems and often even to formulate them precisely. John told us just enough about epsilon and delta to whet our appetites. Though I must confess that things were kinder in the early sixties; classes were smaller and there was less pressure, both time pressure (a simpler world with fewer distractions) and performance pressure (we did not have to care so much about marks).

There is a lot to be said for keeping the A's and B's together; they have a lot to offer one another.

This essay is perhaps a more particular or more transparent version of an old argument that we should put less material into our courses. Maybe the current cost-crunches make the time ripe for some ancient wisdom.

Example. A game of competition. Suppose that there is a task that requires two persons, but when carried out provides a benefit to each. However, the amount of effort that each partner invests in the task can vary, and therefore the individual cost can vary too. Finally, the benefit gained by each individual depends on the total investment.

Introduce some notation. Let x ($0 \leq x \leq 1$) denote the investment of a typical player and let y ($0 \leq y \leq 1$) denote the investment of the player's partner. The net payoff to the player will have the form

$$P(x; y) = b(x + y) - c(x)$$

where b is the benefit to both players and depends on the sum of the two investments, and c is the cost to the player and depends on his own contribution. Clearly, if the players invest differently, the one who invests less does better.

Now the objective of the game is to get as large a payoff as possible, but of course, this is complicated because the payoff depends on both strategies. To get a feeling for things, we explore the game with the benefit and cost functions: $b(z) = z(4 - z)$ and $c(x) = x^2$.

1. Suppose that I know the contribution y of my partner. Find my optimal contribution x^* in terms of y .

2. Suppose that the two players are a female A and a male B. The structure of the game is that A has to go first; that is, A chooses her strategy before B chooses his, so that when B makes his choice, he knows what A has chosen. The interesting question is: who gets the larger payoff, A or B? Investigate this using the b and c functions given above.

This is a nice problem, and, in a small group format, with occasional guidance from me, the students all manage to solve and understand the problem. They find that A has the higher payoff. It is an advantage to go first.

Then comes the homework: Suppose that the benefit function is increasing with diminishing returns (i.e., $db/dz > 0$ and $d^2b/dz^2 < 0$) and the cost function is increasing and accelerating (i.e., $dc/dx > 0$ and $d^2c/dx^2 > 0$). Show analytically that the result we obtained in class, that A does better than B, holds in this general situation.

How do you think the students did? Should students with two years of honours calculus be able to solve this problem given a week working together in groups? I had thought so. But in fact, no one managed that feat. Most seemed to have no clue how to go about it — how to "play" with it.

Specialist High School Major

Some time ago, I read in a local newspaper that the Catholic District School Board of Eastern Ontario was offering the Specialist High School Major (SHSM) program. My curiosity piqued, I made further enquiries and discovered that this is a recent initiative of the Ontario Ministry of Education. One of the goals of the Liberal Government is to discourage students from dropping out of high school and narrowing their career prospects. However, such a policy can be effective, only if the range of options offered to students extends beyond the standard college and university preparation material. The SHSM program seems to fill the bill quite nicely.

Partnered with local businesses and other community entities, as well as nearby colleges and universities, schools can provide opportunities for students to obtain preparatory knowledge and on-the-job experience in a number of practical areas, get some certifications and explore the Ontario Youth Apprenticeship Program (OYAP) and School-College-Work initiatives. In the current academic year, SHSMs are being offered in these sectors: Agriculture, Arts and Culture, Business, Community Safety and Emergency Services, Construction, the Environment, Forestry, Health and Wellness, Horticulture and Landscaping, Hospitality and Tourism, Information and Communications Technology, Manufacturing, Mining and Transportation. Students can be certified in such things as Workplace Hazardous Materials Information Systems, standard first aid and CPR, and customer service.

The academic requirement is a bundle of 8-10 Grade 11 and Grade 12 credits that include 4 major credits specific to the sector, 2-4 credits from the Ontario curriculum in which some expectations

are met through learning activities in the context of the sector, and 2 cooperative education credits to provide workplace experience. The development of essential skills and work habits required in the sector is documented in an Ontario Skills Passport. I was particularly interested in the mathematics requirements, whether there were separately designed courses, or whether existing courses were modified. It seems that the latter was the case, with special units designed and inserted into the regular courses either for the class as a whole or specifically for SHSM students.

Let me describe the mathematics regime in Ontario schools for Grades 11 and 12. Basically, there are three types of courses, for workplace, college or university preparation. In Grade 11, the courses offered are *Mathematics for everyday life* (MEL3E) for workplace preparation, *Mathematics of personal finance* (MBF3C) for college preparation, *Functions* (MCF3M) for university/college preparation, and *Functions and relations* (MCR3U) for university preparation. These lead to their Grade 12 counterparts, *Mathematics for everyday life* (MEL4E), *Mathematics for college technology* (MCT4C) and *College and apprenticeship mathematics* (MAP4C), and finally three courses for university-bounded students, *Geometry and discrete mathematics* (MGA4U), *Advanced functions and introductory calculus* (MCB4U), and *Mathematics of data management* (MDM4U). SHSM units, designated as *Contextualized Learning Activities* (CLAs), can be inserted into any of these.

What is the subject matter of these units? I am indebted to Rob Andrews, the Superintendent of Student Success for the Kawartha-Pine Ridge District School Board (in the Peterborough area) for providing me with several CLAs from different boards. Each comes equipped with a list of overall and specific expectations, skills and work habits to be developed, and a guide to assessing outcomes. I will sort them according to the SHSM served; unless otherwise specified, they consume six hours of class time.

1. Business. At the grade 11 level, the units deal basically with interest, loans and investment. A unit for MBF3C recommends visits to financial institutions and the use of personal finance case studies. A unit for MCR3U considers annuities and investment for an RRSP. In grade 12, statistics is involved. A unit for MAP4C is a "two-variable statistics project". Students will analyze data, such as the historic cost of home purchase, test for correlations and the validity of projections and conclusions. For MDM4U, students will pose a significant problem requiring the organization, analysis and interpretation of data, and "compile a clear, well-organized, and detailed report of the investigation".

2. Hospitality and Tourism. At the grade 11 level, the emphasis is on financial instruments and keeping track of income and outlays. A unit for MEL3E treats methods of remuneration, wages, salary, overtime and tips; students are required to work out the payroll for various employment situations. In one assignment, students are presented with a menu, and are asked to work out the bill for a hypothetical order, including taxes and tips, as well as to recommend a meal for two that will cost at most fifteen dollars. A 9-hour unit for MBF3C considers financial services, and students look at situations involving interest and the use of credit.

A 6-8 hour unit for MCT4C distinguishes among polynomial, exponential and sinusoidal functions and examines scatter plots

that can be classified as being given approximately by functions of these types. Such functions can model such relationships as the changes in tide level over time, the joint fluctuations of wolf and deer populations, and the relationship between length and mass of rainbow trout. A short (3-hour) unit for MAP4C is designed to "recognize and describe real-world applications of geometric shapes and figures"; a sample task is the design of a kitchen with a maximum area of 144 square feet.

3. Construction. The grade 11 course, MBF3C, can host a 10-hour unit on the *Framing Square*. A framing square is a carpenter's steel square with two perpendicular arms, each with scales and tables. One of these tables permits the carpenter to read off the ratio of the length of a rafter to its run, for a given rise per foot. This activity gives students experience in working with precise measurements and is designed to meet expectations in geometry and trigonometry. A second 10-hour unit for MBF3C is devoted to the technical and mathematical issues in the design of a tiled bathroom shower.

4. Manufacturing. A MBF3C unit on geometry and project design explores geometric properties such as surface area, volume and perimeter and culminates in a design project.

