CMS NOTES de la SMC

FROM THE TREASURER AND THE EXECUTIVE DIRECTOR

David Rodgers and **Graham P. Wright**
Treasurer *Executive Director*

Support for CMS Meetings

The CMS faces a number of significant challenges if we are to continue our meetings program, generally held to be among the most important activities sponsored by the Society. Indeed, a large deficit is projected in the Society's *overall* operations for 2007. As the Society's ability to absorb deficits disappears, means must be found either to increase revenues significantly or to reduce expenses.

Currently, income from registration fees and from grants or donations targeted at meetings largely cover the *direct* costs for the meeting (speaker support, support for graduate travel, room rental, audio visual and other equipment, printing and supplies, catering, etc.). In 2007, the direct costs associated with the two meetings are estimated to be $261,895. Meeting revenues do not however support any of the administrative costs incurred for each meeting [Executive Office salary and office costs specifically attributable to the organization of each the meeting – both before and after – as well as the costs for meetings-related electronic services.].

In 2007, the administrative costs associated with the two meetings are estimated to be $152,155. These costs have to be paid from other CMS revenues. This level of support

is not new. It was $144,170 in 2006 and $64,648 in 2005. For the 2006 summer and winter meetings, taking into account both direct and administrative costs for both meetings, the _deficit_ was $202.20 per delegate.[1] Revenue from other Society activities is not sufficient to make up the difference.

It is customary for societies to operate meetings that result in a surplus and consequently help support other activities. This is often achieved through significantly higher registration fees (e.g. members pay up to $450 at SSC meetings, and up to $475 at SIAM meetings), a very large number of delegates (3000 or more), or by eliminating some of the services that are provided at a typical CMS meeting. Some societies hold many smaller regional meetings, but can afford not to recoup administrative costs from those, because those costs are already covered by a very large annual meeting.

The Good News

For the past several years, the Society's semi-annual meetings have been a huge success on many fronts. The number of special sessions has increased significantly and this has attracted larger numbers of delegates. At the 2007 Winter Meeting (London), there will be 10 plenary and prize lectures, 17 sessions, and more than 450 delegates. This is in sharp contrast to meetings even ten years ago, when there were 6 sessions at each meeting and fewer than 200 delegates.

[1] Note that the expenses associated with all of the CMS business meetings are not included in these figures, but are paid for from other sources.

In addition, the CMS has also moved to hold some meetings jointly with other societies and with MITACS. The 2007 Summer Meeting in Winnipeg was a joint CMS/MITACS meeting. The 2008 summer meeting will be the *Second Canada-France Congress 2008* and a joint meeting involving the CMS, the *Canadian Applied and Industrial Mathematics Society*, the *Centre de recherches mathématiques*, the *Fields Institute*, the *Institut des sciences mathématiques*, the *Mathematics of Information Technology and Complex Systems*, the *Pacific Institute for the Mathematical Sciences*, the *Société de Mathématique Appliquées & Industrielles*, the *Société Mathématique de France*, and the *Université du Québec à Montréal*. The second *CMS/Sociedad Matemática Mexicana* meeting will take place in Vancouver in August 2009.

There are also suggestions for additional joint meetings with other mathematical societies in the near future.

The response from delegates has been very positive, not only for the excellent quality of the scientific programs but also for the meeting venues, arrangements, and facilities. Scientifically our meetings are in great shape. But we must find a way of making them financially sustainable.

The Challenges

In the past, revenues from foreign exchange and the publications program have been sufficient for the CMS to offset deficits from meetings.

In 2007, the difference between

EDITORIAL

by Srinivasa Swaminathan
Dalhousie University, Halifax
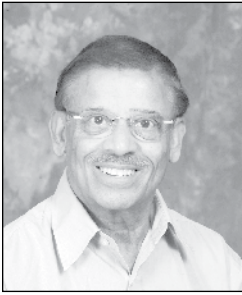
The whole art of teaching is only the art of awakening the natural curiosity of young minds for the purpose of satisfying it afterwards.

Anatole France, *The Crime of Sylvestre Bonnard*

This editorial is written in Chennai (Madras), India. I participated in an informal discussion on teaching and teaching methods at an Institute of Technology, suggested by a newspaper article on 'the ideal teacher'.

The 'ideal teacher' is a concept, a goal towards which every teacher should aspire to attain. It is hard to attain just as difficult to achieve perfection in any endeavor. Whatever be the subject or topic concerned the teacher's job depends on the level at which the students can understand what is being taught. True teachers are not shopkeepers of knowledge – they are those who help to remove the cover of ignorance.

What are the characteristics of a good teacher? The list is long; the following is a selection from [1]: Appreciate students' problems; be articulate; be accessible; avoid mannerisms; have confidence in the student's potential; be caring; maintain clarity in speech; evaluate assignments and quizzes on time; be thorough in the preparation of lessons; keep abreast of latest developments; be punctual; maintain a positive attitude always; promote free student-teacher interaction; maintain a sense of humor; be sensitive to cultural differences; spend extra time with students if necessary; handle difficult topics efficiently; use appropriate teaching aids; be receptive to constructive criticism.

It is clear that one cannot have all of the above attributes. But through constant training and experience it is possible to attain a great majority of them. Just pick any two mathematics instructors teaching the calculus and try to get them to agree on the treatment of limits. Unless they are following the method in a particular text they would differ in their approaches and each one would claim that his/her method is the better one. What would an ideal teacher do in such a case? Present the various approaches and let the student pick the one that appeals to him/her? One can argue that this might only get the student confused! The best course for an ideal teacher would be to follow Anatole France's advice given above – use the approach suitable to the level of understanding of the students concerned.

