



CMS NOTES de la SMC

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CMS: THE CANADIAN MOBILE SOCIETY

Joseph Khoury
Associate Executive Director

and Graham P. Wright
Executive Director



For almost thirty years, the Canadian Mathematical Society has enjoyed a strong relationship with the University of Ottawa at the scientific and the administrative levels. The CMS Executive Office has been located at 577 King Edward Avenue, next door to the Department of Mathematics and Statistics. During these years, this relationship has proven to be extremely efficient, effective and beneficial for both the Society and the University.

Recently, the University of Ottawa determined that the space currently occupied by the CMS had significant structural problems that necessitated moving the CMS Executive Office.

Efforts by the Executive Office in collaboration with University of Ottawa administrators resulted in securing a space on the Campus of the University of Ottawa for the short-term.

Background

Earlier this year, the University informed the CMS that the back extension of 577 King Edward (the Meeting Coordinator's office) was beyond repair and needed to be demolished. Preparations were made to rearrange some offices and make

Relocation of the Executive Office.

it possible for an office for the Meetings Coordinator to be incorporated within the other available space at 577 King Edward. The re-arrangements were completed in July and the demolition took place at the beginning of August. The University agreed to let the CMS use one office at 575 King Edward as a storage room.

During demolition, the outside walls of another extension of 577 King Edward showed signs of significant deterioration and this part was declared unsafe for occupancy. An immediate evacuation of the personnel who had offices in this extension was ordered on August 11. This extension included the reception area on the first floor; as well as the Accountants Office, the kitchen and the washroom facilities on the second floor. The University had work done to temporarily reinforce this extension so that the staff had limited access to the area.

With such limited access to washroom facilities and to the fire escape, there was an urgent need to evacuate the building. Many meetings took place between the Executive Office and University of Ottawa officials at different levels. These efforts resulted in securing space elsewhere on Campus in the short term, in particular, until the end of

December 2008, and possibly April 2009.

We are grateful for the tremendous spirit showed by the Executive Office staff during this period and for the enormous effort made by the University of Ottawa to ensure a smooth move with a minimal level of disruption. For their support and assistance with the relocation, thanks are due to the Executive Office staff, Victor Leblanc (Chair – Department of Mathematics and Statistics), André Lalonde (Dean – Faculty of Science) and their staff.

New Address

Mail sent to the 577 King Edward address will be redirected to the new location by the University of Ottawa mailing service. The new address for the CMS Executive Office is:

136 Jean-Jacques Lussier Private
252 Vanier Hall
Ottawa, ON K1N 6N5

Staff contact information, office phone, and fax numbers remain the same, as well as all email contacts. Banking information does not change and all electronic payments will be handled in the same manner as currently.



**"Lives of great men all remind us
We can make our lives sublime
And, departing, leave us behind
Footprints on the sands of time."**

- H. W. Longfellow, A psalm of life, 1838

On August 13 the world of mathematics lost one of its eminent members; Henri Cartan passed away at the ripe age of 104. Son of Elie Cartan, himself a distinguished mathematician, Henri's research contributions enriched many areas such as complex analysis, algebraic topology, and homological algebra. As one of the founding members of the Séminaire Bourbaki he shone among the stalwarts André Weil, Claude Chevalley, Jean Dieudonné, Jean Delsarte, and Jean Leray, Alexander Grothendieck and others. His enormous contributions to modern mathematics are reflected by publications during the span of more than seventy years, ranging from his first paper "Sur quelques théorèmes de M. R. Nevanlinna" in the Comptes Rendus of 1927 to the obituary of Samuel Eilenberg in the Gazette des Mathématiciens in 1998.

G. H. Hardy famously claimed that mathematics was a game of the young. But do the facts bear this out? The list of mathematicians in the age group 80-90 who were quite active in their later years is long. Newton and Nicholas Bernoulli, who lived for 85 years, are illustrious among early mathematicians who lived past 80. It is true Newton did most of his mathematical work in the first third of his life and published it in the middle third, devoting what today would be his post-retirement years to religious speculation and punishing counterfeiters (as Master of the Mint).

Several well-known mathematicians lived past ninety; these include Moritz Cantor (91), Maurice Fréchet (95), Otto Neugebauer (91), Bertrand Russell (97), H. S. M. Coxeter (96), George Pólya (98), and Paul Montel (99). Among those who were productive in their later years we find the illustrious Jacques Hadamard (97) and Charles de la Vallée Poussin (95), who proved the prime number theorem independently in 1896; both lived to see the Space Age. They might well have become centenarians if only they had not lost their will to live. It appears that de la Vallée Poussin fractured his shoulder towards the end of his life, while Hadamard lost his spirit grieving over the death of his grandson Étienne who was killed in a mountaineering accident.

In the twentieth century, we start to find centenarian mathematicians. The first of these may have been the Ukrainian Boris Yakovych Bukreyev, who lived for 103 years, according to the list of centenarian scientists and mathematicians. Others in that list are: Su Buqing (Chinese, 103), Emma Lehmer (100), Georg Nöbeling (100), Luigi Poletti (103), Pelageya Polubarinova-Kochina (100), Dirk Jan Struik (106). Leopold Vietoris holds the record for having lived the longest; he died on April 9, 2002 shortly before his 111th birthday. The Russian mathematician Sergey Nikosky is 103 and alive.

Both Bukreyev and Struik maintained a steady interest in the history of mathematics to the end of their lives. William Duren (102) gave a colloquium lecture at the University of Virginia on his 100th birthday. Half of the papers of Vietoris were written

after his 60th birthday; clearly Hardy's dictum is by no means a universal truth!

In contrast, we may recall the famous names we come across in our mathematics courses — those who had a short span of life within which they made remarkable contributions. The earliest among these is the prodigy Blaise Pascal who lived from 1623 to 1662. The Norwegian Niels Henrik Abel lived in the early years of the nineteenth century and died at the very young age of 26 years and 8 months, of whom Hermite said, "he has left mathematicians something to keep them busy for 500 years." The story of Evariste Galois (1811-1832) is well known. Not so well known is the geometer W. K. Clifford (1845-1879) who was a contemporary of Lewis Carroll. And there was the untrained and unsystematically self-taught Indian genius of the 20th century, Srinivasa Ramanujan (1887-1920) who lived for 32 years and 4 months.

These examples illustrate what the French essayist, Michel de Montaigne wrote in 1580: «L'utilité de vivre n'est pas en l'espace, elle est en l'usage... il gît en votre volonté, non au nombre des ans, que vous ayez assez vécu. (The value of life does not lie in the number of years but in the use you make of them... whether you have lived enough depends on your will, not on the number of years.)"

NOTES DE LA SMC

Les Notes de la SMC sont publiés par la Société mathématique du Canada (SMC) huit fois l'an (février, mars, avril, mai, septembre, octobre, novembre et décembre).

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CMS NOTES

The CMS Notes is published by the Canadian Mathematical Society (CMS) eight times a year (February, March, April, May, September, October, November and December).

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ISSN :1193-9273 (imprimé/print)

1496-4295 (électronique/electronic)

« La vie des grands hommes nous rappelle
Que nous aussi nous pouvons rendre notre vie
sublime Et laisser derrière nous, après la mort,
Des empreintes sur le sable du temps. »

- H. W. Longfellow, Un psaume de vie, 1838

Le 13 août dernier, la communauté mathématique perdait l'un de ses membres les plus éminents. Henri Cartan a quitté ce monde à l'âge vénérable de 104 ans. Fils d'Elie Cartan, lui-même mathématicien distingué, Henri a fait d'importantes contributions scientifiques dans de nombreux domaines, dont l'analyse complexe, la topologie algébrique et l'algèbre homologique. En tant que cofondateur du Séminaire Bourbaki, il s'est distingué aux côtés d'hommes remarquables comme André Weil, Claude Chevalley, Jean Dieudonné, Jean Delsarte, Jean Leray et Alexander Grothendieck. Ses nombreuses publications, échelonnées sur plus de 70 ans et allant de son premier article intitulé « Sur quelques théorèmes de M. R. Nevanlinna » paru dans les Comptes Rendus de 1927, à la notice nécrologique de Samuel Eilenberg parue dans la Gazette des Mathématiciens en 1998, témoignent de son immense contribution aux mathématiques modernes.

G. H. Hardy est reconnu pour avoir affirmé que les mathématiques étaient une affaire de jeunes. Mais est-ce là un fait vérifié? La liste de mathématiciens de 80 à 90 ans qui étaient très actifs aux dernières années de leur vie est longue. Newton et Nicholas Bernoulli, qui ont vécu jusqu'à 85 ans, sont deux exemples illustres, chez les premiers mathématiciens, d'hommes qui ont franchi la barre des 80 ans. Il est vrai que Newton a réalisé la majorité de son œuvre mathématique dans le premier tiers de sa vie, qu'il a publié ses travaux dans le second tiers et qu'il a consacré le troisième, que l'on appellerait aujourd'hui ses années de retraite, à la spéculation religieuse et à punir les faux-monnayeurs (en tant que président de la Monnaie).

Plusieurs mathématiciens bien connus ont vécu plus de 90 ans, notamment Moritz Cantor (91 ans), Maurice Fréchet (95 ans), Otto Neugebauer (91 ans), Bertrand Russell (97 ans), H. S. M. Coxeter (96 ans), George Pólya (98 ans) et Paul Montel (99 ans). Parmi ceux qui ont été productifs aux dernières années de leur vie, on pense à Jacques Hadamard (97 ans) et à Charles de la Vallée Poussin (95 ans), qui ont prouvé, indépendamment, le théorème des nombres premiers en 1896; ils ont tous deux vécu jusqu'à l'ère spatiale. On dit qu'ils auraient pu être centenaires s'ils n'avaient pas perdu le goût de vivre. Il semble que De la Vallée Poussin se soit fracturé l'épaule vers la fin de sa vie, et qu'Hadamard serait mort de chagrin suite à la perte de son petit-fils Étienne, emporté par la montagne.

Les premiers mathématiciens centenaires font leur apparition au XXe siècle. Le premier est sans doute l'ukrainien Boris Yakovych Bukreyev, qui aurait vécu 103 ans selon la liste des scientifiques et mathématiciens centenaires. Figurent aussi

sur cette liste Su Buqing (Chine, 103 ans), Emma Lehmer (100 ans), Georg Nöbeling (100 ans), Luigi Poletti (103 ans), Pelageya Polubarinova-Kochina (100 ans), Dirk Jan Struik (106 ans). C'est Leopold Vietoris qui détient le record de longévité : il s'est éteint le 9 avril 2002, peu avant son 111e anniversaire. Le mathématicien russe Sergey Nikosky, 103 ans, est toujours vivant.

Bukreyev et Struik se sont intéressés à l'histoire des mathématiques jusqu'à la fin de leur vie. William Duren (102 ans) a prononcé une conférence à l'Université de Virginie pour son 100e anniversaire. Quant à Vietoris, il a publié la moitié de ses travaux après avoir soufflé ses 60 bougies. De toute évidence, l'affirmation de Hardy n'a rien d'une vérité universelle!

Par contraste, il y a aussi des mathématiciens célèbres, dont nous avons entendu parler dans nos cours de mathématiques, qui sont morts très jeunes, mais qui ont fait en peu de temps une contribution remarquable, le plus ancien étant le prodige Blaise Pascal, qui a vécu de 1623 à 1662. Le norvégien Niels Henrik Abel, qui a vécu au tout début du XIXe siècle, est mort au jeune âge de 26 ans et 8 mois. À son sujet, Hermite a écrit : « Il a laissé aux mathématiciens du travail pour les 500 prochaines années ». L'histoire d'Évariste Galois (1811-1832) est bien connue, contrairement à celle du géomètre W. K. Clifford (1845-1879), contemporain de Lewis Carroll. Ajoutons à ces noms celui du génie indien autodidacte du XXe siècle, Srinivasa Ramanujan (1887-1920), qui s'est éteint à l'âge de 32 ans et 4 mois.

Ces exemples illustrent les propos de l'essayiste français Michel de Montaigne (1580) : « L'utilité de vivre n'est pas en l'espace, elle est en l'usage [...] il gît en votre volonté, non au nombre des ans, que vous ayez assez vécu. »



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.

Summa Summarum

by Mogens Larsen

CMS Treatises in Mathematics, A.K.Peters, Ltd., xi+232 pp.
\$49.00 ISBN 978-1-56881-323-3

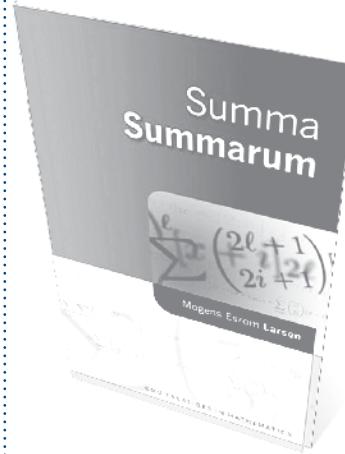
Reviewed by O-Yeat Chan, Dalhousie University, Halifax.