5. Forestry. An embedded project can be extended over several years. An interesting example is the *Forestry Mathematics Project* by Linda Waldack of the Kawartha-Pine Ridge District School Board. In grade 9, students make a tape measure that reads off the diameter of a tree when the tape surrounds the circumference of the trunk, and use the result to compute the number of board feet available for construction (a quarter of the cross-sectional area times the height, with lengths measured in feet). In grade 10, this is extended to a specific situation, in which the number of trees of various sizes in a 5 hectare section of the Haliburton Forest is analyzed for its yield. After students have taken some basic trigonometry, this knowledge is applied in grades 10 and 11 (MBF3C) to the determination of heights of trees. A lesson for MEL3E is designed to help students use maps and scales.

6. Transportation. MBF3C students will receive five 76-minute lessons on cylinders and pistons, in which "students will identify the similarities between mathematics and transportation terminology as it applies to a cylinder and a piston. They will then use a volume formula to calculate values of any variable if given the other two variables and calculate ratios. Students will finally discuss the mechanical advantage of the dimensions of a cylinder to achieve the maximum power." Particular items are the use of a micrometer and the calculation of compression ratios.

7. Horticulture and Landscaping. In this unit for MEL3E, students are concerned with remuneration of employees, loans and credit for purchase of equipment and the economics of owning a vehicle.

As befits students whose interests and priorities are not particularly academic, these units generally involve practical experience, and, where possible, teachers are enjoined to arrange for experts to attend their classes and for student field trips. The trick for this program is to help students assess their interests and abilities so that they will be in programs that are best suited to their needs and aptitudes.

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

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

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

Coorganisateurs

Malgorzata Dubiel (SFU)

Viktor Freiman (Moncton)

Peter Taylor (Queen's)

CMS/CSHPM SUMMER MEETING 2009 RÉUNION D'ÉTÉ 2009 SMC/SCHPM

June 6-8 juin, 2009

www.cms.math.ca

Host: Memorial University of Newfoundland
Hôte : Université Memorial de Terre-Neuve

Meeting Directors / Directeurs de la réunion: David Pike, Danny Dyer (Memorial)

Prizes and Awards / Prix

Prix Jeffery-Williams Prize - Stephen Kudla (Toronto)
Prix Krieger Nelson Prize - Yael Karshon (Toronto)
Excellence in Teaching Award / Prix d'excellence en enseignement de la SMC – David Poole (Trent)

Plenary Speakers / Conférenciers pléniers

Elizabeth Billington (Queensland)
Michael Mackey (McGill)
Susan Montgomery (USC)
Michael Sigal (Toronto)
Gaoyong Zhang (Polytechnic Univ.; New York)
CSHMP - Jeremy Gray (Open Univ.; Warwick, UK)

Public Lecture / Conférence publique

Helaman Ferguson (Sculptor)

SESSIONS

Algebraic Combinatorics

Combinatoire algébrique

Org: Karen Meagher, Steve Kirkland (Regina)

Algebraic Geometry and Topology (joint Canada/Korea)

Géométrie algébrique et topologie (conjointe 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 (Ryerson), 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

Histoire et philosophie des mathématiques

Org: Tom Drucker (Wisconsin-Whitewater)

History of the Relationship Between Mathematics and the Physical Sciences

Liens historiques entre les mathématiques et les sciences physiques

Org: Tom Archibald (SFU)

Interactions between Algebraic Geometry and Ring Theory

Interactions entre géométrie algébrique et 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

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)

Operator Algebras

Algèbres d'opérateurs

Org: Andrew J. Dean (Lakehead), George Elliott (Toronto), Marco Merkli (Memorial)

CMS/CSHPM SUMMER MEETING 2009

RÉUNION D'ÉTÉ 2009 SMC/SCHPM

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: Shannon Sullivan (Memorial)

Sponsors / Commanditaires

- le Centre de recherches mathématiques (CRM)
- Fields Institute
- MITACS
- Pacific Institute for the Mathematical Sciences (PIMS)
- Memorial University of Newfoundland

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 Registration/Inscription 9:30 – 16:30 Exhibits/Expositions	8:00 – 16:30 Registration/Inscription 9:30 – 16:30 Exhibits/Expositions	8:00 – 16:00 Registration/Inscription
	8:30 – 9:00 Opening/Ouverture 9:00 – 9:45 Jeremy Gray CSHMP Plenary Lecture	8:00 – 10:00 Scientific Sessions	8:00 – 10:00 Scientific Sessions
		10:00 – 10:30 Break / Pause	
	10:30 – 12:00 Scientific Sessions	10:30 – 11:15 Michael Sigal Plenary Lecture	10:30 – 11:15 Gaoyong Zhang Plenary Lecture
	12:00 – 12:30 Teaching Award Lecture	11:30 – 12:15 Stephen Kudla Jeffery-Williams Lecture	11:30 – 12:15 Yael Karshon Krieger-Nelson Lecture
FRIDAY/VENDREDI June 5 juin	CMS AGM CSHMP 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 Scientific Sessions	14:00-15:00 Scientific Sessions	14:00-15:00 Scientific Sessions
13:30 – 18:30 Board of Directors Meeting Réunion du conseil d'administration (Junior Common Room, MUN)	15:00 – 15:45 Susan Montgomery Plenary Lecture	15:00 – 15:45 Elizabeth Billington Plenary Lecture	15:00 – 15:45 Michael Mackey Plenary Lecture
		16:00 – 16:15 Break/Pause	
	16:15 – 17:45 Scientific Sessions	16:15 – 17:15 Scientific Sessions	16:15 – 17:15 Scientific Sessions
	18:00 – 19:00 Helaman Ferguson Public Lecture	18:30 Buses depart for banquet 19:00 - 19:30 Reception (cash bar) Réception (bar payant)	
18:30 -20:00 Welcome Reception Réception d'accueil	19:00 – 20:00 Reception	19:30 – 22:30 Banquet (Woodstock Colonial Restaurant, Paradise, NL)	

(as of February 10, 2009)

Second joint meeting of the Canadian Mathematical Society and the Sociedad Matemática Mexicana
Deuxième réunion conjointe de la Société mathématique du Canada et de la Sociedad Matemática Mexicana

UBC, Vancouver
August 13-15 août
Host / Hôte : Pacific Institute for the Mathematical Sciences (PIMS)
www.cms.math.ca/Events

Scientific Committee / Comité scientifique:

Canada:

Alejandro Adem (UBC),
Walter Craig (McMaster),
Andrew Granville (Montréal)

Mexico:

Fernando Brambila (SMM; UNAM),
Isidoro Gitler (CINVESTAV),
Jose Seade (UNAM)

Plenary Speakers / Conférenciers pléniers :

James Arthur (Toronto)
Xavier Gomez-Mont (CIMAT)
Onesimo Hernandez-Lerma (CINVESTAV)
Niky Kamran (McGill)
Rachel Kuske (UBC)
Alberto Verjovsky (UNAM-Cuernavaca)

SESSIONS

Algebra

Algèbre

Org: Christoff Geiss (UNAM), Arturo Pianzola (Alberta)

Analysis

Analyse

Org: Salvador Perez Esteva (UNAM), Malabika Pramanik (UBC)

Combinatorics and Graph Theory

Combinatoire et théorie des graphes

Org: Hortensia Galeana (UNAM), Luis Goddyn (SFU), Miguel Pizaña (UAM)

Partial Differential Equations

Équations aux dérivées partielles

Org: Monica Clapp (UNAM), Nassif Ghoussoub (UBC), Pablo Padilla (UNAM)

Differential Geometry

Géométrie différentielle

Org: Niky Kamran (McGill), Oscar Palmas (UNAM), Adolfo Sanchez Valenzuela (CIMAT)

Algebraic Geometry and Singularity Theory

Géométrie algébrique et théorie des singularités

Org: Ed Bierstone (Toronto), Leticia Brambila (CIMAT), Jacques Hurtubise (McGill), Jose Seade (UNAM)

Optimization

Optimisation

Org: Michael Friedlander (UBC), Pedro Gonzalez Casanova (UNAM), Luis Verde (UAM)

Probability

Probabilité

Org: Ana Meda (UNAM), Edwin Perkins (UBC)

Dynamical Systems

Systèmes dynamiques

Org: Florin Diacu (Victoria), Renato Iturriaga (CIMAT), Ernesto Perez Chavela (UAM)