Harold Bohr is said to have remarked, "Most analysts spend half their time hunting through the literature for inequalities they want to use, but cannot prove." The same might also be said of summation formulas. For those of us who would rather not spend our time this way, looking for known sum evaluations, Larsen's *Summa Summarum* might catch our eye.

Larsen aims to provide a "collection of all known finite algebraic sums and a guide to find the sum you need." Now, I can hear some of you asking, "but is such a book even necessary in this age of computer algebra systems?" "With software like Maple and Mathematica which have identity-proving algorithms such as Wilf-Zeilberger built-in, wouldn't a book on sum evaluations be obsolete?" But as those who've used these programs know first-hand, they are still far from perfect. For example, some algorithms would convert a sum into an analytic object evaluated at a certain point, and inadvertently cross branches or interchange limits illegally, giving the wrong answer.

So what makes Larsen's book any better? After all, a table of sums is still essentially a "black box", and even the most popular tables are known to contain errors and typos. Sometimes even the editors themselves are uncertain of the origins of some particular formula in the table! But *Summa Summarum* is not your typical "tables of sums" reference book. In fact, if you open it to a random page, you're likely to find that there are more words than symbols! Unlike standard handbooks of formulas, this book is not filled with page after page of equations and evaluations. Instead, most of the pages are filled with proofs, and the identities marked as theorems. These are classified using a scheme Larsen credits to E. S. Andersen.

The first 4 chapters of the book serve as a sort of introduction to the subject of finite sum evaluation. Chapters 1 and 2 are devoted to introducing notation and properties of the objects used throughout the text, including binomial coefficients and generalized factorials. Chapter 3 discusses some topics related to power sums, and their relation to Bernoulli and Stirling numbers. Chapter 4 contains an overview of the various techniques used to solve linear difference equations, and provides a number of applications to specific identities. This is typical of the way many of the chapters are organized: there are several subsections proving general formulas, and then the formulas or the techniques used are applied to problems from journals like the American Mathematical Monthly and the SIAM Review.



Chapter 5 is where Larsen explains the classification scheme used in his *Summa*. This is the chapter that needs to be read, after the first 2 chapters on notation, in order to use the book to look up sums. Sums are classified into five main types, based on the form of the summands. If the sum to be evaluated is of the form

$$\sum_{k=0}^n t(c, n, k),$$

(here c is some vector of arguments), then the summand $t(c, n, k)$ is of type I if it is of the form $t(c, n, k) = r(c, n, k)z^k$, where $r(c, n, k)$ is a rational function in k . A type II summand is one that is not of type I, but the ratios of consecutive summands $q(c, n, k) = t(c, n, k+1)/t(c, n, k)$ is a rational function of k . A type III summand is one where it is the product of a type I or II summand and falling factorial type terms involving k ; that is, factors of the form $\prod_{i=0}^{k-1} (x+ky-i)$.

Types IV and V summands are products of a type I or II summand and factors of the form $(x+ky)^k$ and generalized harmonic numbers, respectively.

Type II sums are further divided into sums of type II(p, q, z), if the above quotient $q(c, n, k) = r(c, n, k)z$, where $r(c, n, k)$ is a rational function of k whose numerator has degree p and denominator has degree q . So the sums of type II(p, q, z) contain the set of ${}_pF_{q-1}$ terminating hypergeometric series. The chapter continues with some comments on standard forms used in the book, and on converting sums into standard form.

The remainder of the book is focused on providing formulas for each type (or subtype, in the case of type II(p, q, z)) of sum. General algorithms for determining the value of a type I sum (Gosper's algorithm) or proving identities involving type II sums (Wilf-Zeilberger) also have their own chapters. The text concludes with two appendices: a short chapter on indefinite sums (general anti-difference formulas with no specific limits of summation) and a chapter on Basic Identities (here the word basic means a generalization with respect to a parameter, usually denoted q , known as the base).

Although the five types discussed in the book cover a broad range of finite sums, *Summa Summarum* is not a replacement for any handbooks of formulas you may own, since it is not easy for someone to just pick up the book and find a needed sum. There are several reasons for this. First, as mentioned above, most of the book is filled with proofs, and reads more like a textbook than a desktop reference. Second, a first-time reader is likely to be unfamiliar with the classification scheme used in the book. The fact that the scheme isn't explained until Chapter 5 (which starts on page 43... nearly a fifth of the way into the 232-page text) might turn away those who just want to quickly look up

continued page 22

The Wraparound Universe

by Jean-Pierre Luminet
A.K. Peters, 2008, 336 pp, \$39.00
ISBN 978-1-56881-309-7

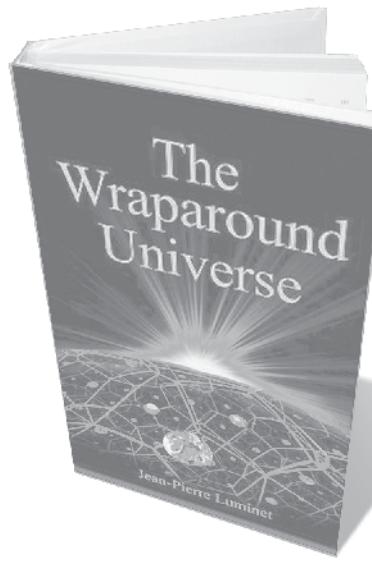
Review by G.W. Gibbon, Cambridge University

All cosmologists agree that to lowest approximation, at any given ('cosmic') time, the geometry of three-dimensional space is given locally by one of the three congruence geometries: Hyperbolic space, Euclidean space, or Spherical space. The galaxies and clusters are at rest with respect to these spaces but the distances between them increase uniformly in proportion to a universal function of time called the scale factor. This basic and extremely well verified observational fact is referred to as the Hubble expansion, after the first person to discover it, some ten years after Einstein's formulation of General Relativity in terms of the pseudo-Riemannian geometry of four-dimensional spacetime. In this picture, due to Friedmann and Lemaître, spacetime is a product of time with spatial sections of constant time corresponding to our traditional notion of space. Thus were the epic labours of Lobachevsky, Bolyai, Gauss, Klein as well as Clifford and Cayley and many others on the foundations of geometry neatly incorporated into a fully relativistic and consistent dynamical theory of gravitation.

Among the many things that cosmologists disagree about is not only which of these three possibilities holds, i.e. whether the spatial curvature is negative, zero or positive respectively, but what is the global geometry of the spatial sections. Do we take the simply connected covering spaces or should we identify under some discrete subgroup of the isometry group? If the curvature turns out to be positive, for example, should we take it to be given by the three-sphere, by real projective space, or even some more exotic space such as Poincaré's famous dodecahedral space?

The author of this exciting and attractively written book, unlike many of his colleagues, holds that observations indicate that the fundamental group of our universe is perhaps the binary dodecahedral group and so our space is a homology sphere. If true, then indeed Poincaré did not labour in vain.

What is perhaps more important than the disagreement is the agreement that what has hitherto been a purely metaphysical debate is now a matter for observation to decide. The fact that the universe is expanding means that it was hotter and denser in the past and among the relics of that hot early state are the 3-degree Kelvin Cosmic Microwave Background (CMB) photons. Satellite and balloon observations, with acronyms like COBE, BOOMERANG, MAXIMA and WMAP, have been used to place limits on the curvature and fundamental



group of the universe. The so-called concordance models are consistent with a flat spatial geometry and place lower limits on any repeat distance but certainly do not definitively exclude what the author calls a "wraparound universe". Indeed certain puzzling features of the data, if real, cannot easily be explained on the concordance model. With the launch of the PLANCK satellite on 31 October of this year, we shall have even more accurate and precise observations and almost certainly will be able to check the dodecahedral hypothesis. Since anything but zero curvature and no identifications is difficult to reconcile (but not absolutely impossible) with the fashionable theory of inflation, there is much at stake here.

These are indeed exciting times for those interested in the interface between physics and geometry. The author is to be thanked for providing a timely update of the first 2001 French edition, translated into English. The material, which is treated intuitively, is very well presented at a popular level, with many fascinating historical and sociological asides. It should be accessible to any first-year undergraduate or sixth-former. It would certainly be of interest as supplementary reading to anyone taking a first course in geometry or relativity and should appeal to any mathematically literate person in search of the 'Big Picture'.

Reprinted from the Newsletter of the LMS, Sept. 2008.

NOUVELLES DU DEPARTMENT

Wilfrid Laurier University, Waterloo, ON

Promotions:

Yongzeng (George) Lai (Associate Professor, July 1, 2008)

Appointments:

Anne-Marie Allison, (Assistant Professor, Applied Mathematics, July 1, 2008); Amal Amleh (Assistant Professor, Applied Mathematics, July 1, 2008).

Resignations:

Dr. Anthony Bonato (July 1, 2008)

Alfred Tarski, Life and Logic

by Anita Burdman Feferman and Solomon Feferman
Cambridge University Press, Cambridge, UK. 2008.
ISBN 978-10-521-71401-3 (paper).
vi + 423 pages. \$30.00

Alfred Tarski was one of the 20th century's greatest logicians, second only to Kurt Gödel in his influence, and a biography of him is, inevitably, interesting strictly on mathematical grounds. Tarski was, however, one of those people fairly described as 'larger than life'. He was passionate and supremely self-confident and this new paperback edition of a biography by Solomon and Anita Feferman provides full details not only of his early career in Poland, his last minute escape ahead of the Nazi invasion and his building the mathematics department at UC Berkeley into a world center for the study of logic, but also of his (fairly minor) drug use and his relentless womanizing (including the pursuit of some of his female PhD students). While one can't approve of all of his behavior, Tarski was never dull, nor is this biography.

Random Curves, Journeys of a Mathematician

by Neal Koblitz
Springer-Verlag, Berlin, Heidelberg. 2008.
ISBN 978-3-540-74077-0. 392 pages. \$49.95(US)

In spite of the fact that his mathematical career is far from over, the number theorists Neal Koblitz has written his autobiography. Koblitz is well known for his number theoretic discoveries including the idea of using elliptic curves as a basis for public key cryptosystems (an approach discovered independently by Victor Miller). His book, however, concentrates on his political rather than his mathematical activities. These include radical student activism at Harvard and Princeton, visits to third-world countries (with emphasis on those not approved of by the US State Department) and agitating for change in elementary mathematical education. Koblitz's wife, Ann Hibner-Koblitz (perhaps best known to the mathematical community for her role in controversies concerning what she views as under-recognized female mathematicians) plays a large role in this book. She is quoted extensively and an essay of hers ("Male Bonding around the Campfire") is reprinted at the end. The book contains many anecdotes of marginal interest, such as disputes

with hotels, airlines and taxi drivers, an ice cream eating contest and an account of Hibner-Koblitz's difficulty in finding an academic appointment. On the other hand, it also contains first-hand accounts of some important events in recent academic history and should be of particular interest to those of us old enough to be able to compare Koblitz's view of these events with our own.

How Round is your Circle?

by John Bryant and Chris Sangwin
Princeton University Press, Princeton, NJ. 2008.
ISBN 978-0-691-13118-4. xix + 306 pages. \$29.96

Many mathematicians limit their contact to engineering to teaching calculus to engineering students. This is unfortunate since elementary engineering is a source of a wealth of interesting mathematical problems, as this recent book by a mathematician and a chemical engineer makes clear. Much of the book concentrates on the mathematical aspects of making physical models and while some of the topics – linkages, dissections of angles and solids, mechanical measures of area – may be familiar, many more will not be, such as the problem suggested by the title, of how to test an object for deviation from roundness.

Making Mathematics with Needlework

by Sarah-Marie Belcastro and Carolyn Yackel
A.K. Peters Ltd., Wellesley, MA. 2008.
ISBN 978-1-56881-8. xii + 184 pages. \$30.00(US)

While constructing mathematical models, usually for teaching purposes, has a long history, usually the construction methods come from the workshop rather than the knitting basket. This recent book goes some distance towards remedying this by demonstrating how knitting and other needlework techniques can produce interesting and useful models and the construction methods themselves yield interesting mathematical questions. The book is oriented towards undergraduate instruction and the models shown lean heavily towards geometry and topology (Tori, Möbius quilts, Sierpinski shawls, projective planes); however, there is also some number theory (diophantine equations and picking up stitches) and a chapter on the algebra of knitting socks.

Mathematics in a deck of cards

While the acquisition of skills is important, pupils of mathematics also need an educational regime that authentically conveys to them other aspects of mathematics, in particular the way in which observations can be organized and analyzed. Students should be presented with situations in which structure is visible and can be studied. As mathematicians, we have faith that patterns and phenomena can be understood, and a decent curriculum should provide occasions for demonstrating this.

One vehicle with the young is an ordinary deck of 52 playing cards, with its thirteen ranks and four suits. I will suggest some interactions between a "magician" and his "subject".

• Three questions for 27 options.

The magician deals 27 cards into three 9-card columns and asks the subject to secretly select one of the cards, but tell him which column contains it. Once the magician has this information, he gathers up to three columns, one on top of the next, and then deals the cards across into three 9-card columns. He then ascertains from the subject which column contains the selected card and again deals the cards across into three 9-card columns. Upon being told a third time which column contains the selected card, he is able to identify it.

The trick is based on dealing out the cards so that the first answer narrows the selected card down to one of nine cards, the second answer to one of three cards and the third answer down to a unique card. This trick is known to many youngsters, sometimes in the form of dealing only 7 cards to a column. Often it is set up, so that the named column is gathered up in the middle, so that the selected card turns out to be in the very middle of the deck.

It is possible for many children from the age of 9 to understand and replicate the trick, after the magician walks them through it a couple of times. All that is required is a sufficient level of concentration to keep track of where the nine cards of each selected column go and to make sure that three of them are dealt into each of the three columns the next time around.

The surprise comes from fact that one can isolate one of 27 possibilities with three questions; the cube of 3 is as big as 27. The same perspective applied to base ten numeration; it takes only four pieces of information to specify a number less than 10000, namely its four digits. This trick, thus, can possibly alter perceptions, something desirable in a mathematics class.

• The flipover.

Select the ten hearts from ace to ten, inclusive, and arrange them in increasing order in a fan. The magician presents the fan, cards face down, to the subject and asks her to pull out two adjacent cards, turn them over and reinsert them face up into the spot whence they were taken. Thus, if $4\heartsuit$ and $5\heartsuit$ were removed, the 5 will be where the 4 was, face up, and vice versa. He asks the subject to continue performing several times the following: cut the deck and put one end before the other, and pull out two adjacent cards, turn them over and restore them in place (either card chosen can be face down or face up).

Then the magician does something sight unseen by either person

and then shows the fan; all the even cards are facing one way and the odd cards the other. What has the magician done, and why does it work?

The key to this is that parity of the cards in the fan alternate, and the actions, in a more general sense, preserve the alternation. Since cutting the deck is like moving the cards around in a ring, we will assume the cards start face down in a ring, ignore the cut, and just focus on the turnover. In each position in the ring, the cards are in one of two states *EU* – *OD* (even-up, odd-down) or *ED* – *OU* (even-down, odd-up). These states alternate with position, and continue to alternate with each flip. Turning over a single card and restoring it into the same position reverses the state of that card.

To give a hint to the children, one might point out that whatever the magician did at the end should work if no operations at all were carried out.

• Still complete in the halves.

Two packs of 13 cards, one consisting of the 13 spades in order from ace to king and the other consisting of the 13 hearts in reverse order from king to ace are placed face down on the table and subjected to a rough riffle shuffle. This means that they are incorporated into a single pile, with cards incorporated in bunches alternately from the two packs. (For a perfect riffle, the cards are mixed one alternately from each pack.)

The top thirteen cards are taken from the united pack. It turns out that each of the ranks from ace to king appears exactly once among them. The same is true for the pile left behind. Why is that?

Note that in the incorporated pack, the hearts and spades remain in the same order; they are just interspersed. Suppose, for example, that the top thirteen cards contain no six of spades. Then at most five spades made it into the top thirteen, the ace through five. So at least eight hearts must be there, the king through six. Thus, the six of hearts must be present.

• Picking the correct pair.

The magician deals onto the table ten pairs of cards, and asks the subject to select one of the pairs silently. The magician then gathers the pairs up and deals them into four rows of five cards each. Upon being told which rows contain the two cards of the chosen pair, the magician can identify them.

This is easy to explain, as it simply depends on producing a one-one correspondence between the ten pairs and the number of ways of picking two rows out of four, with the possibility of a row being selected twice. The magician picks the cards up keeping the pairs together, and then carefully deals each pair into two particular rows. For example, the ten pairs can be dealt into rows (1, 1), (1, 2), (1, 3), (1, 4), (2, 2), (2, 3), (2, 4), (3, 3), (3, 4), (4, 4).

A less transparent way of dealing into rows is possible. Keep in mind the four words ATLAS, BIBLE, GOOSE and THIGH. The words have ten different letters, each occurring exactly twice. Each letter appears in a different pair of the words, and each pair of words has exactly one letter in common (with each word having one letter appearing twice). Cued by these words, you can deal the pairs accordingly.

• Go to the top!

A pack of the thirteen spades is thoroughly shuffled and the cards are laid out from left to right on the table. We adopt the usual convention that A=1, J=11, Q=12 and K=13. If the leftmost card is k , then the k^{th} card from the left is taken from its position and placed in the first position at the left. The order of the remaining cards is left undisturbed. This move is repeated. It is found that, regardless of the original order of the cards, eventually the ace is brought to the left and the process stops. Why is this?

This probably needs to be performed a few times until the students begin to see the dynamic. Basically, the ace either stays in its original position, or gets shoved to the right, until it is suddenly brought to the leftmost position. If the ace starts out in the n^{th} position, then one of the left $n-1$ cards must have rank n or bigger. One needs to argue that one such card eventually gets "hit", whereupon the ace either comes to the first position or moves one position to the right. This is a nice example for discussion of induction.

• Which card comes last?

The magician takes 16 cards from the deck and places them upsidedown in a stack on the table. The subject is asked to remove from the top fewer than half of them, leaving a stack of between 9 and 15 cards. The magician then picks this up and shows the subject (but not himself) the cards in the stack. If the subject removed k cards, the subject is asked to remember the value of the k^{th} card from the bottom.

The magician then takes up the stack, cards upsidedown, and deals the cards alternately to the bottom of the stack and face-up onto the table until only one card remains in the stack. This card turns out to be the one identified earlier by the subject. This is a manifestation of a Josephus situation; a group of people are arranged in a circle, and each r^{th} person is eliminated until only one remains. Here $r=2$. In the present situation, suppose that n individuals numbered from 1 to n are in a ring, and we start with individual 1 and eliminate every second one as we count around. If $f(n)$ is the last individual to remain, we can see that $f(2^m)=1$ for every nonnegative integer m and that $f(n+1)=f(n)+2$ when $n+1$ is not a power of 2. Then $f(16-k)=17-2k=(16-k)-(k-1)$ (for $1 \leq k \leq 7$), so that the final card is the k^{th} card from the end of the 16– k cards.

• A little hidden algebra.

The magician takes 26 cards from a regular deck and places it face down on the table. He then turns over the cards one by one to show the subject that the deck is randomly mixed, and then restores the 26 cards to the original position; call this the stock. Handing the remaining 26 cards to the subject, he instructs the subject to place a card face up on the table. We will use the equivalence A=1, J=Q=K=10. If the card turned up is k , the subject then places on top of it sufficiently many cards face up to count up to ten. The ranks of the additional cards are immaterial, the subject counting $k, k+1, \dots, 10$ until she

reaches 10. Then the subject starts a new pile by placing one of the remaining cards on the table, and performing the same operation. This is repeated as long as there are sufficiently many cards and there are at least three piles. (In the rare case that there are not enough cards to form three piles, the subject can "borrow" from the top of the stock.)

The subject then turns three of the piles over and puts the rest of the cards face down on top of the 26-card stock left by the magician. The subject is then to turn over the top card on each of the three piles, add them and count down that many cards in the stock (the 26-cards augmented by the leftovers). While the subject is doing this, the magician predicts what the terminal card will be.

For example, suppose the subject turns over a 4; then she will place on top of it face up six more cards, counting as she goes 5 - 6 - 7 - 8 - 9 - 10. If the three piles chosen are built on, say, 4, 3 and 8, then the three piles built up on them will have, respectively, 7, 8 and 3 cards. Eight cards will be returned to the stock, which will now have a total of 34 cards. When the subject turns over the three piles and reveals the top cards, these will, of course, be 4, 3 and 8, and the subject will count down 15 cards into the stock. This will go through the eight returned to the stock and end up with the seventh from the top of the original stock of 26.

Remarkably, no matter what cards are turned face up, the count will go down to the seventh card from the top of the 26-card stock, and it is this card that the magician must memorize. I usually convince students that it works in the following way. Suppose that the three cards turned up are all tens. Then twenty three cards are returned to the stock, and we have to count down 30 cards to the seventh from the top of the original stock. For every reduction of one in the sum of the three cards, there is one more card in the three piles and one fewer returned to the stock. At the same time, there is one fewer card to count down, so we will always wind up in the same place.

I am indebted to Peter Taylor of Queen's University for showing me this nice trick.

• A quick reversion to order.

Begin with a new deck of cards in which the suits appear in order, ranked in order. A remarkable fact is that eight perfect inside riffle shuffles (where the top and bottom cards of the deck remain in position) will restore the deck to its original order. If, like me, you cannot perform a perfect riffle shuffle, you can deal them to obtain the inverse effect of a riffle and still get a striking effect. Suppose that the cards are numbered from 0 to 51, inclusive, and are originally in this order from top to bottom. Deal the cards face up alternately into left and right piles, 0 to the left, 1 to the right, and so on. Pick up the piles, putting the right pile on the left one, turn the incorporated deck upside down and repeat. Now 0 goes to the left, 2 to the right, 4 to the left, 6 to the right and so on.

Repeat the process.

Each time the process is repeated and the deck incorporated, the value of the card in any given position gets multiplied by 2 modulo 51. Since $2^8 \equiv 1 \pmod{51}$, eight repetitions will bring the cards back to the original order. However, when the cards are dealt face up, students can see how the order changes from one deal to the next and some interesting things occur.

Try it!

While one generally cannot go into the number theory involved for most school students, the investigation of how long it takes this shuffle to return a deck to its original order for various numbers of cards is worthwhile.

Pedagogical considerations. Do such card stunts have a place in the curriculum? Most assuredly they do. Apart from the "fun" aspect, there is real mathematics here. None of these involve sleight of hand or any motor skills; they can be carried out by any student. They are all mathematically based, and can be justified through a careful analysis that is accessible, in some cases, even to elementary students. Their value in the curriculum is that they give an authentic view of the analytical side of mathematics that the standard syllabus, with its emphasis on skills, either hardly hints at or obscures with technicalities. In analyzing the arguments for the tricks, one can see that important mathematical ideas, such as pairing, induction,

algebraic structure and transformations are adumbrated.

Even though formal proofs might not be appropriate, enough can be said to convince students of what makes the tricks work. The important message is that of the possibility of proof and the adoption on a perspective that helps to see what is going on. The more technical aspects of the construction and presentation of proofs will not come later on in a vacuum.

Because of the difficulty of systematizing and testing such activities, it may be thought that they are not suitable in a curriculum. But this is a strong argument for inclusion. Any attempt to formalize or test them would be destructive. It can be argued that some of the most important things we want to convey about the mathematical enterprise are things that cannot and ought not to be tested, but rather insinuated where appropriate into the regular mathematical experiences of the students, so that they become part of the landscape.

Like all attempts to alter the thrust of the curriculum, this will succeed or fail depending on the background and quality of the teaching corps. This is another instance of how we must start with sound policies for the recruitment and formation of teachers before we can contemplate the reforms in mathematical

EMPLOYMENT OPPORTUNITY

FIELDS INSTITUTE, TORONTO, CANADA - POSTDOCTORAL FELLOWSHIPS

Description: Applications are invited for postdoctoral fellowship positions for the 2009-2010 academic year. The (Fall 2009) Thematic Program on Foundations of Computational Mathematics will take place at the Institute July to December 2009 and the (Winter/Spring 2010) Thematic Program on Quantitative Finance: Foundations and Applications will take place at the Institute from January to June 2010. The fellowships provide for a period of engagement in research and participation in the activities of the Institute. In addition to regular postdoctoral support, one visitor for each six-month program will be awarded the Institute's prestigious Jerrold E. Marsden Postdoctoral Fellowship. Applicants seeking postdoctoral fellowships funded by other agencies (such as NSERC or international fellowships) are encouraged to request the Fields Institute as their proposed location of tenure, and should apply to the Institute for a letter of invitation.

Eligibility: Qualified candidates who will have recently completed a PhD in a related area of the mathematical sciences are encouraged to apply.

Deadline: **December 15, 2008** although late applications may be considered.

Application Information: Please consult
www.fields.utoronto.ca/proposals/postdoc.html

The Fields Institute is strongly committed to diversity within its community and especially welcomes applications from women, visible minority group members, Aboriginal persons, persons with disabilities, members of sexual minority groups, and others who may contribute to the further diversification of ideas.