Topology

Topologie

Org: Ian Hambleton (McMaster), Jose Luis Cisneros (UNAM), Miguel Xicotencatl (CINVESTAV)

CMS Winter Meeting 2009

Host: University of Windsor

December 5-7, 2009, Windsor, Ontario

CMS Summer Meeting 2010

Host: University of New Brunswick - Fredericton

June 4 - 6, 2010, Fredericton, New Brunswick

CMS Winter Meeting 2010

Host: University of British Columbia

December, 2010, Vancouver, British Columbia

Réunion d'hiver 2009 de la SMC

Hôte : Université Windsor

5 - 7 décembre 2009, Windsor (Ontario)

Réunion d'été 2010 de la SMC

Hôte : Université de Nouveau-Brunswick

4 - 6 juin 2010, Fredericton (Nouveau-Brunswick)

Réunion d'hiver 2010 de la SMC

Hôte : Université de Colombie-Britannique (UBC)

décembre 2010, Vancouver (Colombie-Britannique)

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 les 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

Les sessions suivantes ont été confirmées :

Géométrie algébrique
Org: Mike Roth (Queen's)

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: Jiahua Chen (UBC), Chi Song Wong (Windsor)

Éducation mathématique
Org: Dragana Martinovic (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)

Théorie des nombres
Org: Kevin Hare (Waterloo), Soroosh Yazdani (McMaster)

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

Les singularités en analyse réelle et complexe
Org: Janusz A. Adamus (Western)

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 sites 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

The following sessions have been confirmed for this conference:

Algebraic Geometry
Org: Mike Roth (Queen's)

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: Jiahua Chen (UBC), Chi Song Wong (Windsor)

Mathematics Education
Org: Dragana Martinovic (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)

Number Theory
Org: Kevin Hare (Waterloo), Soroosh Yazdani (McMaster)

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

Real and Complex Singularities
Org: Janusz A. Adamus (Western)

the University campus.

Until June 30, 2009, I will continue in my role as the Associate Executive Director, helping Graham with the daily operations of the Society. However, the end of my term as Associate Director will in no means signal the end of my involvement with the CMS. I will continue to serve as the Chair of the new Bilingualism Committee and be responsible for the CMS/NSERC Math in Moscow Program. Most importantly, the new Executive Director and the CMS staff can count on any help and support I can

provide during the transition period.

The CMS is very much indebted to all those members and others who provide support either by financial contributions or by volunteering their time. I am sure that with proper planning and hard work, the future of our research, publications, and education programs is bright.

Joseph Khoury

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, 2010. 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 2010. 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 / Adresse 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

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.

2009 CMS MEMBERSHIP RENEWALS RENOUVELLEMENTS 2009 À LA SMC

REMINDER: Your membership reminder notices have been mailed. Please renew your membership as soon as possible. You may also renew on-line by visiting our website at www.cms.math.ca/members/



RAPPEL : Les avis de renouvellements ont été postés. Veuillez s'il-vous-plaît renouveler votre adhésion le plus tôt possible. Vous pouvez aussi renouveler au site Web www.smc.math.ca/members.f

AIDEZ NOUS PAR CONTRIBUER À LA COMMUNAUTÉ SMC

Nous encourageons nos membres d'inviter leurs collègues qui ne sont pas membres de la SMC de prendre avantage du spéciale d'adhésion 2 pour 1 pour les nouveaux membres! Veuillez demander votre collègue de remplir ce formulaire et l'envoyer par télécopieur au 613-733-8994.

Formulaire d'adhésion INDIVIDUEL 2009



RENSEIGNEMENTS SUR LE MEMBRE		*CHAMPS OBLIGATOIRES			
*Nom:		SMC N°#:			
*Adresse:					
*Ville:		*Province/État::			
*Pays:		*Code Postal/Code Zip:			
*Téléphone:		*Télécopieur:			
*Courrier électronique:		Page Web:			
* Employeur:		* Poste:			
* Plus haut diplôme obtenu: *Année :		* Établissement :			
Ne publiez pas mon nom dans le répertoire des membres: <input type="checkbox"/>		Langue de correspondance Anglais <input type="checkbox"/> Français <input type="checkbox"/>			
J'aimerais recevoir les Notes de la SMC en format électronique SEULEMENT: <input type="checkbox"/>					
(Tous les membres de la SMC reçoivent les Notes en format papier à moins d'avis contraire et ils ont accès à la version électronique.)					
ADHÉSION		PÉRIODE D'ADHÉSION: 1 ^{ER} JANVIER AU 31 DÉCEMBRE 2009 CONDITIONS ET RÈGLES : www.cms.math.ca/docs/conditions			
BASÉS SUR LE REVENU D'EMPLOI PROFESSIONNEL ANNUEL		TARIF RÉGULIER		MEMBRE À VIE	
90,000\$ ET PLUS		224\$ <input type="checkbox"/>		MOINS DE 35 ANS	3 000 \$
70,000\$ - 90,000\$		182\$ <input type="checkbox"/>		DE 36 - 44 ANS	2 750 \$
40,000\$ - 70,000\$		118\$ <input type="checkbox"/>		DE 45 - 54 ANS	2 500 \$
RETRAITÉS		48\$ <input type="checkbox"/>		DE 55 -64 ANS	2 250 \$
65 ANS ET PLUS				65 ANS ET PLUS	1 500 \$
				QUATRE VERSEMENTS EGALÉ ACCEPTÉS	
		SOCIÉTÉ RÉCIPROCTAIRE		MAA	
90,000\$ ET PLUS		112\$ <input type="checkbox"/>		190\$ <input type="checkbox"/>	
70,000\$ - 90,000\$		91\$ <input type="checkbox"/>		155\$ <input type="checkbox"/>	
40,000\$ - 70,000\$		59\$ <input type="checkbox"/>		100\$ <input type="checkbox"/>	
RETRAITÉS		23\$ <input type="checkbox"/>		40\$ <input type="checkbox"/>	
NOTER: LE SPÉCIALE 2 POUR 1 N'EST PAS DISPONIBLE AUX ÉTUDIANTS ET LES PROFESSEURS PRÉ-UNIVERSITAIRE				TARIFS OFFERTS AUX MEMBRES DE LA MAA OU D'UNE SOCIÉTÉ RÉCIPROCTAIRE RÉSIDANT HORS DU CANADA SEULEMENT.	
				VEUILLEZ INDICER VOTRE NUMÉRO D'IDENTIFICATION : _____	
NOTER: LE SPÉCIALE 2 POUR 1 N'EST PAS DISPONIBLE AUX ÉTUDIANTS ET LES PROFESSEURS PRÉ-UNIVERSITAIRE					

JOIGNEZ MAINTENANT ET ÉCONOMISEZ! OUI, J'AIMERAIS JOINDRE LA SMC ADHÉSION SPÉCIALE 2 POUR 1 (l'année 2009 et 2010) :		\$
RENOUVELLEMENT AUTOMATIQUE Voulez-vous renouveler automatiquement en 2010? Les renouvellements se feront en novembre 2009 pour l'année 2010.		
OUI <input type="checkbox"/>	NON <input type="checkbox"/>	CARTE DE CRÉDIT <input type="checkbox"/> INDIQUEZ VOS INITIALE(S) : _____
MODE DE PAIEMENT		
MODE DE PAIEMENT :	Carte de crédit: Visa <input type="checkbox"/> MasterCard <input type="checkbox"/>	Chèque n° _____
N° de carte de crédit: _____ / _____ / _____	Expiration _____ / _____	
Nom figurant sur la carte : _____		
Signature : _____		

HELP CONTRIBUTE TO THE CMS MEMBERSHIP COMMUNITY

We encourage members to invite their fellow colleagues who are not members of CMS to join by taking advantage of the special 2 for 1 membership for new members! Please have your colleague fill this form and fax to 613-733-8994.

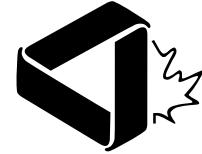


2009 INDIVIDUAL Membership Application

MEMBER INFORMATION

*** MANDATORY FIELDS (IF AVAILABLE)**

*Name:	CMS ID#:
*Address:	
*City:	*Province/State:
*Country:	*Postal Code/Zip:
*Phone:	*Fax:
*Email:	
*Employer Name:	
*Highest degree obtained:	
*Year:	
*Granting institute:	



Do not list my name in the Member's Directory: Language Preference ENGLISH FRENCH Gender Male Female

I wish to receive the CMS Notes Electronically ONLY:

(Please note all CMS Members receive the CMS Notes in paper format unless indicated. All CMS Members have electronic access to the CMS Notes).

MEMBERSHIP

MEMBERSHIP PERIOD: JANUARY 1 TO DECEMBER 31, 2009

TERMS AND CONDITIONS : www.cms.math.ca/docs/terms

ALL RATES BASED ON PROFESSIONAL ANNUAL INCOME	REGULAR MEMBER RATE	LIFETIME MEMBER RATE
ABOVE - \$90,000	\$224 <input type="checkbox"/>	AGE UNDER 35 \$ 3,000.00
\$70,000 TO \$90,000	\$182 <input type="checkbox"/>	AGE 36 - 45 \$ 2,750.00
\$40,000 TO \$70,000	\$118 <input type="checkbox"/>	AGE 46 - 54 \$ 2,500.00
RETIRIED + UNEMPLOYED	\$ 48 <input type="checkbox"/>	AGE 55 - 64 \$ 2,250.00
		AGE 65 & OVER \$ 1,500.00

PAYMENTS MAY BE MADE OVER 4 EQUAL INSTALLMENTS

NOTE: THIS 2 FOR 1 SPECIAL IS NOT AVAILABLE TO STUDENTS AND PRE-UNIVERSITY TEACHERS.

	RECIPROCAL SOCIETY RATE	MAA RATE
ABOVE - \$90,000	\$ 112 <input type="checkbox"/>	\$190 <input type="checkbox"/>
\$70,000 TO \$90,000	\$ 91 <input type="checkbox"/>	\$155 <input type="checkbox"/>
\$40,000 TO \$70,000	\$ 59 <input type="checkbox"/>	\$100 <input type="checkbox"/>
RETIRIED + UNEMPLOYED	\$ 23 <input type="checkbox"/>	\$ 40 <input type="checkbox"/>

RECIPROCAL SOCIETY AND MAA RATES ARE
APPLICABLE ONLY TO MEMBERS RESIDING OUTSIDE
CANADA.

NOTE: THIS 2 FOR 1 SPECIAL IS NOT AVAILABLE TO STUDENTS AND PRE-UNIVERSITY TEACHERS.

IF MEMBER OF RECIPROCAL SOCIETY OR MAA

PLEASE PROVIDE ID#: _____

JOIN NOW AND SAVE! YES, I WOULD LIKE TO JOIN CMS 2 FOR 1 MEMBERSHIP SPECIAL (YEAR 2009 AND 2010) :

\$ _____

AUTOMATIC RENEWAL - please indicate if you would like to have an automatic renewal for 2010. Renewals occur in November 2009 for 2010 membership year.

YES NO CREDIT CARD PLEASE INITIAL: _____

PAYMENT INFORMATION

Payment Method: _____ Credit card: Visa MasterCard Cheque: Cheque number _____

Credit card number: _____ / _____ / _____ / _____ Expiry _____ / _____

Printed name on card: _____

Signature: _____

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. 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. 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 Meeting 2009 in Windsor, ON, December 5 to 7.
Le prix Adrien-Pouliot sera présenté 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.

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

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 recherche
CMS Prize Lectureships / Prix de conférence de la SMC
Department of Mathematics, University of Toronto
40 St. George Street
Toronto, Ontario M5S 2E4

Du bureau du directeur administratif adjoint

Ce message devait être mon premier à titre de directeur administratif de la SMC. Comme vous le savez sans doute, j'ai informé le comité exécutif et le conseil d'administration en octobre 2008 de ma décision de ne pas occuper le poste comme prévu à compter du 1^{er} janvier 2009, pour des raisons indépendantes de ma volonté. J'aimerais profiter de cette occasion pour exprimer ma profonde gratitude pour tout le soutien que j'ai reçu durant mon mandat de directeur administratif adjoint de la part du personnel du bureau administratif et de tous les dirigeants et membres de la SMC. Je suis particulièrement touché de l'appui de mon collègue et ami Graham Wright, qui a accepté de modifier ses projets de retraite durant cette période, jusqu'à l'entrée en poste d'un nouveau directeur administratif. Pendant trente ans, le dévouement, les qualités de meneur et l'énergie débordante de Graham ont transformé la SMC et contribué à la mise en place de la plupart des politiques et pratiques de la Société.

L'année 2008 a été particulièrement éprouvante pour la SMC. Les locaux du bureau administratif ont été reconfigurés en août en raison de la démolition d'une partie du bâtiment, et toute l'équipe a subi deux déménagements complets en l'espace de quatre mois. La Société affiche en outre un budget déficitaire pour la deuxième année consécutive, et ma décision de ne pas prendre la direction de la Société n'a pas facilité les choses. La détermination et le travail assidu du personnel du bureau administratif, de même que les efforts du doyen des sciences et du directeur du Département de mathématiques et de statistique de l'Université d'Ottawa et de leur personnel, nous ont beaucoup aidés à traverser ces épreuves. Au nom de la SMC, j'aimerais remercier le personnel dévoué et dynamique du bureau administratif, ainsi qu'André Lalonde (doyen), Victor Leblanc (directeur) et leur personnel de nous avoir aidés à gérer les nombreux détails entourant les deux déménagements, ainsi que leur engagement à préserver les liens entre l'Université et la SMC.

Dans le numéro de novembre des NOTES, Graham Wright et moi décrivions les changements qu'impliquait le déménagement du bureau administratif. Peu après la sortie du bulletin, l'Université d'Ottawa a informé la SMC que les locaux qu'elle occupait depuis septembre subiraient de grosses rénovations, ce qui nous obligeait à quitter le pavillon à la fin de décembre. En raison de la pénurie de locaux qui sévit à l'Université, nous avons appris qu'il serait impossible de relocaliser la SMC sur campus, au moins pour les quelques années à venir. Nous avons étudié quelques options et visité des locaux susceptibles de répondre aux besoins de la Société, dans les alentours de l'Université mais plus loin aussi. En décembre 2008, le conseil d'administration a approuvé le déménagement dans un édifice appartenant à l'Association des pharmaciens du Canada. Nous avons signé un bail renouvelable d'un an en décembre, et le déménagement s'est fait durant la période des Fêtes. Voici donc la nouvelle adresse de la SMC :

Société mathématique du Canada
1785, promenade Alta Vista, bureau 105
Ottawa (Ontario) K1G 3Y6
CANADA

Le numéro de téléphone principal est le 613-733-2662, et les employés conservent les mêmes adresses de courriel. Grâce aux efforts soutenus du personnel du bureau administratif, notamment des Services électroniques (Alan Kelm et Steve La Rocque), le bureau était à nouveau fonctionnel sans interruption significative dès la première semaine de janvier.

Par ailleurs, Rachel Cunningham a laissé son poste d'adjointe administrative en décembre et nous a quittés pour l'Europe. Compte tenu de la situation financière de la Société et de l'espace limité dans les nouveaux locaux, la Société a décidé de ne pas pourvoir ce poste pour l'instant. Vous comprendrez que cette décision ajoute de la pression sur tout le personnel. La Société demande donc à ses membres de faire preuve de compréhension et de patience durant cette période.

Le président de la SMC, Anthony Lau, a écrit à Alan Rock, nouveau recteur de l'Université d'Ottawa, pour solliciter une rencontre avec lui ou avec son représentant afin de discuter de la possibilité de ramener le bureau administratif sur le campus de l'Université.