CMS WINTER 2008 MEETING / RÉUNION D'HIVER 2008 DE LA SMC

CMS Winter Meeting 2008 Marriott Hotel, Ottawa (Ontario) December 6 – 8 www.cms.math.ca Host: Carleton University

Meeting Directors: Matthias Neufang and Benjamin Steinberg (Carleton)

On behalf of Carleton University (www.carleton.ca), the School of Mathematics and Statistics invites the mathematical community to the CMS Winter Meeting 2008. The program will include eleven plenary, prize and public lectures, and a wide variety of sessions, including a Contributed Paper session.

All scientific talks and social activities will take place at the **Ottawa Marriott Hotel, located at 100 Kent Street, Ottawa**.

The CMS Committee for Women in Mathematics is organizing the 4th workshop of **Connecting Women in Mathematics Across Canada** (CWiMAC 2008). The purpose of the CWiMAC workshops is to support the career development of junior female academics in the Canadian mathematics community. CWiMAC 2008 will take place at the University of Ottawa on December 4 and 5, 2008.

Prizes and Awards

Coxeter-James Prize - Ravi Vakil (Stanford University)
Doctoral Prize - Matthew Greenberg (Calgary)
Adrien Pouliot Award - Harley Weston (Regina)
G. de B. Robinson Award - Dmitry Jakobson (McGill), Nikolai Nadirashvili (Chicago), Iosif Polterovich (Montréal)
David Borwein Distinguished Career Award - Hermann Brunner (Memorial)

Plenary Speakers

David Acheson (Oxford)
Fan Chung (UC San Diego)
Gilles Godefroy (Paris)
Sorin Popa (UCLA)
Laurent Saloff-Coste (Cornell)
Mark Sapir (Vanderbilt)
Keith Taylor (Dalhousie)

Public Lecture

Patrick Hayden (McGill)

Business Meetings

Executive Committee Meeting: Thursday, December 4; Marriott, Sussex Room
Development Group Luncheon: Friday, December 5; Marriott, Laurier Room
Board of Directors Meeting: Friday, December 5; Marriott, Cartier III Room

Social Events

Welcoming Reception: Friday, December 5; Marriott
Banquet: Saturday, December 6; Marriott, Ballroom
Complimentary coffee and juice will be available during the scheduled breaks.

Registration

The registration form is available at www.cms.math.ca/Events.

Registration fees are given in Canadian dollars. Payment may be made by cheque (Canadian or US dollars), or by VISA or MasterCard. For the registration to be processed before the meeting, payment must be received by November 25. Receipts will be provided at the meeting.

| | ONLINE Oct 16 - Nov 25 | ONSITE |
|--|------------------------------|--------|
| Prize Lecturer (incl. 2 free banquet tickets) | \$ 0 | \$ 0 |
| Plenary, Public Lecturer (incl. 1 free banquet ticket) | \$ 0 | \$ 0 |
| Students | \$125 | \$150 |
| Postdoc, Retired, K-12 Teachers, Unemployed | \$175 | \$200 |
| CMS members, Organizers, Speakers | \$345 | \$395 |
| Non-Members | \$495 | \$545 |
| One-day fee (onsite only) | - | \$175 |
| Banquet ticket | \$ 60 | \$ 60 |

Advantages to Pre-Registration:

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

Refund Policy

Participants wishing to cancel their registration must notify the CMS (meetings@cms.math.ca) in writing by November 25 to receive a refund less a \$40 processing fee. Those whose contributed paper has not been accepted will upon request be fully refunded.

Accommodation

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

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

Ottawa Marriott Hotel (www.ottawamarriott.com)

100 Kent Street, Ottawa, ON, K1P 5R7

Phone: 613-238-1122 or 1-800-853-8463, Fax: 613-783-4229

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Booking deadline: November 4, 2008

Group code: CMSCMSA

Rates:

Room rate includes high-speed internet access and complimentary local phone calls.

Traditional Guest Room (two double beds or one king size bed)
- \$139

Single or double occupancy; \$10 for each additional person for triple and quadruple occupancy.

Applicable taxes: 5% GST (refundable to non-residents of Canada), 6% Provincial Sales Tax, 3% Destination Marketing Fee.

No pets are allowed in the guest rooms

Hotel provides a 100% smoke-free environment

Children under 18 may stay for free in their parent's room.
Child care can be arranged through the front desk.

Parking: Self-parking: \$20 per day \$6 per hour; Valet-parking:
\$25 per day

Check-in: 3:00 pm

Check-out: 1:00 pm

For Student accommodation, contact the Meeting Coordinator
(meetings@cms.math.ca).

Travel

A taxi fare from the airport to downtown costs approximately \$25. The fare for the shuttle bus is \$8 one-way and \$16 return. This is a special group rate, please identify yourself as a participant of this conference when you purchase the ticket. The regular rate is \$14 one way and \$24 return. A schedule is available at www.yowshuttle.com.

Detailed information regarding Carleton University, the city of Ottawa, and the province of Ontario including tourism information, local weather and climate, site and street maps, and itineraries for self-guided tours, are available at the following websites:

- Carleton University (www.carleton.ca)
- Ottawa Tourism (www.ottawatourism.ca)
- Ontario Travel (www.ontariotravel.net)
- Canada Weather Forecast (www.weatheroffice.ec.gc.ca)

Exhibits

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

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

We invite participants to visit the CMS Membership Booth and Book Display, located in the registration area. A representative will be available from 9:30 am to 4:00 pm to answer questions about membership, publications, and other programs.

Sponsors

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

le Centre de Recherches Mathématiques

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- Dean of Science

- Vice President, Research

- Vice President, Academics

The Canadian Mathematical Society wishes to acknowledge the contributions of the Meeting Directors and the Session Organizers.

SESSIONS

Algebraic Combinatorics

Combinatoire algébrique

Org: François Bergeron, Srecko Brlek, Christophe Hohlweg, Christophe Reutenauer (UQAM)

Nantel Bergeron (York), Ira Gessel (Brandeis), Janvier Nzeutchap (Fieldas), Alex Postnikov (MIT).

Algorithmic Mathematics

Mathématiques algorithmiques

Org: Prosenjit Bose, Evangelos Kranakis (Carleton)

Vida Dujmovic (Carleton), Stephane Durocher (Waterloo), Konstantinos Georgiou (Toronto), Mia Minnes (MIT), Michel Paquette (Carleton), Godfried Toussaint (McGill).

Applied Partial Differential Equations

Équations aux dérivées partielles appliquées

Org: David Amundsen (Carleton), Lucy Campbell (Carleton), Francis Poulin (Waterloo)

Yves Bourgault (Ottawa), John Bowman (Alberta), Alexei Cheviakov (Saskatchewan), Paul Choboter (California Polytechnic), Serge D'Alessio (Waterloo), Michael Haslam (York), Nicholas Kevlahan (McMaster), Boualem Khouider (Victoria), Greg Lewis (UOIT), Emmanuel Lorin (UOIT), Ming Mei (Champlain College; McGill), Abbas Momeni (Queen's), Arian Novruzi (Ottawa), Chun Hua Ou (Memorial), Francis Poulin (Waterloo), Bartosz Protas (McMaster), Marek Stastna (Waterloo), Gordon Swaters (Alberta), Michael Waite (Victoria).

Banach Spaces

Espaces de Banach

Org: Robb Fry (Thompson Rivers), Srinivasa Swaminathan (Dalhousie)

Razvan Anisca (Lakehead), Maxim Burke (Prince Edward Island), Stephen Dilworth (South Carolina), Nigel Kalton (Missouri), Lee Keener (UNBC), Edward Odell (Texas - Austin), Alexey Popov (Alberta), Thomas Schlumprecht (Texas A&M), Richard Smith (Czech Mathematical Inst.), Thomas Stromberg (Lund U., Sweden), Adi Tcaciuc (Alberta), Vladimir Troitsky (Alberta).

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Combinatorics

Combinatoire

Org: Daniel Panario, Brett Stevens (Carleton)

Ada Chan (York), Clement Lam (Concordia), Charlie Colbourn (Arizona State), Peter Dukes (Victoria), Zhicheng Gao (Carleton), Penny Haxell (Waterloo), Jeannette Janssen (Dalhousie), Karen Meagher (Regina), Lucia Moura (Ottawa), Reza Naserasr (Carleton), Alex Rosa (McMaster), Frank Ruskey (Victoria), Mateja Sajna (Ottawa), Doug Stinson (Waterloo), Cathy Yan (Texas A&M), Joe Yucas (Southern Illinois), Wenan Zang (Hong Kong).

Commutative Algebra and Algebraic Geometry

Algèbre commutative et géométrie algébrique

Org: Sara Faridi (Dalhousie), Anthony V. Geramita (Queen's)

Tristram Bogart (Queen's), Ragnar-Olaf Buchweitz (Toronto), Enrico Carlini (Politecnico di Torino), Jaydeep Chipalkatti (Manitoba), Brian Coolen (St. Francis Xavier), Susan Cooper (California Polytechnic State U.), Laura Ghezzi (CUNY), Tai Huy Ha (Tulane), Brian Harbourne (Nebraska), Graham Leuschke (Syracuse), Juan Migliore (Notre Dame), Peter Russell (McGill), Yong-Su Shin (Sungshin Women's U.), Greg Smith (Queen's), Mike Stillman (Cornell), Will Traves (US Naval Academy), Adam Van Tuyl (Lakehead), Fabrizio Zanello (Michigan Technological U.).

Cryptography and Coding Theory

Cryptographie et théorie des codes

Org: Isabelle Déchène, Ariane Masuda, Monica Nevins

Robert Bailey (Carleton), Mark Bauer (Calgary), Michael Jacobson (Calgary), David Jao (Waterloo), Atefeh Mashatan (Waterloo), Kumar Munty (Toronto), Terasan Niyomsataya (Ottawa), Daniel Panario (Carleton), Mohammad Sadeghi (Amirkabir U. of Technology), Saeed Samet (Ottawa), Renate Scheidler (Calgary), Éric Schost (Western), Francesco Sica (Mount Allison), Edlyn Teske (Waterloo), David Thomson (Carleton).

Dynamics of Large Groups and Semigroups

Propriétés dynamiques des groupes et des demi-groupes de dimension infinie

Org: Stefano Ferri (Universidad de los Andes), Alicia Miller (Louisville), Vladimir Pestov (Ottawa)

Christopher Atkin (Victoria U. of Wellington), Alexander Berenstein (Uniandes, Bogotá), Ilias Farah (York), Stefano Ferri (Uniandes, Bogotá), Matthew Foreman (California-Irvine), Jorge Galindo (Jaume I, Castelló), Wojciech Jaworski (Carleton), Claude Laflamme (Calgary), Gabor Lukacs (Manitoba), Jan Pachl, Vladimir Pestov (Ottawa), Norbert Sauer (Calgary), Lionel Nguyen Van Thé (Calgary).

Geometric Group Theory

Théorie géométrique des groupes

Org: Inna Bumagin (Carleton), Denis Serbin (McGill), Benjamin Steinberg (Carleton)

Peter Brinkmann (City College - CUNY), Montserrat Casals-Ruiz (McGill), Sean Cleary (City College - CUNY), Tullia Dymarz (Yale), Bob Gilman (Stevens Inst. of Technology), Susan Hermiller (U. Nebraska Lincoln), Ilya Kazachkov (McGill), Olga Kharlampovich (McGill), Eduardo Martinez-Pedroza (McMaster), John Meier (Lafayette College), Alexei Miasnikov (McGill), Andrei Nikolaev (McGill), Denis Osin (City College - CUNY), Alexandra

Pettet (Stanford), Akbar Rhemtulla (Alberta), Mahmood Sohrabi (Carleton), Zoran Sunik (Texas A&M), Nickolas Touikan (McGill), Alexander Ushakov (Stevens Inst. of Technology).

History and Philosophy of Mathematics

Histoire et philosophie des mathématiques

Org: Tom Archibald (SFU), Alexander Jones (Toronto)

Infinite-Dimensional Lie Theory

Théorie infini-dimensionnelle de Lie

Org: Yuly Billig (Carleton), Alistair Savage (Ottawa)

Bruce Allison (Vicctoria), Sergey Arkhipov (Toronto), Yuri Bahturin (Memorial), Georgia Benkart (Wisconsin-Madison), Sabin Cautis (Rice U.), Ivan Dimitrov (Queen's), Yun Gao (York), Joel Kamnitzer (Toronto; Berkeley), Mikhail Kochetov (Memorial), Michael Lau (Windsor), Jun Morita (Tsukuba U., Japan), Erhard Neher (Ottawa), Arturo Pianzola (Alberta), Hadi Salmasian (Alberta), Prasad Senesi (Ottawa), Peter Tingley (Berkeley), Wai Ling Yee (Windsor), Kaiming Zhao (Wilfrid Laurier).