Pour ma part, je poursuivrai mon travail de directeur administratif adjoint jusqu'au 30 juin 2009 en aidant Graham à mener les activités quotidiennes de la Société. La fin de mon mandat à ce poste ne marque toutefois pas la fin de ma contribution envers la SMC. Je conserverai la présidence du nouveau Comité sur le bilinguisme et serai responsable du programme Math à Moscou mené par la SMC et le CRSNG. Mais par-dessus tout, le nouveau directeur administratif et le personnel de la SMC pourront compter sur mon aide en tout temps durant la période de transition.

La SMC doit une fière chandelle à ses membres et non-membres qui lui témoignent leur soutien par une contribution financière ou du bénévolat. Il ne fait aucun doute à mon esprit qu'une bonne planification et un travail assidu assureront nos programmes scientifiques, de publication et d'éducation d'un brillant avenir.

Joseph Khoury

2008 PRESENTATION OF PRIZES / PRÉSENTATION DES PRIX 2008

2008 Graham Wright Award for Distinguished Service

Dr. Bill Sands (University of Calgary)

The CMS created a Distinguished Service Award in 1995 to recognize individuals who have made sustained and significant contributions to the Canadian mathematical community, and in particular, to the Canadian Mathematical Society. In 2008, the award was renamed the Graham Wright Award for Distinguished Service in honour of Dr. Graham Wright of the University of Ottawa, who for over 30 years has served with distinction as the Society's Executive Director and Secretary.

Dr. Bill Sands has helped guide and nurture the CMS's International Mathematical Olympiad (IMO) program.

The IMO is the world championship of high school mathematics competitions, standing at the pinnacle of a pyramid of regional and national mathematics competitions. Each summer, following a rigorous training and selection process, the CMS sponsors a team of 6 students to travel abroad to the IMO, where they compete with students from nearly 100 other countries. The CMS's training and selection process relies on the support of the CMS's sponsors and on the work of volunteers from across the Canadian mathematical community. But the development and success of this program would not have been possible without the coordination and leadership of Dr. Sands.

Dr. Sands chaired the Society's IMO Committee from 1998 to 2008. During that time he has trained virtually all of Canada's "Mathletes", both directly as a coach and by helping organize both the summer and winter training session the CMS mounts for IMO-level students. Many volunteers support the competitions program at the CMS, but Dr. Sands has been the consistent figure behind the scenes, ensuring that each team Canada sends abroad receives outstanding preparation and training. In 2007, he headed up the Canadian delegation as Team Leader at the 48th IMO in Hanoi, where Canada finished 27th out of 93 countries. He has also coordinated Canadian participation in the Asia-Pacific Mathematics Olympiad, an event important in the selection process of the Canadian IMO team. He has served the CMS in numerous other capacities, including the regular organization of Math Camps at the University of Calgary, and as a long-time contributor to the CMS's mathematical problem-solving journal CRUX with MAYHEM. He served as the Editor-in-Chief of this journal from 1986 to 1995.

On the local level, Dr. Sands has been a member of the Committee for the Alberta High School Mathematics Contests since 1983, and since 1984, he and Dr. Robert Woodrow have been conducting Wednesday evening enrichment problem sessions for high school students. Dr. Sands' commitment to the nurturing of young minds has constantly increased. Since 1982 he has helped run the Calgary Junior Mathematics Contest. Dr. Sands has also been involved in the Tournament of the Towns Contest and, in 2001 he received the University of Calgary, Faculty of Science Award for Excellence (Community Outreach).

Dr. Sands received his B.Sc., Master and Doctorate degrees from the University of Manitoba, and he joined the Department of Mathematics and Statistics at the University of Calgary in 1979. Dr. Sands conducts research in combinatorial mathematics, studying graphs and partial orders.



Graham Wright, Bill Sands and Anthony Lau

2008 Prix de Graham-Wright pour service méritoire

Dr. Bill Sands (Université de Calgary)

La SMC a créé le Prix pour service méritoire en 1995 pour récompenser les personnes qui contribuent de façon importante et soutenue à la communauté mathématique canadienne, et en particulier à la SMC. En 2008, la Société a renommé cette récompense « Prix Graham-Wright pour service méritoire » en l'honneur du professeur Graham Wright, de l'Université d'Ottawa, qui occupe avec dévouement depuis plus de 30 ans le poste de directeur administratif et secrétaire de la Société.

On doit à Bill Sands l'orientation et l'évolution du programme de l'Olympiade internationale de mathématiques (OIM) de la SMC. L'OIM est le championnat mondial

de mathématiques pour élèves du secondaire, sommet d'une pyramide de concours mathématiques régionaux et nationaux. Tous les étés, après un processus de sélection et un entraînement d'équipe rigoureux, la SMC parraine six élèves qui représentent le Canada à l'OIM, où ils se mesurent à des jeunes d'une centaine de pays. La sélection et l'entraînement encadrés par la SMC reposent sur le soutien des commanditaires de la SMC et le bénévolat de membres de la communauté mathématique canadienne. L'évolution et le succès de ce programme n'auraient jamais été possibles sans la coordination et la direction de Bill Sands.

Bill Sands a présidé le Comité de l'OIM de la SMC de 1998 à 2008. Au cours de cette période, il a formé à peu près tous les « mathlètes » du Canada, directement en tant qu'entraîneur et indirectement en participant à l'organisation des camps d'entraînement d'été et d'hiver que la SMC organise pour les élèves du calibre de l'OIM. Si de nombreux bénévoles appuient le programme des concours mathématiques de la SMC, Bill Sands est celui qui en assure la continuité, dernière la scène, et veille à ce que chaque équipe que le Canada envoie à l'étranger reçoive une préparation et un entraînement exceptionnels. En 2007, il était le chef de la délégation canadienne lors de la 48e OIM, tenue à Hanoï, où le Canada s'est classé 27e sur 93 pays. Il a de plus coordonné la participation du Canada à l'Olympiade mathématique Asie-Pacifique, activité qui joue un rôle important dans le processus de sélection de l'équipe du Canada à l'OIM. Il a occupé de nombreuses autres fonctions à la SMC, notamment comme organisateur des camps mathématiques à l'Université de Calgary et collaborateur de longue date à la revue de résolution de problèmes de la SMC, CRUX with MAYHEM, dont il a été rédacteur en chef de 1986 à 1995.

Sur la scène locale, Bill Sands est membre du comité responsable des concours mathématiques de niveau secondaire en Alberta depuis 1983 et, depuis 1984, il organise des activités d'enrichissement en résolution de problèmes le mercredi soir à l'intention des élèves du secondaire, en compagnie de Robert Woodrow. Son dévouement envers la formation des jeunes esprits n'a cessé de croître au fil des ans. Depuis 1982, il participe aussi à l'organisation d'un concours mathématique junior à Calgary. Bill Sands a également travaillé à l'organisation du Tournament of the Towns Contest et il a reçu, en 2001, le prix d'excellence pour service à la communauté de la Faculté des sciences de l'Université de Calgary.

Il fait son baccalauréat en sciences, sa maîtrise et son doctorat à l'Université du Manitoba, puis s'est joint au Département de mathématiques et de statistique de l'Université de Calgary en 1979. Ses intérêts de recherche sont les mathématiques combinatoires, l'étude des graphiques et les ordres partiels.

2008 PRESENTATION OF PRIZES / PRÉSENTATION DES PRIX 2008

2008 Adrien Pouliot Award

Dr. Harley Weston (University of Regina)

The award is an acknowledgment of Dr. Weston's outstanding contributions to mathematics education at the local, regional, and national levels. Harley has devoted his career to the advancement of mathematics and mathematics education in his home province (Saskatchewan), in Canada and beyond. Key among his contributions has been his creation of Math Central Website and his outreach to Aboriginal communities.

It was Harley's vision and dedication that led to the creation of the vital educational website Math Central, and since its inception this site has been tirelessly maintained by him. Math Central is a collection of internet services designed for teachers and students of mathematics at the K-12 level and which currently averages more than 120,000 hits per day. In addition to maintaining the site, Harley is active in responding to students, teachers and the general public who send mathematics questions to Math Central.