Mathematical Aspects of Quantum Information

Aspects mathématiques de l'information quantique

Org: David Kribs (Guelph)

Thomas Decker (McGill), Matthew Hastings (Los Alamos National Lab.), Nathaniel Johnston (Guelph), Mary Beth Ruskai (Tufts), Graeme Smith (IBM Watson), Jon Yard (Los Alamos National Lab.).

Mathematics Education

Éducation mathématique

Org: Benoit Dionne (Ottawa), John Poland (Carleton)

Santo D'Agostino (Brooks), Bernard R. Hodgson (Laval), Leo Jonker (Queen's), Miroslav Lovric (McMaster), David Poole (Trent), Margaret Sinclair (York), Denis Tanguay (UQAM).

Mathematical Biology

Biologie mathématique

Org: Frithjof Lutscher, Robert Smith? (Ottawa)

Gerda de Vries (Alberta), David Fisman (Hospital for Sick Kids), Elsa Hansen (Queen's), Jing Li (Western), Frithjof Lutscher (Ottawa), Justine GunOg Seo (Ottawa), Robert Smith? (Ottawa), Rebecca Tyson (UBC Okanagan).

Mathematics and Classical Mechanics

Mathématique et mécanique classique

Org: Manuele Santoprete, Cristina Stoica (Wilfrid Laurier)

Stephen Anco (Brock), Larry Bates (Calgary), Leo Butler (Edinburgh), Alexei Cheviakov (Saskatchewan), Florin Diacu (Victoria), Antonio Hernandez-Garduno (Universidad Nacional Autónoma de México), Jacques Hurtubise (McGill), Jeroen Lamb (Imperial College), Bill Langford (Guelph), Tsung-Lin Lee (Michigan State), Ray McLenaghan (Waterloo), Dan Offin (Queen's), George Patrick (Saskatchewan), Gareth Roberts (College of the Holy Cross), Roman Smirnov (Dalhousie), Edward Thommes (Guelph).

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Number Theory

Théorie des nombres

Org: Alina C. Cojocaru (Illinois-Chicago), Damien Roy (Ottawa)

Nils Bruin (SFU), Stephen Choi (SFU), Alina C. Cojocaru (Illinois at Chicago), Chantal David (Concordia), Adrian Iovita (Concordia), Stephen Kudla (Toronto), Ram Murty (Queen's), Michael Rubinstein (Waterloo), Kenneth Williams (Carleton).

Numerical Analysis and Computational Mathematics

Analyse numérique et mathématiques computationnelles

Org: A. Bass Bagayogo (Collège Universitaire de Saint-Boniface)

Julien Arino (Manitoba), Tony Drummond (Lawrence Berkeley Lab.), Jun Li (Montreal), Sherry Li (Lawrence Berkeley Lab.), Emmanuel Lorin (UOIT), Joel Malard (SIMUCAD), Christian Perret (ETH Zurich), Damian Roussou (Sandia National Lab.), Chris Rycroft (Berkeley).

Operator Algebras

Algèbres d'opérateurs

Org: Benoît Collins, Thierry Giordano (Ottawa)

Serban Belinschi (Saskatchewan), Berndt Brenken (Calgary), Richard Burstein (Ottawa), Man-Duen Choi (Toronto), Ken Davidson (Waterloo), George Elliott (Toronto), Heath W. Emerson (Victoria), Juliana Erljman (Regina), Remus Floricel (Regina), Todd Kemp (MIT), David Kerr (Texas A&M), Masoud Khalkhali (Western), Claus Koestler (St Lawrence College), James Mingo (Queen's), Ping Wong Ng (Louisiana-Lafayette), Alexandru Nica (Waterloo), Jonathan Novak (Queen's), Emily Peters (UC Berkeley), John Phillips (Victoria), Volker Runde (Edmonton), Roland Speicher (Queen's), Jiun-Chau Wang (Queen's).

Probability

Probabilité

Org: Org: Antal Jarai (Carleton; Bath, UK) and Yiqiang Zhao (Carleton)

Omer Angel (Toronto), Raluca Balan (Ottawa), David Brydges (UBC), Lung-Chi Chen (UBC), Miklos Csorgo (Carleton), Don Dawson (Carleton), Pierluigi Falco (UBC), Shui Feng (McMaster), Minyi Huang (Carleton), Gail Ivanoff (Ottawa), Xiaoyue Jiang (Louisiana State U.), Michael Kozdron (Regina), Rafal Kulik (Ottawa), Neal Madras (York), David McDonald (Ottawa), Mathieu Merle (UBC), Edwin Perkins (UBC), Lea Popovic (Concordia), Jeremy Quastel (Toronto), Wei Sun (Concordia), Barbara Szyszkowicz (Carleton), Adam Timar (UBC), Xiaowen Zhou (Concordia).

Representation Theory of Algebras

Théorie des représentations des algèbres

Org: Vlastimil Dlab (Carleton), Ragnar-Olaf Buchweitz (Toronto)

Yu A. Bachurin (Memorial), Margaret Beattie (Mount Allison), Frauke M. Bleher (Iowa), Christopher Brav (Queen's), Thomas Brüstle (Bishop's), Ragnar-Olaf Buchweitz (Toronto), Vlastimil Dlab (Carleton), Francois Huard (Bishop's), Shiping Liu (Sherbrooke), Frank Marko (Pennsylvania State-Hazleton), Frank Okoh (Wayne State), Franco Saliola (UQAM), Frank Zorzitto (Waterloo).

Technology Use in Post-Secondary Mathematics

Instruction: Issues in Practice and Research

Utilisation de la technologie dans l'enseignement mathématique post-secondaire

Org: Chantal Buteau (Brock), Daniel Jarvis (Nipissing), Zsolt Lavicza (Cambridge, UK)

Peter Adamic (Laurentian), Robert Billinski (Collège Montmorency), France Caron & Kathleen Pineau (Montréal & École de technologie supérieure), Philippe Etchecopar & Jean-Philippe Villeneuve (Cégep de Rimouski), Margarita Kondratieva & Oana Radu (Memorial), Zsolt Lavicza (Cambridge, UK), Yvan Saint-Aubin (Montréal), Jack Weiner & Jeremy Balka (Guelph).

Panel Discussion: France Caron (Montreal), Zsolt Lavicza (Cambridge, UK), Yvan Saint-Aubin, (Montreal), Keith Taylor (Dalhousie)

Theory and Applications of Functional Differential Equations

Théorie et applications des équations différentielles fonctionnelles

Org: Pietro-Luciano Buono (UOIT), Victor LeBlanc (Ottawa)

Jacques Belair (Montréal), Elena Braverman (Calgary), Sue Ann Campbell (Waterloo), Yuming Chen (Wilfrid Laurier), Teresa Faria (Universidade de Lisboa, Portugal), Qingwen Hu (York), Tony Humphries (McGill), Jeroen Lamb (Imperial College London. UK).

Contributed Papers

Communications libres

Org: Jim Pandey (Carleton)

Canadian Mathematics Education Forum 2009

Host: Pacific Institute for the Mathematics Sciences (PIMS)
April 30 - May 3, 2009, Vancouver, British Columbia

CMS/CSHPM Summer 2009 Meeting

Host: Memorial University of Newfoundland
June 6-8, 2009, St. John's, Newfoundland

Second CMS/SMM Meeting 2009

Host: Pacific Institute for the Mathematics Sciences (PIMS)
August 13-15, 2009, Vancouver, British Columbia

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 de la SMC 2008
Hôtel Marriott
Ottawa (Ontario)
6-8 décembre
www.smc.math.ca
Hôte : Université Carleton

Directeurs de la réunion : Matthias Neufang et Benjamin Steinberg (Carleton)

Au nom de l'Université Carleton (www.carleton.ca), l'école de mathématiques et de statistique invite la communauté mathématique à la Réunion d'hiver 2008 de la Société mathématique du Canada (SMC). Au programme : onze conférences (plénières, publique et de lauréats) ainsi qu'une grande diversité de sessions, y compris une session de communications libres.

Toutes les activités scientifiques et sociales se dérouleront à l'**hôtel Marriott, situé au 100, rue Kent, à Ottawa**.

Le Comité des femmes en mathématiques de la SMC organise le 4e atelier du groupe **Connecting Women in Mathematics Across Canada** (CWIMAC 2008). Les ateliers du groupe CWIMAC ont pour objectif de soutenir le perfectionnement professionnel des jeunes professeures d'université au sein de la communauté mathématique canadienne. L'édition 2008 se déroulera à l'Université d'Ottawa, les 4 et 5 décembre 2008.

Prix

Prix Coxeter-James : Ravi Vakil (Stanford)

Prix de doctorat : Matthew Greenberg (Calgary)

Prix Adrien-Pouliot : Harley Weston (Regina)

Prix G. de B. Robinson : Dmitry Jakobson (McGill), Nikolai Nadirashvili (Chicago), Iosif Polterovich (Montréal)

Prix David-Borwein de mathématicien émérite pour l'ensemble d'une carrière : Hermann Brunner (Memorial)

Conférenciers pléniers

David Acheson (Oxford)

Fan Chung (UC San Diego)

Gilles Godefroy (Paris)

Sorin Popa (UCLA)

Laurent Saloff-Coste (Cornell)

Mark Sapir (Vanderbilt)

Keith Taylor (Dalhousie)

Conférence publique

Patrick Hayden (McGill)

Séances de travail

Réunion du Comité exécutif : le jeudi 4 décembre; Marriott, salle Sussex

Lunch du Groupe de développement : le vendredi 5 décembre; Marriott, salle Laurier

Réunion du Conseil d'administration : le vendredi 5 décembre; Marriott, salle Cartier III

Activités sociales

Réception d'accueil : le vendredi 5 décembre, Marriott

Banquet : le samedi 6 décembre, Marriott, salle de bal

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

Inscription

Vous pouvez vous procurer le formulaire d'inscription au www.smc.math.ca/Events/f

Les tarifs sont indiqués en dollars canadiens dans le tableau. Nous acceptons les paiements par chèque (dollars CAN ou US), VISA ou MasterCard. Le paiement doit nous parvenir au plus tard le 25 novembre pour que nous ayons le temps de traiter votre paiement avant le congrès. Les reçus seront remis sur place.

| | EN LIGNE 16 oct - 25 nov | SUR PLACE |
|---|-----------------------------|-----------|
| Conférencier primé (2 billets pour le banquet) | 0 \$ | 0 \$ |
| Conférencier (plénière ou publique) (1 billet pour le banquet) | 0 \$ | 0 \$ |
| Étudiants | 125 \$ | 150 \$ |
| Étudiants post doctoraux, retraités, enseignants (mat., prim., sec.), sans emploi | 175 \$ | 200 \$ |
| Membres, organisateurs et conférenciers de la SMC | 345 \$ | 395 \$ |
| Non-membres | 495 \$ | 545 \$ |
| Tarif quotidien (sur place seulement) | - | 175 \$ |
| Billet pour le banquet | 60 \$ | 60 \$ |

Avantages de la préinscription :

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

Politique de remboursement

Les participants qui désirent annuler leur inscription doivent en aviser le bureau administratif de la SMC (reunion@smc.math.ca) par écrit au plus tard le 25 novembre pour se voir rembourser leurs frais d'inscription (moins 40 \$). Les participants dont les communications libres n'auront pas été acceptées seront remboursés intégralement sur demande.

Envoi de résumés

Pour pouvoir publier votre résumé en ligne et dans le programme de la Réunion, nous devons le recevoir au plus tard le 15 octobre 2008. Veuillez utiliser le formulaire électronique au smc.math.ca/forms/abs-w08. Les organisateurs remercient les conférenciers de bien vouloir respecter cette importante échéance.

Hébergement

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

CMS WINTER 2008 MEETING / RÉUNION D'HIVER 2008 DE LA SMC

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

Hôtel Marriott Ottawa (www.ottawamarriott.com)
100, rue Kent, Ottawa (Ontario), K1P 5R7
Téléphone : 613-238-1122 ou 1-800-853-8463,
Fax : 613-783-4229

Date limite : 4 novembre 2008
Code de groupe : CMSCMSA

Tarifs

Accès internet haute vitesse et appels locaux gratuits.
Chambre standard (deux lits doubles ou un très grand lit) – 139 \$
Tarif pour une ou deux personnes; 3 ou 4 personnes : 10 \$ par personne supplémentaire.
Taxes : 5 % de TPS (remboursement accordé aux visiteurs de l'étranger), 6 % de taxe de vente provinciale, droits de marketing de destination : 3 %.