Throughout his career, Harley has recognized the importance of mathematics education to Aboriginal students. To this end, he has been and continues to be engaged in many activities that examine mathematical concepts inherent in Aboriginal culture and life. In 2006, he participated in and made a presentation at the BIRS workshop on First Nations Mathematics; he introduced Aboriginal content into his classes; and coauthored an electronic note on Frieze designs in Indigenous Art. Further, he was involved in several educational trips to Aboriginal communities and schools.

Among his other contributions is Math on the Move. This initiative takes the activity based model of the University of Regina Math Camp and delivers it to schools outside the major urban centers in Saskatchewan. Harley was also instrumental in developing and delivering an online version of a finite Math course which is specifically designed for aspiring elementary teachers.

For most of his career, Harley Weston was a leader in opening lines of communication between K-12 students and teachers, professors of Education, Aboriginal communities and professional mathematicians. "Throughout, his approach has been informed by a respect for the beauty and utility of Mathematics as a discipline, and by a desire to ensure that more people are able to benefit from the fruits of that discipline." says Dr. Nader Mobed, Head of the Department of Mathematics and Statistics, University of Regina.

Dr. Weston received his honors B.Sc. in 1962 from McMaster University. He then completed his M.Sc. (1964) and Ph.D. (1967) degrees at Lehigh University. In 1967, he joined the Department of Mathematics and Statistics at the University of Regina where he stayed until his retirement in 2005. He is Professor Emeritus at the Department of Mathematics and Statistics, University of Regina. Dr. Weston is the recipient of the 1992 University of Regina Alumni Association Award for Excellence in Undergraduate Teaching and the 2008 PIMS Education Prize.

Prix Adrien-Pouliot 2008

Dr. Harley Weston (Université de Regina)



Joseph Khoury and Harley Weston

Ce prix souligne la contribution exceptionnelle du professeur Weston au rayonnement des mathématiques sur la scène locale, régionale et nationale. Harley a consacré sa carrière à l'avancement et au développement de l'éducation mathématique dans sa province (Saskatchewan), au Canada et au-delà. Parmi ses nombreuses contributions, la création du site Web « centrale des maths » et son engagement à l'éducation des communautés Autochtones sont les plus visibles.

La vision et le dévouement de Harley ont mené à la création du site Web vital et éducatif « centrale des maths », qu'il met à jour inlassablement depuis son lancement. La Centrale des maths est une collection de services Internet conçus pour des professeurs et des étudiants en mathématiques à tous les niveaux pré-universitaires. Il reçoit actuellement en moyenne plus de 120 000 visites par jour. En plus du maintien du site, Harley répond constamment aux questions des étudiants, des enseignants et du public général qui envoient leurs questions en mathématiques au Centrale des Maths.

Durant toute sa carrière, Harley a réalisé l'importance de l'éducation des étudiants autochtones en mathématiques. Pour cela, il continue à être engagé dans beaucoup d'activités qui examinent des concepts mathématiques inhérents à la culture et à la vie des autochtones. En 2006, il a participé à l'atelier de BIRS sur les mathématiques des premières nations où il a donné un exposé à ce sujet; il a également introduit des notions mathématiques autochtones dans ses cours et a co-rédigé une note électronique intitulée Frieze designs in Indigenous Art. De plus, il a participé à plusieurs voyages éducatifs dans des communautés autochtones.

Parmi ses autres contributions, mentionnons l'activité Math on the Move. Cette initiative a pour but d'amener le modèle des activités du camp mathématique de l'Université de Regina aux écoles situées en dehors des principaux centres urbains de Saskatchewan. Harley a également joué un rôle crucial dans le développement et la diffusion d'une version électronique d'un cours de mathématiques finis spécifiquement conçu pour les enseignants aspirants au niveau élémentaire.

Durant la majeure partie de sa carrière, Harley Weston fut un leader en ouvrant les voies de communication entre les étudiants, les enseignants pré-universitaires, les professeurs de l'éducation, les communautés autochtones et les mathématiciens professionnels. « Partout, son approche était basée sur le respect pour la beauté et l'utilité des mathématiques comme discipline, et par un désir de s'assurer que plus de personnes peuvent bénéficier des fruits de cette discipline. » dit Dr. Nader Mobed, directeur du département de mathématiques et de statistique, à l'Université de Regina.

Dr. Weston a reçu son baccalauréat avec spécialisation en 1962 de l'Université McMaster. Il a ensuite obtenu sa maîtrise (1964) et son doctorat (1967) de l'Université de Lehigh. En 1967, il s'est joint au département de mathématiques et de statistique à l'Université de Regina où il est resté jusqu'à sa retraite en 2005. Il porte le titre de professeur émérite du département de mathématiques et de statistique à l'Université de Regina. Dr. Weston est le récipiendaire du prix 1992 de l'excellence en enseignement sous-gradué de l'association des anciens de l'Université de Regina et le prix d'éducation 2008 de PIMS.

2008 PRESENTATION OF PRIZES / PRÉSENTATION DES PRIX 2008

2008 David Borwein Distinguished Career Award

Dr. Hermann Brunner (Memorial University of Newfoundland)

Dr. Hermann Brunner has made notable contributions to Canadian mathematics, through his research, his teaching, and through the breadth of his service to the mathematical community. Particularly notable in this respect has been his tireless work to develop the Atlantic Association for Research in the Mathematical Sciences (AARMS), and through AARMS to expand and enhance the infrastructure that supports research and graduate training in Atlantic Canada.

Dr. Brunner received his Ph.D. from ETH Zürich in 1969. In 1986, following appointments at Dalhousie University, the University of Münster, and the University of Fribourg, he joined Memorial University of Newfoundland, rising to the rank of University Research Professor. He is the author of numerous scientific publications, and the author or editor of three research monographs. His research lies in area of the numerical analysis of integral equations, a topic to which he has also contributed by serving on leading editorial boards, and by organizing major conferences.

His service to the mathematical community includes a term as vice-president of the Canadian Mathematical Society, as group chair for the mathematical and statistical sciences at the Natural Sciences and Engineering Research Council (NSERC), and on several other NSERC committees, including a term as chair of the grant selection committee in applied mathematics. His contributions have been recognized by the Fields Institute, which inducted him as a fellow in 2006.

Dr. Brunner was influential in the founding of AARMS, and served as its director from 1999 to 2005. AARMS has increased the cohesiveness of mathematical research in Atlantic Canada, providing both direct support and a network that facilitates collaboration in research and graduate education. During his tenure as Director, Dr. Brunner led a national effort to secure stable and increased funding for AARMS, in cooperation with major Canadian research institutes such as the Centre de recherches mathématiques in Montreal, the Fields Institute in Toronto, and the Pacific Institute for the Mathematical Sciences in Western Canada. The legacy of these efforts has been the stimulation and expansion of mathematical research in Atlantic Canada, and the establishment of a strong and enhanced infrastructure in support of that research.

Prix David-Borwein de mathématicien émérite pour l'ensemble d'une carrière 2008

Dr. Hermann Brunner (Université Memorial de Terre-Neuve)



Anthony Lau, Hermann Brunner, David and Bessie Borwein

La contribution d'Hermann Brunner à la scène mathématique canadienne est exceptionnelle tant par ses recherches, son enseignement et l'ampleur de son œuvre au sein de la communauté mathématique. Il a notamment travaillé avec ardeur à la création de l'Association pour l'avancement de la recherche mathématique en Atlantique (AARMA) et, par l'entremise de l'AARMA, à l'expansion et à l'amélioration de l'infrastructure qui soutient la recherche et la formation aux cycles supérieurs au Canada atlantique.