Aucun animal n'est permis dans les chambres

Hôtel entièrement non fumeur

Gratuit pour les enfants de moins de 18 ans qui occupent la même chambre que leurs parents. Le personnel de la réception pourra vous aider à trouver un gardien ou une gardienne.

Stationnement : libre-service : 20 \$ par jour; 6 \$ l'heure; service voiturier : 25 \$ par jour

Arrivée : 15 h

Départ : 13 h

Pour les résidences étudiantes, contacter la Coordonnatrice de la Réunion (reunions@smc.math.ca).

Déplacements

Le trajet en taxi de l'aéroport au centre-ville coûte autour de 25 \$. Le trajet en navette coûte 8 \$ aller simple et 16 \$ aller-retour. Comme il s'agit d'un tarif spécial de groupe, veuillez préciser que vous êtes inscrit à la Réunion au moment d'acheter votre billet. Le tarif habituel est de 14 \$ pour un aller simple et de 24 \$ pour un aller-retour. Pour consulter l'horaire, passez au www.yowshuttle.com.

Vous trouverez des renseignements détaillés concernant l'Université Carleton, la ville d'Ottawa et la province de l'Ontario (renseignements touristiques, température et climat locaux, cartes de la ville et des attractions touristiques, circuits touristiques piétonniers, etc.) sur les sites web suivants :

- Université Carleton (www.carleton.ca)
- Tourisme Ottawa (www.ottawatourism.ca/index.php?lang=fr)
- Ontario Travel (www.ontariotravel.net)
- Service météorologique du Canada (www.meteo.gc.ca)

Salon des exposants

Le salon des exposants sera ouvert de 9 h 30 à 16 h le samedi et le dimanche dans la salle Victoria South.

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

Nous vous invitons à visiter le comptoir d'adhésion et l'exposition de livres de la SMC dans l'aire d'inscription. Un représentant sera sur place de 9 h 30 à 16 h pour fournir des renseignements sur l'adhésion, les publications et les autres activités de la Société.

Commanditaires

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

- Centre de recherches mathématiques
- Institut Fields
- MITACS
- Institut du Pacifique pour les sciences mathématiques
- Université Carleton
 - Le doyen de la Faculté des sciences
 - La vice-rectrice à la recherche
 - Le vice-recteur aux études

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

Forum canadien sur l'enseignement des mathématiques 2009

Hôte : Pacific Institute for the Mathematics Sciences (PIMS)

30 avril - 3 mai 2009, Vancouver (Colombie-Britannique)

Réunion d'été 2009 de la SMC et de la SCHPM

Hôte : Université Memorial

6 - 8 juin 2009, St. John's (Terre-Neuve)

Deuxième réunion conjointe de la SMC/SMM 2009

Hôte : Pacific Institute for the Mathematics Sciences (PIMS)

13 - 15 août 2009, Vancouver (Colombie-Britannique)

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)

BLOCK SCHEDULE

| THURSDAY/JEUDI December 4 décembre | SATURDAY/SAMEDI December 6 décembre | SUNDAY/DIMANCHE December 7 décembre | MONDAY/LUNDI December 8 décembre |
|---|---|--|---|
| 18:00-22:00 Executive Committee Meeting Réunion du Comité exécutif | 8:00 – 16:30 Registration/Inscription 9:30 – 16:30 Exhibits/Expositions 8:30 – 9:00 Opening/Ouverture 9:00 – 9:45 Sorin Popa | 8:00 – 16:30 Registration/Inscription 9:30 – 16:30 Exhibits/Expositions 8:00 – 10:00 Scientific Sessions | 8:00 – 16:00 Registration/Inscription 8:00 – 10:00 Scientific Sessions |
| FRIDAY/VENDREDI December 5 décembre | 10:00 – 10:30 Break / Pause | | |
| 11:00 – 13:00 Development Group Luncheon Lunch du groupe de développement 13:30 – 18:30 Board of Directors Meeting Réunion du conseil d'administration | 10:30 – 12:00 Scientific Sessions 12:00 – 12:30 Harley Weston A. Pouliot Prize Lecture | 10:30 – 11:15 Gilles Godefroy 11:30 – 12:15 Ravi Vakil Coxeter -James Lecture 12:30 – 14:00 Lunch Break | 10:30 – 11:15 David Acheson 11:30 – 12:15 Matthew Greenberg Doctoral Prize Lecture 14:00-15:00 Scientific Sessions 15:00 – 15:45 Fan Chung |
| | | 14:00-15:00 Scientific Sessions 15:00 – 15:45 Mark Sapir | 14:00-15:00 Scientific Sessions 15:00 – 15:45 Laurent Saloff-Coste |
| | | 16:00 – 16:15 Break/Pause | |
| | 16:15 – 17:15 Scientific Sessions | 16:15 – 17:45 Scientific Sessions | 16:15 – 17:15 Scientific Sessions |
| 19:00 –20:00 Patrick Hayden Public Lecture 20:00-21:30 Welcome Reception Réception d'accueil | 18:00 – 19:00 Reception (cash bar) Réception (bar payant) 19:00 – 22:00 Banquet | 18:00 – 19:00 Keith Taylor | |

(as of September 30, 2008)

Faculty of Science and Engineering Department of Mathematics and Statistics



Mathematical and Computational Biology and Ecology

Applications are invited for a tenure-track appointment at the Assistant Professor level. Applicants in all areas of **Mathematical and Computational Biology and Ecology** will be considered, including Non-linear Dynamics of Disease Mechanism, Biological Invasion, Population Dynamics, Epidemiological and Ecological Modelling, Bioinformatics and Health Informatics, Protein, Cellular and Physiological Modelling and Stochastic Biological Modelling. The successful candidate must have a PhD and a proven record of independent and collaborative interdisciplinary research. Research excellence and superior teaching will be an asset. Preference will be given to candidates who can strengthen existing areas of present and ongoing research activity in the Department and in Biological and Life Sciences across the University. York University is a leader in interdisciplinary science research and outreach efforts that enable partnerships between researchers and policy makers. To address the ever more complex and challenging issues facing both scholars and policy makers, the University sustains high-quality empirical research informed by a diverse range of theory and methods. This appointment will build upon and expand the University's strengths and prominence in the area of Health Analytics and Health Informatics. In addition to these appointments, appointments will be made in the Faculty of Health in the areas eHealth and Health Informatics and Health Systems Research Methods. The successful candidate will be expected to participate in this growing cluster of researchers with complementary strengths across the University who are engaged in collaborative and interdisciplinary work in this area.

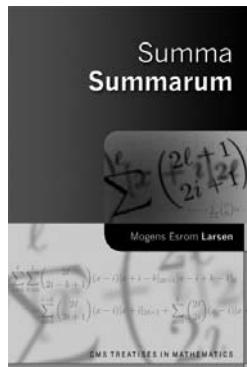
Applicants should send (as hard copy, only) a curriculum vitae, an outline of their research plan and a description of teaching interests, and arrange for three letters of recommendation (one of which should address teaching) to be sent directly, by **January 16, 2009**, to: **Applied Mathematics Search Committee, Department of Mathematics and Statistics, N520 Ross, York University, Toronto, Ontario M3J 2V7**. E-mail: applmath@mathstat.yorku.ca. Web site: www.math.yorku.ca/Hiring.

York University is an Affirmative Action Employer. The Affirmative Action Program can be found on York's website www.yorku.ca/acadjobs or a copy can be obtained by calling the affirmative action office at 416-736-5713. All qualified candidates are encouraged to apply; however, Canadian citizens and Permanent Residents will be given priority.

**A K PETERS and the CMS present new titles in the
CMS Treatises in Mathematics Series**

Summa Summarum
Mogens Esrom Larsen

978-1-56881-323-3; 240 pages; Hardcover; \$49.00



"The book is quite comprehensive and discusses a host of techniques from the classical ideas of Euler to the modern ideas of R. W. Gosper, Jr., H Wilf, and D. Zeilberger, of how to simplify finite sums that are likely to appear in the course of one's work. ... This work should prove to be an invaluable aid to students and researchers working in all areas of mathematics. The author's 'hope is to find this summa on your desk—just as Thomas's original was found on the altar!' and the reviewer agrees."

—*Mathematical Reviews*

"As both a reference and an introduction to the art of manipulating sums for graduate and upper-level undergraduate students, researchers, and non-specialists, this book provides an array of systematic techniques that will help the reader to evaluate almost any finite algebraic sum."

—*L'Enseignement Mathématique*

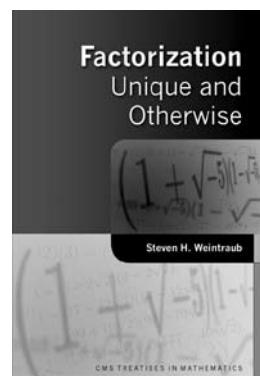
Factorization: Unique and Otherwise

Steven H. Weintraub

978-1-56881-241-0; 250 pages; Hardcover; \$49.00

"Weintraub (mathematics, Lehigh U.) works through the concepts of factorization, an important feature of the system of natural numbers and their generalizations that can be written as a unique product of prime numbers and relates the ways in which factorization plays a key role in modern mathematics and its applications. After a fine introduction to basic notions, he covers unique factorization, the Gaussian integers, and Pell's equation, and moves on to algebraic number theory. He also offers very good appendices on mathematical induction and congruences, sets of exercises for each chapter, and examples throughout. This is well-suited for a first course in number theory or for self-study by motivated readers down to the high school level."

—*SciTech Book News*



Algebraic Combinatorics and Coinvariant Spaces

François Bergeron

978-1-56881-324-0; Hardcover

This book is an introduction to algebraic combinatorics, the goal of which is to study various deep interactions between combinatorics, representation theory, algebraic geometry, and other classical subfields of algebra. The focus is on the study of interesting $n!$ -dimensional spaces of polynomials that naturally appear in all of these contexts. This can be used as a text for beginning undergraduate students as well as a reference for researchers in other fields.

**CMS Members save 20% at www.akpeters.com
Use discount code "CMSMember"**

Canadian Mathematical Society
Ottawa, Ontario
Tel: 613-562-5702
Email: office@cms.math.ca
Web: www.cms.math.ca



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Wellesley, Massachusetts
Tel: 781-416-2888
Email: editorial@akpeters.com
Web: www.akpeters.com



CALL FOR NOMINATIONS

CALL FOR NOMINATIONS - 2009 DOCTORAL PRIZE APPEL DE MISES EN CANDIDATURE - PRIX DE DOCTORAT 2009

La SMC a créé ce Prix de doctorat pour récompenser le travail exceptionnel d'un étudiant au doctorat. Le prix sera décerné à une personne qui aura reçu son diplôme de troisième cycle d'une université canadienne l'année précédente (entre le 1er janvier et le 31 décembre) et dont les résultats pour l'ensemble des études supérieures seront jugés les meilleurs. La dissertation constituera le principal critère de sélection (impact des résultats, créativité, qualité de l'exposition, etc.), mais ne sera pas le seul aspect évalué. On tiendra également compte des publications de l'étudiant, de son engagement dans la vie étudiante et de ses autres réalisations.

Les mises en candidature qui ne seront pas choisies dans leur première compétition seront considérées pour une année additionnelle (sans possibilité de mise à jour du dossier), et seront révisées par le comité de sélection du Prix de doctorat l'an prochain.

Le lauréat du Prix de doctorat de la SMC aura droit à une bourse de 500 \$. De plus, la SMC lui offrira l'adhésion gratuite à la Société pendant deux ans et lui remettra un certificat encadré et une subvention pour frais de déplacements lui permettant d'assister à la réunion de la SMC où il recevra son prix et présentera une conférence.

Candidatures

Les candidats doivent être nommés par leur université; la personne qui propose un candidat doit se charger de regrouper les documents décrits aux paragraphes suivants et de faire parvenir la candidature à l'adresse ci-dessous. Aucune université ne peut nommer plus d'un candidat. Les candidatures doivent parvenir à la SMC au plus tard le **31 janvier 2009**.

Le dossier sera constitué des documents suivants :

- Un curriculum vitae rédigé par l'étudiant.
- Un résumé du travail du candidat d'au plus dix pages, rédigé par l'étudiant, où celui-ci décrira brièvement sa thèse et en expliquera l'importance, et énumérera toutes ses autres réalisations pendant ses études de doctorat.
- Trois lettres de recommandation, dont une du directeur de thèse et une d'un examinateur de l'extérieur (une copie de son rapport serait aussi acceptable). Le comité n'acceptera pas plus de trois lettres de recommandation.

The CMS Doctoral Prize recognizes outstanding performance by a doctoral student. The prize is awarded to the person who received a Ph.D. from a Canadian university in the preceding year (January 1st to December 31st) and whose overall performance in graduate school is judged to be the most outstanding. Although the dissertation will be the most important criterion (the impact of the results, the creativity of the work, the quality of exposition, etc.) it will not be the only one. Other publications, activities in support of students and other accomplishments will also be considered.

Nominations that were not successful in the first competition, will be kept active for a further year (with no possibility of updating the file) and will be considered by the Doctoral Prize Selection Committee in the following year's competition.

The CMS Doctoral Prize will consist of an award of \$500, a two-year complimentary membership in the CMS, a framed Doctoral Prize certificate and a stipend for travel expenses to attend the CMS meeting to receive the award and present a plenary lecture.

Nominations

Candidates must be nominated by their university and the nominator is responsible for preparing the documentation described below, and submitting the nomination to the address below. No university may nominate more than one candidate and the deadline for the receipt of nominations is **January 31, 2009**.

The documentation shall consist of:

- A curriculum vitae prepared by the student.
- A resumé of the student's work written by the student and which must not exceed ten pages. The resumé should include a brief description of the thesis and why it is important, as well as of any other contributions made by the student while a doctoral student.
- Three letters of recommendation of which one should be from the thesis advisor and one from an external reviewer. A copy of the external examiner's report may be substituted for the latter. More than three letters of recommendation are not accepted.

Président du Comité de sélection du Prix de doctorat
Chair, Doctoral Prize Selection Committee
Société mathématique du Canada / Canadian Mathematical Society
577 King Edward
Ottawa, Ontario Canada K1N 6N5

CALL FOR NOMINATIONS

CMS Excellence in Teaching Award for post-secondary undergraduate teaching in Mathematics

Prix d'excellence en enseignement de la SMC pour l'enseignement collégial et de premier cycle universitaire en mathématiques

Recognizing sustained and distinguished contributions in teaching. Full-time university, college, two-year college, or CEGEP teachers in Canada with at least five years teaching experience at their current institution can be nominated.

For details regarding nomination procedure, please visit

www.cms.math.ca/Prizes

or

<http://hed.nelson.com>

Deadline for nomination:
November 15, 2008



Ce prix récompense des contributions exceptionnelles et soutenues en enseignement. Il s'adresse aux professeures et professeurs d'université, de collège ou de cégep au Canada ayant au moins cinq ans d'expérience dans leur institution présente.

Pour les détails sur la procédure de mise en nomination voir

www.smc.math.ca/Prix

ou

<http://hed.nelson.com>

Date limite pour soumettre une candidature : 15 novembre 2008

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Nelson.

Call for Proposals for the Jim Totten Special Issue

A special issue of Crux Mathematicorum with Mathematical Mayhem will be published in 2009, dedicated to the memory of Jim Totten. This is a further call for problem proposals, articles, solutions to open problems, contests, and special projects.

The deadline for articles is December 1, 2008 and the deadline for problem proposals is January 1, 2009. Note that material is also solicited (at the appropriate level) for the Mathematical Mayhem section as well. For special projects please send an email to crux-editors@cms.math.ca and consult with the editors as soon as possible.

Václav (Vazz) Linek
Editor-in-Chief,
CRUX with MAYHEM

Appel de propositions pour le numéro spécial de Crux en l'honneur de Jim Totten

Un numéro spécial de Crux Mathematicorum with Mathematical Mayhem consacré à la mémoire de Jim Totten sera publié en 2009. C'est un autre appel pour proposer des problèmes, des articles, des solutions aux problèmes non résolus, des concours, et des projets spéciaux.

La date limite pour soumettre des articles est le 1er décembre 2008 et la date limite pour des propositions de problèmes est le 1er janvier 2009. Notez que nous sollicitons également des propositions (au niveau approprié) pour la section Mathematical Mayhem. Pour des projets spéciaux veuillez envoyer un courrier électronique à crux-editors@cms.math.ca et consulter avec les rédacteurs aussitôt que possible.

Václav (Vazz) Linek
Rédacteur en chef,
CRUX with MAYHEM

Plus tôt cette année, la SMC a répondu à un appel international visant à connaître le lieu où se trouve l'universitaire et homme politique de renom, Ibni Oumar Mahamat Saleh, ainsi que son état de santé. Au début février 2008, M. Mahamat Saleh a été enlevé à son domicile, à N'Djamena, par des agents du gouvernement tchadien, et sa famille n'a plus entendu parler de lui depuis.

Organisé par des collègues mathématiciens français, l'appel a ensuite obtenu le soutien de plusieurs sociétés mathématiques ainsi que d'autres organisations d'Europe et d'Amérique du Nord, en plus de l'appui d'Amnistie Internationale. La SMC et d'autres sociétés ont encouragé leurs membres à signer une pétition sur le site web de la Société mathématique de France. De plus, la direction de plusieurs sociétés a écrit au gouvernement de la République du Tchad, ainsi qu'à leur propre gouvernement, afin d'obtenir plus d'information.

À ce que l'on sache, la première réponse éclairante à toutes les questions posées aux divers gouvernements est celle que le ministre des Affaires étrangères du Canada a adressée au président de la SMC. Dans sa lettre datée du 9 juin 2008, l'honorable David Emerson affirme avoir demandé des informations aux représentants du gouvernement du Canada au Tchad et au Cameroun, le pays voisin. Il ajoute : « Il semble que M. Mahamat Saleh soit mort en détention et que cette affaire fasse l'objet d'une enquête de la part des autorités tchadiennes. Le gouvernement du Tchad a apparemment rejeté une enquête internationale, insistant sur le fait qu'il est en mesure de mener l'enquête lui-même. » La commission d'enquête du gouvernement tchadien publie son rapport trois mois plus tard et confirme la mort en détention d'Ibni Oumar Mahamat Saleh.

Cette affaire est un bien triste cas de violation des droits de la personne. Elle permet néanmoins de se rendre compte des avantages dont nous jouissons au Canada, où l'application régulière de la loi prévaut habituellement et où les ministères du gouvernement se sentent une obligation politique de répondre aux questions. Cela engendre, à son tour, une obligation morale continue chez les Canadiens quant à l'exercice de leurs droits dans le but de venir en aide aux personnes vivant dans des pays régis par des règles plus arbitraires. L'appel international poursuit ses efforts en vue de découvrir toute la vérité sur les circonstances de la mort d'Ibni Oumar Mahamat Saleh. Vous trouverez des renseignements à jour au <http://smf.emath.fr/PetitionSaleh/>.



Earlier this year the CMS joined in an international appeal regarding the whereabouts and health of a prominent academic and political leader, Dr. Ibni Oumar Mahamat Saleh. In early February, 2008 he had been abducted from his home in N'Djamena by agents of the Chadian government and his family had heard nothing of him since then.

The appeal was organized by mathematical colleagues in France, and was supported by several mathematical and other societies in Europe and North America, as well as Amnesty International. The CMS and other societies encouraged their members to sign the online petition hosted by the website of la Société Mathématique de France. In addition, leaders of several societies wrote to the government of the Republic of Chad, as well as to their own governments, seeking information.

To our best knowledge, the first substantive reply to any of the requests to several governments for information came from Canada's Minister of Foreign Affairs to the President of the CMS. In a letter dated June 9, 2008, Hon. David Emerson wrote that he had inquired of Canadian government representatives in Chad and neighbouring Cameroon. The Minister's letter advised CMS that, "It appears that Doctor Mahamat Saleh died while in custody and that the matter is currently under investigation by Chadian authorities. The Chadian government apparently has rejected an international inquiry insisting that it can handle the investigation." Three months later, the report of a Chadian government commission of inquiry was released, providing further confirmation of Saleh's death in custody.

This is a sad conclusion to a human rights case. However, it serves to illustrate the advantages we still enjoy in Canada, where due process of law usually prevails and government ministries feel a political obligation to respond to inquiries. This in turn creates an ongoing moral obligation on the part of Canadians to exercise their rights in efforts to assist people living under more arbitrary forms of rule. The international appeal continues in an effort to find the full truth about the circumstances of his death. Current information can be found at <http://smf.emath.fr/en/PetitionSaleh/>

Depuis près de trente ans, la Société mathématique du Canada entretient une relation étroite avec l'Université d'Ottawa tant sur le plan scientifique qu'administratif. Le bureau administratif de la SMC a été situé au 577 de l'avenue King-Edward tout ce temps, juste à côté du Département de mathématiques et de statistique. Durant toutes ces années, cette relation s'est avérée extrêmement efficace et bénéfique tant pour la Société que pour l'Université.

Dernièrement, l'Université d'Ottawa a constaté que de graves problèmes structuraux menaçaient les locaux occupés par la SMC, ce qui a forcé le déménagement de notre bureau.

Grâce à leur collaboration, le bureau administratif de la SMC et l'administration de l'Université ont trouvé des locaux sur le campus pour la SMC, mais à court terme.

Contexte

Plus tôt cette année, l'Université a informé la SMC que la partie arrière du 577, avenue King-Edward (le bureau de la coordonnatrice des Réunions) n'était pas rénovable et devait être démolie. Nous avons donc réorganisé les bureaux pour accommoder la coordonnatrice des Réunions à même les locaux du 577, avenue King-Edward. Ces travaux de réorganisation ont pris fin en juillet, et la démolition a commencé au début d'août. L'Université a offert à la SMC un bureau du 575, avenue King-Edward à des fins d'entreposage.

Durant la démolition, les murs extérieurs d'une autre partie du 577, avenue King-Edward ont montré des signes de détérioration avancée, et cette partie aussi a été déclarée impropre à l'occupation. L'évacuation immédiate du personnel qui travaillait dans cette partie du bâtiment a été ordonnée le 11 août. Il s'agissait de la réception au rez-de-chaussée, ainsi que du bureau de la comptabilité, de la cuisine et des toilettes à l'étage. L'Université ayant fait des travaux pour renforcer temporairement cette aile du bâtiment, le personnel y avait un accès limité.

Compte tenu de cet accès limité aux facilités sanitaires et à la sortie d'urgence, il fallait évacuer sur-le-champ. Des représentants du bureau administratif et de divers paliers de l'Université se sont réunis à maintes reprises pour déménager le bureau de la SMC ailleurs sur le campus à court terme, soit jusqu'à la fin de décembre 2008 et possiblement jusqu'en avril 2009.

Nous remercions le personnel du bureau administratif d'avoir gardé un bon moral durant cette période et pour les efforts immenses déployés par l'Université d'Ottawa afin de minimiser les désagréments lors de notre déménagement. Pour leur appui et leur aide au déménagement, nous souhaitons remercier sincèrement le personnel du bureau administratif ainsi que Victor

Leblanc (directeur du Département de mathématiques et de statistique) et André Lalonde (doyen de la Faculté des sciences) et leur personnel.

Nouvelle adresse

Le service de distribution du courrier de l'Université d'Ottawa réacheminera tout le courrier envoyé au 577, avenue King-Edward. Voici la nouvelle adresse du bureau administratif de la SMC :

136, rue Jean-Jacques Lussier
252, pavillon Vanier
Ottawa (Ontario) K1N 6N5

Les coordonnées du personnel, les numéros de téléphone et de télécopieur du bureau ainsi que les adresses de courriel demeurent inchangés. Les renseignements bancaires ne changent pas non plus, et les paiements électroniques continueront à se faire de la façon habituelle.

Où irons-nous ensuite?

Le directeur du Département de mathématiques et de statistique et le doyen de la Faculté des sciences souhaitent conserver le bureau administratif de la SMC à l'Université afin de poursuivre cette collaboration de longue date. Leur appui a grandement facilité la recherche de locaux temporaires, le déménagement rapide et sans anicroche ainsi que l'entreposage temporaire de meubles, de matériel et de dossiers dans les anciens locaux.

Quo qu'il en soit, l'Université connaît un manque d'espace criant. Elle a déjà été forcée de déplacer du personnel à l'extérieur du campus principal. Lors d'une réunion avec le doyen des Sciences, dernièrement, nous avons appris qu'une demande serait faite au vice-recteur aux ressources pour définir le statut à long terme du bureau administratif de la SMC sur le campus. Nous espérons avoir des nouvelles de ces discussions très bientôt.

Entre-temps, d'autres options sont à l'étude. Nous avons visité plusieurs locaux qui pourraient répondre à nos besoins dans les environs de l'Université, et même plus loin. Nous avons aussi étudié la possibilité d'acheter un bâtiment. Nul besoin d'être mathématicien pour conclure très rapidement que n'importe laquelle de ces options agraverait notre situation financière, déjà très précaire.

Il serait également possible de mener une vaste campagne de financement pour doter la SMC de locaux permanents, mais compte tenu de la difficulté de recueillir des fonds pour nos autres activités et programmes, il faudrait planifier une telle campagne avec le plus grand soin.

Where do we go from here?