Hermann Brunner a obtenu son doctorat à l'ETH de Zürich en 1969. En 1986, après avoir occupé des postes à l'Université Dalhousie, à l'Université de Münster et à l'Université de Fribourg, il s'est joint au corps professoral de l'Université Memorial de Terre-Neuve, où il atteint le rang de professeur-chercheur. Auteur de nombreuses publications scientifiques, il est l'auteur ou le coauteur de trois monographies. En recherche, il s'intéresse à l'analyse numérique des équations intégrales, domaine auquel il a aussi contribué en tant que membre de grands conseils de rédaction et du comité organisateur de congrès prestigieux.

Au sein de la communauté mathématique, il a notamment été vice-président de la SMC, président du groupe mathématiques et statistique du Conseil de recherches en sciences naturelles et en génie (CRSNG) et membre de plusieurs autres comités du CRSNG, dont président du Comité de sélection des subventions en mathématiques appliquées. Son travail a déjà été reconnu par l'Institut Fields, qui l'a reçu parmi ses membres en 2006.

Hermann Brunner a joué un rôle important dans la fondation de l'AARMA, dont il a assuré la direction de 1999 à 2005. L'AARMA a renforcé la cohésion de la recherche mathématique au Canada atlantique en offrant à la fois du financement direct et un réseau propice à la collaboration en recherche et en enseignement aux cycles supérieurs. Durant son mandat de directeur, il a pris la tête d'une campagne pancanadienne visant à assurer un financement stable et accru pour l'AARMA auquel ont aussi pris part les grands instituts de recherche canadiens, dont le Centre de recherches mathématiques à Montréal, l'Institut Fields à Toronto et l'Institut du Pacifique pour les sciences mathématiques dans l'Ouest. Ces efforts concertés ont stimulé et enrichi la recherche mathématique au Canada atlantique et contribué à la formation d'une infrastructure solide et améliorée de soutien à la recherche dans cette partie du pays.

2008 Coxeter-James Prize

Dr. Ravi Vakil (Stanford University)

In his short, dynamic career, Dr. Ravi Vakil has become one of the world's leading algebraic geometers. He has made fundamental and lasting contributions in intersection theory, Schubert calculus and in the study of the singularities of moduli spaces. In an early article, for which he was awarded the Society's G. de B. Robinson Prize, Dr. Vakil gave a rigorous derivation of the characteristic numbers for families of plane quartic curves, thereby completing a program in enumerative geometry going back to the first half of the 19th century, which was mentioned by Hilbert in his famous problem list. In two major papers which appeared in the Annals of Mathematics, Ravi Vakil used a clever deformation technique to solve several classical problems in Schubert Calculus. The most spectacular consequence of this is that any problem involving counting the points in an intersection of Schubert varieties in a (complex) Grassmannian is "totally real". That is, the problem can be solved by restricting to sufficiently general real subspaces of a real Grassmannian. This work also gave a natural geometric interpretation to the "puzzles" of Knutson and Tao. Dr. Vakil's results on the singularities of moduli spaces show that the singular loci of moduli spaces can be as bad as possible.

Dr. Ravi Vakil's outstanding contributions go well beyond his research. He is a model for promoting the overall dissemination of mathematics as well. He has unselfishly contributed his time as an organizer of international meetings, such as the graduate student pre-meeting before the American Mathematical Society's Summer Symposium in algebraic geometry 2005, a Snowbird Conference in 2006 and most recently, the MSRI jumbo program in algebraic geometry in 2009.

Dr. Vakil is unique in combining his talent for mathematical research with his desire to educate and infuse others with his passion for the subject. Few people combine his abilities and his dedication. Ravi Vakil has been extremely active in organizing workshops and math camps for high school students and undergraduates, and coordinates the William Lowell Putnam competition at Stanford. He is also the co-author of a book on the Putnam competition.

Dr. Vakil received his B.Sc. from the University of Toronto in 1992 and his Ph.D. from Harvard in 1997. After receiving his degree, he was an instructor at Princeton and a C.L.E. Moore Instructor at MIT. He is now the David Huntington Faculty Scholar and a Professor in the Mathematics Department at Stanford University. In 2005, he won the CRM André-Aisenstadt Prize and also received the 2004-05 Dean's Award for Distinguished Teaching at Stanford. He recently completed an American Mathematical Society Centennial Fellowship, a Frederick E. Terman fellowship, and an Alfred P. Sloan Research Fellowship. He currently holds a National Science Foundation CAREER grant (2003-2008), and received the Presidential Early Career Award for Scientists and Engineers (PECASE) at the White House in 2004.

Prix Coxeter-James 2008

Dr. Ravi Vakil (Stanford University)



Ravi Vakil and Anthony Lau

Malgré la brièveté de sa dynamique carrière, Ravi Vakil est devenu une sommité mondiale en géométrie algébrique. Il a fait une contribution fondamentale et durable en théorie des intersections, en calcul de Schubert et dans l'étude des singularités des espaces de modules. Dans un article publié au début de sa carrière et pour lequel il a obtenu le prix G. de B. Robinson de la SMC, M. Vakil a donné une dérivation rigoureuse des nombres caractéristiques pour des familles des courbes planes quartiques, complétant ainsi un programme en géométrie énumérative remontant à la première moitié du 19e siècle et figurant sur la célèbre liste de problèmes de Hilbert. Dans deux importants articles publiés dans Annals of Mathematics, Ravi Vakil s'est servi d'une brillante technique de déformation pour résoudre plusieurs problèmes classiques

du calcul de Schubert. La conséquence la plus spectaculaire de cette percée est que tout problème de dénombrement des points d'intersection des variétés de Schubert dans un espace Grassmannien (complexe) est « totalement réel ». En d'autres mots, le problème peut être résolu en considérant la restriction à un sous espace réel suffisamment général du Grassmannien réel. Ces travaux ont aussi débouché sur une interprétation géométrique naturelle des « puzzles » de Knutson et Tao. Les résultats de M. Vakil sur les singularités des espaces de modules montrent que les lieux de singularités des espaces de modules peuvent être aussi mauvais que possible.

Les contributions exceptionnelles de Ravi Vakil dépassent toutefois largement la recherche. Ce mathématicien est aussi un modèle de promotion des mathématiques. Il donne, sans compter, de son temps et de son énergie à l'organisation de rencontres internationales, dont la rencontre précongrès pour étudiants diplômés du symposium d'été 2005 de l'American Mathematical Society en géométrie algébrique, un congrès Snowbird en 2006 et, plus récemment, l'immense programme du MSRI en géométrie algébrique en 2009.

Ravi Vakil possède un talent unique alliant la recherche mathématique à une volonté de transmettre sa passion pour la discipline. Rares sont les gens qui cumulent un tel talent et un tel dévouement. Il a joué un rôle très actif dans l'organisation d'atelier et de camps mathématiques pour élèves du secondaire et du premier cycle universitaire, et il coordonne le concours William Lowell Putnam à Stanford. Il est aussi coauteur d'un ouvrage sur le concours Putnam.

Ravi Vakil a obtenu son baccalauréat en sciences de l'Université de Toronto en 1992 et son doctorat de Harvard en 1997. Après avoir obtenu son diplôme, il a enseigné à Princeton et au MIT (C.L.E. Moore Instructor). En ce moment, il est titulaire de la bourse David Huntington et il est professeur au Département de mathématiques de l'Université Stanford. En 2005, il a reçu le prix Andre-Aisenstadt du CRM ainsi que le Prix du doyen 2004-2005 d'excellence en enseignement de Stanford. Dernièrement, il a aussi obtenu la bourse de recherche Centennial de l'American Mathematical Society, la bourse Frederick E. Terman et la bourse de recherche Alfred P. Sloan. Il bénéficie en ce moment d'une subvention CAREER de la National Science Foundation (2003-2008) et il a obtenu le Presidential Early Career Award for Scientists and Engineers (PECASE) de la Maison Blanche en 2004.