The Chair of the Department of Mathematics and Statistics and the Dean of the Faculty of Science support keeping the CMS Executive Office on the University Campus in order to continue the long tradition of cooperation. This support was key in securing the temporary space, in ensuring a quick and smooth move and, during this temporary period, to continue to store some of the furniture, equipment, and files in the old location.

The fact remains that the University is experiencing an enormous space problem. Some University staff has been moved to locations outside the main Campus area. In a recent meeting with the Dean of Science, we were informed that the Vice President-Resources will be approached to determine the long-term status of the CMS Executive Office on Campus. It is hoped that the results of these discussions will be known in the very near future.

In the mean time, a number of other options have been explored. We have visited a number of facilities in the area of the University and beyond that could possibly fit our needs. We also explored the possibility of buying a building. One does not need to be a mathematician to realize quickly that any of these options will place an enormous strain on our budget, which is already experiencing serious difficulties.

A major Fundraising campaign to secure a permanent location for the CMS is a possibility, but with the current difficulties we are facing in raising funds for other activities and programs, such a campaign needs to be very carefully thought through and fully planned.

BOOK REVIEW: GOOD FOR A GRADUATE-LEVEL SEMINAR *continued*

a sum. Finally, many readers would not be used to the notation for representing the sums in this text. For example, the standard form Larsen adopts involves writing the summands in terms of shifted falling factorials, $[x; d]_k := x(x-d)(x-2d) \cdots (x-(k-1)d)$, while much literature, including the conventional form of writing hypergeometric series, uses the rising factorial $(a)_k := a(a+1) \cdots (a+k-1)$. Since software packages like Maple often simplify objects in terms of hypergeometric forms, the choice not to use this notation makes the book less attractive as a quick reference for specific evaluations.

And how does the book fare as a text on summation techniques? The book gives a very nice tour of known identities and the techniques used to prove them, as well as examples applying these formulas. The discussions on Gosper's algorithm and the WZ method are particularly useful to students as well as anyone not familiar with the theory behind them. As a textbook, Summa Summarum is self-contained and well-organized, providing a solid introduction on how to evaluate finite sums. However, in the same way that the author's choice of notation weakens the

book's value as a reference, it may also disadvantage a student learning about finite sums. This is especially true in the appendix on basic sums (q-series), where Larsen does not use the standard q notation (he chooses a more general two-variable extension) nor the rising basic factorial as is standard in the theory of q-series. While the identities presented may be somewhat more general, they are less useful to the student being introduced to the subject, who may be unprepared to read the standard literature.

So did Larsen achieve his goal? As a collection of finite sums, yes; the text contains a wide range of general sum evaluations and their proofs. But as a guide, only if you have the patience to learn the classification scheme and convert your sums into his standard form. On the other hand, Summa Summarum would be a good textbook to work through for a graduate-level seminar or course. Students would surely benefit from the material in the text when combined with an experienced professor reconciling it with the literature.

**WANTED: Books for Review
RECHERCHÉS : Livres pour critiques littéraires****Have you written a book lately?**

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

Vous avez récemment écrit un livre?

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

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

EMPLOYMENT OPPORTUNITY

UNIVERSITY OF OTTAWA

With its strategic location at the heart of Canada's capital, its broad variety of teaching and research initiatives offered in the two official languages, the cosmopolitan environment, and its national perspective, the University of Ottawa is truly Canada's University.

The Department of Mathematics and Statistics of the University of Ottawa invites applications to fill at least two tenure-track positions, one of which is at the Assistant Professor level, and the other at the Assistant or Associate Professor level, starting July 1, 2009. For the Assistant Professor level, we are seeking candidates with at least one year of postdoctoral experience. For the Associate Professor level, we are seeking a candidate that has a proven track-record in research and teaching at both the undergraduate and graduate level, and will be willing and able to supervise graduate students upon arrival. Candidates from all areas of mathematics or statistics are encouraged to apply; however, for one of the positions, priority will be given to candidates in Algebra.

Applicants should send a curriculum vitae, a research plan, and arrange for four confidential letters of recommendation, with one addressing teaching, to be sent to Victor LeBlanc, Chairman, Department of Mathematics and Statistics, University of Ottawa, Ottawa, ON Canada, K1N 6N5. Applicants are also encouraged to include copies of up to three of their most significant publications. The closing date for receipt of applications is **November 7, 2008** or until the positions are filled.

Conditions of employment are set by a collective agreement. Employment equity is University policy and the University strongly encourages applications from women. Canadian citizens and permanent residents will be considered first.

Information about the department can be found at <http://www.mathstat.uottawa.ca>

EMPLOYMENT OPPORTUNITY

UNIVERSITÉ D'OTTAWA

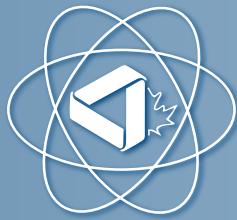
Son emplacement stratégique au coeur de la capitale du pays, la grande variété de ses programmes d'enseignement et de recherche, offerts dans les deux langues officielles du Canada, sa diversité croissante ainsi que sa perspective nationale font de l'Université d'Ottawa « l'Université canadienne » par excellence.

Le Département de mathématiques et de statistique de l'Université d'Ottawa met au concours au moins deux postes menant à la permanence, l'un au rang de professeur adjoint et l'autre au rang de professeur adjoint ou de professeur agrégé. Entrée en fonction: le 1er juillet 2009. Pour le rang de professeur adjoint, nous recherchons des candidats avec au moins une année d'expérience postdoctorale. Pour le rang de professeur agrégé, la personne choisie devra avoir fait ses preuves tant comme chercheur que comme enseignant, et ce à tous les niveaux. En particulier elle devra être en mesure de diriger des étudiants de deuxième et troisième cycle dès son entrée en fonction. Nous encourageons les candidat(e)s dans tous les domaines des mathématiques et de statistique à postuler, cependant pour un des postes, nous donnerons priorité aux candidat(e)s dont le domaine de recherche est en algèbre.

Les candidat(e)s doivent faire parvenir leur dossier de candidature au directeur du département, Victor LeBlanc, Département de mathématiques et de statistique, Université d'Ottawa, Ottawa ON Canada, K1N 6N5. Les dossiers doivent comprendre un curriculum vitae, un plan de recherche ainsi que quatre lettres de recommandation confidentielles dont une portant sur l'enseignement. Nous encourageons les candidat(e)s à joindre à leur dossier jusqu'à trois tirés-à-part de leurs contributions les plus importantes. La date limite de réception de candidatures est le **7 novembre 2008**. Nous accepterons toutefois les applications tardives tant que les postes n'auront pas été comblés.

Les conditions d'emploi sont déterminées par une convention collective. L'université a une politique d'équité en matière d'emploi. Les femmes sont fortement encouragées à poser leur candidature. On étudiera d'abord les demandes des citoyens canadiens et des résidents permanents.

Pour plus de renseignements voir <http://www.mathstat.uottawa.ca>



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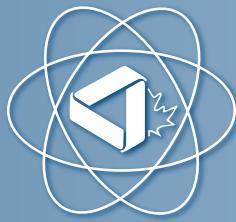
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Auteurs: Peter I. Booth
John Grant McLoughlin
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À VENIR!

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CALENDAR OF EVENTS / CALENDRIER DES ÉVÉNEMENTS

| NOVEMBER | 2008 | NOVEMBRE | FEBRUARY | 2009 | FEVRIER |
|----------|---|----------|----------|---|---------|
| 2-7 | Women in Numbers (Banff Centre, AB) www.birs.ca | | 23-27 | Modern Moduli Theory (MSRI, Berkeley, CA) www.msri.org/calendar/workshops/workshopInfo/472/show_workshop | |
| 7-9 | Applications of Geometry to Topology and Physics (Rutgers-Newark, N.J.) www.math.uga.edu/gluckfest | | | | |
| 26-31 | Interactions Between Noncommutative Algebra and Algebraic Geometry (Banff Research Station, Banff, AB) www.birs.ca/2008/summer_schools.html | | | | |
| DECEMBER | 2008 | DECEMBRE | JUNE | 2009 | JUIN |
| 4-5 | CWiMAC 2008 - Connecting Women in Mathematics Across Canada (University of Ottawa, ON) www.cms.math.ca | | 6-8 | CMS/CSHPM Summer Meeting 2009 (St. John's, NL) www.cms.math.ca | |
| 5-8 | International Conference on Partial Differential Equations and Applications in honour of Professor Philippe G. Ciarlet's 70th birthday (City University of Hong Kong, Kowloon, Hong Kong) www6.cityu.edu.hk/rcms/ICPDEA2008/ | | 8-13 | Workshop on Disordered Systems: Spin Glasses (CRM, Montreal, QC) www.crm.math.ca/Mathphys2008 | |
| 6-8 | CMS Winter 2008 Meeting www.cms.math.ca/Events | | 15-18 | 3rd International Conference On Maths and Stats (Athens, Greece) www.atiner.gr/ | |
| 17-21 | First Joint International Meeting of AMS with the Shanghai Mathematical Society (Shanghai, China) www.ams.math.org/amsmtgs/internmtgs.html | | 14-20 | 47th International Symposium on Functional Equations (Gargnano, Italy) GianLuigi.Forti@mat.unimi.it | |
| JANUARY | 2009 | JANVIER | JULY | 2009 | JUILLET |
| 5-8 | Joint Mathematics Meetings (Washington, D.C.) www.ams.org/amsmtgs/national.html | | 14-17 | Summer Conference on Topology and its applications (Brno University of Technology (VUT Brno), Czech Republic) www.vutbr.cz/SUMTOPO2009 | |
| 12-16 | Quantitative and Computational Aspects of Metric Geometry (IPAM, UCLA, CA) www.ipam.ucla.edu/programs/mg2009 | | | | |
| 22-24 | Connections for women: Algebraic Geometry and related fields (MSRI, Berkeley, CA) www.msri.org/calendar/workshops/workshopInfo/471/show_workshop | | | | |
| AUGUST | 2009 | AOÛT | | | |
| | | | 17-21 | Modular Forms on noncongruence groups (UC, Riverside, CA) farmer@aimath.org | |

EMPLOYMENT OPPORTUNITY



香港城市大學
City University
of Hong Kong

City University of Hong Kong is one of eight tertiary institutions funded by the Government of the Hong Kong Special Administrative Region through the University Grants Committee of Hong Kong. A young and dynamic institution, the University aspires to be internationally recognized as a leading university in the Asia-Pacific region through excellence in professional education and applied research. It has a growing international reputation, as evidenced by its surge up the rankings of the world's top 200 universities according to the Times Higher Education Supplement. The mission of the University is to nurture and develop the talents of students and to create applicable knowledge in order to support social and economic advancement. Currently, approximately 26,000 students are enrolled in over 180 programmes ranging from associate degrees to PhD. The medium of instruction is English.

The University invites applications for the following posts. Candidates with applied research achievements will receive very positive consideration. Relevant experience in business and industry will be a definite asset.

Associate Professor/Assistant Professor (2 posts) [Ref. A/539/49] Department of Mathematics

Duties : Teach undergraduate and postgraduate courses, supervise research students, conduct research in areas of Applied Mathematics, and perform any other duties as assigned.

Requirements : A PhD in Mathematics/Applied Mathematics/Statistics with an excellent research record.

Salary and Conditions of Service

Salary offered will be highly competitive and commensurate with qualifications and experience. Appointment will be on a fixed-term gratuity-bearing contract. Fringe benefits include annual leave, medical and dental schemes, and housing benefits where applicable.

Application and Information

Further information about the posts and the University is available at <http://www.cityu.edu.hk>, or from the Human Resources Office, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong [Fax : (852) 2788 1154 or (852) 2788 9334/email: hrojob@cityu.edu.hk.] Please send an application letter enclosing a current curriculum vitae to the Human Resources Office by **16 January 2009**. Please quote the reference of the post applied for in the application and on the envelope.

The University reserves the right to consider late applications and nominations, and to fill or not to fill the positions. Personal data provided by applicants will be used for recruitment and other employment-related purposes.

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| March / mars | January 15 / le 15 janvier | | |
| April / avril | February 15 / le 15 février | | |
| May / mai | March 15 / le 15 mars | | |
| September / septembre | July 15 / le 15 juillet | | |
| October / octobre | August 15 / le 15 août | | |
| November / novembre | September 15 / le 15 septembre | | |
| December / décembre | October 15 / le 15 octobre | | |
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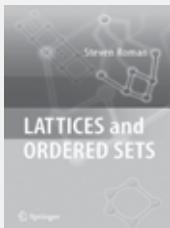
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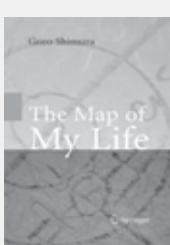


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