2008 PRESENTATION OF PRIZES / PRÉSENTATION DES PRIX 2008

2008 G. de B. Robinson Award

Dmitry Jakobson (McGill), Nikolai Nadirashvili (CNRS Marseille) Iosif Polterovich (Montréal)

This year's winning article is concerned with the study of extremal metrics which has been and remains one of the important themes of research in Riemannian geometry. Given a compact manifold, one seeks a Riemannian metric for which the first eigenvalue of the Laplace-Beltrami operator, suitably scaled by the volume of the manifold, is extremal. This problem has been solved in 1970 by Hersch for the 2-sphere, by Li-Yau in 1982 for the real projective plane, and by El Soufi and Ilias in 2000 for the two-torus. The paper by Dmitry Jakobson, Nikolai Nadirashvili and Iosif Polterovich, "Extremal metric for the first eigenvalue on a Klein bottle", Canadian Journal of Mathematics (2006) / Vol. 58 / No. 2 / 381-400, considers the problem in the more difficult case of the Klein bottle. By ingeniously reducing the problem to the study of a system of non-linear second order ordinary differential equations, which they analyze in detail, the authors construct explicitly an extremal metric on the Klein bottle, which they conjecture to be the unique extremal metric. Since the appearance of their paper, this conjecture has been proved by El Soufi, Giacomini and Jazar, in a paper published in the Duke Mathematical Journal.



Iosif Polterovich, Matthias Neufang, Dmitry Jakobson, Anthony Lau

Prix G. de B. Robinson 2008

Dmitry Jakobson (McGill), Nikolai Nadirashvili (CNRS Marseille) Iosif Polterovich (Montréal)

L'étude des métriques extrémales, qui est le sujet de recherche de l'article gagnant, a été et est toujours l'un des thèmes de recherche importants en géométrie riemannienne. En étant donnée une variété compacte, on cherche une métrique riemannienne telle que la première valeur propre de l'opérateur de Laplace-Beltrami (normalisée par le volume de la variété) soit extrémale. Ce problème a été résolu par Hersch en 1970 pour la 2-sphère, par Li-Yau en 1982 pour le plan projectif réel et par El-Soufi et Ilias en 2000 pour le 2-tore. L'article de Dmitry Jakobson, Nikolai Nadirashvili et

Iosif Polterovich, « Extremal metric for the first eigenvalue on a Klein bottle », Journal canadien de mathématiques (2006) / Vol. 58 / No. 2 / 381-400, traite ce problème dans le cas plus difficile de la bouteille de Klein. Par une réduction ingénieuse du problème, ils le ramènent à l'étude d'un système d'équations différentielles non linéaires du deuxième ordre, qu'ils analysent en détail. De cette façon, les auteurs construisent de manière explicite une métrique extrémale sur la bouteille de Klein, dont ils conjecturent qu'elle est l'unique métrique extrémale sur cette variété. Depuis la publication de ce résultat, la conjecture a été démontrée par El Soufi, Giacomini et Jazar, dans un article sous presse au Duke Mathematical Journal.

Dmitry Jakobson received his Ph.D. from Princeton University in 1995 under the supervision of P. Sarnak. He held an Assistant Professor position at the University of Chicago in 1999-2000. He has worked at McGill University since 2000 where he was promoted to Full Professor in 2008. His research interests are in analysis and spectral geometry, with connections to partial differential equations, dynamical systems, mathematical physics, number theory and graph theory.

Nikolai Nadirashvili received his Ph.D. (1981) from Moscow State University. From 1997 to 1998 he held an Assistant Professor position at MIT, and from 1998 to 2004 he was a full professor at the University of Chicago. Since 2004 he has been working at CNRS (Marseille) in a DR1 position.

Iosif Polterovich received his Ph.D. (2000) from the Weizmann Institute of Science. In 2002, he joined the Department of Mathematics and Statistics at the Université de Montréal, where he is currently an Associate Professor. In 2006, he was awarded the André-Aisenstadt prize by the Centre de recherches mathématiques for contributions to geometric spectral theory.

Dmitry Jakobson a reçu son doctorat de l'Université de Princeton en 1995 sous la supervision de P. Sarnak. Il a occupé un poste de professeur adjoint à l'Université de Chicago de 1999 à 2000. Il travaille à l'Université McGill depuis 2000 où il occupe maintenant un poste de professeur titulaire. Ses intérêts de recherche sont en analyse et géométrie spectrale, en connexion avec les équations différentielles aux dérivées partielles, les systèmes dynamiques, la physique mathématique, la théorie des nombres et la théorie des graphes.

Nikolai Nadirashvili a obtenu son doctorat (1981) de l'Université d'État de Moscou. De 1997 à 1998, il a occupé un poste de professeur adjoint à MIT. De 1998 à 2004 il a occupé un poste de professeur titulaire à l'Université de Chicago. Depuis 2004, il occupe un poste DR1 au CNRS (Marseille).

Iosif Polterovich a obtenu son doctorat (2000) de l'Institut Weizmann des Sciences. En 2002, il s'est joint au département de mathématiques et de statistique à l'Université de Montréal, où il est maintenant professeur agrégé. En 2006, il a obtenu le prix André-Aisenstadt du Centre de recherches mathématiques pour ses contributions à la théorie de la géométrie spectrale.

CALENDAR OF EVENTS / CALENDRIER DES ÉVÉNEMENTS

MARCH	2009	MARS	JULY	2009	JUILLET
7 - 11	The Spring Topology and Dynamics Conference and the Ulam Centennial Conference (University of Florida, Gainesville) www.math.ufl.edu/stdculam/		12-Aug 8	AARMS (Graduate) Summer School 2009, UNB-Fredericton www.aarms.math.ca/summer/	
APRIL	2009	AVRIL	AUGUST	2009	AOÛT
30 - May 3	Canadian Mathematics Education Forum 2009 Host: Pacific Institute for the Mathematical Sciences (Vancouver) SFU Vancouver Campus www.cms.math.ca/Events		13-15	Second CMS/SMM Meeting 2009 Host: Pacific Institute for the Mathematics Sciences (PIMS) University of British Columbia, Vancouver (BC) www.cms.math.ca/Events/CMS-SMM-2009/	
MAY	2009	MAI	OCTOBER	2009	OCTOBRE
8-10	Workshop on Connections in Geometry and Physics (Perimeter Institute for Theoretical Physics, Waterloo, ON) www.math.uwaterloo.ca/~gap/		12-16	Algebra, Geometry, and Mathematical Physics 5th Baltic-Nordic Workshop (Bedlewo, Poland) www.agmf.astralgo.eu/bd109/	
10-15	ICMI (International Commission on Math Instruction) Study Conference on 'Proof and Proving in Mathematics Education' (Taipei, Taiwan) www.icmi19.com		DECEMBER	2009	DÉCEMBRE
27-31	Fields Institute Workshop on Geometry Related to the Langlands Programme University of Ottawa, Ottawa, Canada www.fields.utoronto.ca/programs/scientific/08-09/Langlands		5 - 7	CMS Winter Meeting 2009, Host: University of Windsor Hilton Hotel, Windsor (ON) www.cms.math.ca/Events/winter09/	
JUNE	2009	JUIN	JUNE	2010	JUIN
6 - 8	CMS/CSHPM Summer Meeting 2009 Memorial University of Newfoundland, St. John's (NL) www.cms.math.ca/Events		4 - 6	CMS Summer Meeting 2010 University of New Brunswick - Fredericton (NB) www.cms.math.ca/Events	
9 - 13	International Conference on Nielsen Theory and Related Topics Memorial University of Newfoundland, St. John's (NL) keppelma@unr.edu		AUGUST	2010	AOÛT
14 - 20	47th International Symposium on Functional Equations (Gargnano, Italy) GianLuigi.Forti@mat.unimi.it		19 - 27	International Congress of Mathematicians 2010 (Hyderabad, India) www.icm2010.org.in	
15-18	3rd International Conference On Maths and Stats (Athens, Greece) www.atiner.gr/		DECEMBER	2009	DÉCEMBRE
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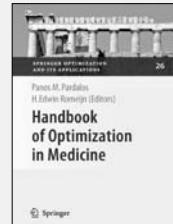
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