Much has been written on this subject. Conferences are held periodically in various places to discuss the progress of efficient teaching methods. For instance, almost 100 Dalhousie graduate students from all Faculties across campus gathered September 12 and 13 to take part in the fifth annual Teaching Assistant Professional Development Days, sponsored by the Centre for Learning and Teaching, as reported in [2]. Faculty and experienced teaching assistants contributed their expertise to sessions that ranged from leading discussions and running effective labs, to teaching problem solving and writing. In the closing plenary, three experienced teachers discussed how they motivate their students to engage in their respective disciplines. All three spoke with deep conviction about the importance of conveying passion for one's subject, even when this task might seem daunting. They provided compelling examples from their own teaching that encouraged teaching assistants to create a vision for their students and teach their subject with the confidence that it is a worthwhile pursuit [2].

At the other extreme there are teachers whose dull and uninspiring lectures leave a permanent impression of 'I hate Math' in most of their students. Between these extremes lie a majority of teachers who cater to the needs of students who take just a minimum number of math courses in their degree programmes.

We would appreciate hearing your thoughts, anecdotes etc regarding the above.

[1] `http:// humanities.byu.edu/elc/teacher/bestteacher/`

[2] `http://dalnews.dal.ca/2007/09/19/ teachingassistants.html`

ÉDITORIAL

par Srinivasa Swaminathan
Dalhousie University, Halifax

« L'art d'enseigner n'est que l'art d'éveiller la curiosité des jeunes âmes pour la satisfaire ensuite. »

Anatole France*, Le Crime de Sylvestre Bonnard*

J'ai écrit cet éditorial à Chennai (Madras), en Inde. Je participais à une discussion informelle sur l'enseignement et les méthodes pédagogiques à un institut de technologie, suscitée par un article de journal traitant de « l'enseignant idéal ».

« L'enseignant idéal » est un concept, un objectif que tout enseignant devrait tenter d'atteindre. Tout comme l'atteinte de la perfection, c'est une tâche difficile dans n'importe quel domaine. Quelle que soit la matière enseignée, le travail d'un enseignant dépend du degré de compréhension de l'élève par rapport à la matière. Les vrais enseignants ne sont pas des gardiens du savoir; ils contribuent à lever le voile de l'ignorance.

Quelles sont les qualités d'un bon enseignant? La liste est longue. Je vous propose ici une sélection tirée d'un site internet [1] : [Un bon enseignant] comprend les problèmes de ses élèves; s'exprime bien; est accessible; n'est pas maniéré; a confiance au potentiel de ses élèves; est sensible; s'exprime clairement; corrige les travaux et les examens rapidement; prépare bien ses cours; est au courant des nouvelles dans son domaine; est ponctuel; adopte toujours une attitude positive; favorise les interactions élèves-enseignants; a un bon sens de l'humour; est sensible aux différences culturelles; accorde du temps aux élèves qui en ont besoin; aborde les sujets difficiles avec doigté; utilise du matériel pédagogique pertinent; est réceptif à la critique constructive. [traduction libre]

Certes, toutes ces qualités ne se retrouvent pas chez une seule et même personne. On peut toutefois acquérir un grand nombre de ces qualités grâce à la formation continue et à l'expérience. Prenez au hasard, par exemple, deux enseignants de mathématiques qui donnent un cours de calcul et essayez de les amener à s'entendre sur le traitement des limites. À moins qu'ils ne suivent tous deux la méthode d'un même manuel, leurs approches différeront et chacun dira que sa méthode est la meilleure. Que ferait l'enseignant idéal dans une telle situation? Présenterait-il plusieurs approches en laissant à l'élève le soin de choisir celle qu'il préfère? Certains diront qu'une telle décision ne ferait rien d'autre qu'embrouiller l'élève. L'attitude idéale de l'enseignant idéal serait de suivre le conseil d'Anatole France cité ci-dessus : choisir l'approche qui convient le mieux au degré de compréhension de l'élève.

Il s'est écrit beaucoup de choses à ce sujet, et des congrès s'organisent constamment, à divers endroits, pour discuter des progrès de la pédagogie. Une centaine d'étudiants aux cycles supérieurs de toutes les facultés de l'Université Dalhousie se sont notamment réunis les 12 et 13 septembre dernier pour prendre part à la cinquième édition annuelle des journées de perfectionnement professionnel pour assistants à l'enseignement (Teaching Assistant Professional Development Days), organisées par le Centre for Learning and Teaching [2]. Les membres du corps professoral et les assistants à l'enseignement expérimentés partageaient leur savoir-faire dans des séances sur des sujets allant de l'animation d'une discussion à l'organisation efficace de travaux en laboratoire, en passant par l'enseignement de la résolution de problèmes et la rédaction. Dans l'allocution de clôture, trois enseignants d'expérience ont parlé de la façon dont ils motivaient leurs étudiants à s'engager dans leur discipline respective. Tous trois ont évoqué avec une profonde conviction l'importance de transmettre la passion pour une matière, même si la tâche semble parfois insurmontable. Ils ont donné des exemples parlants tirés de leur propre pratique pour encourager les assistants à l'enseignement à donner une certaine vision à leurs étudiants et à enseigner leur matière en ayant la ferme conviction qu'il s'agit d'une entreprise louable [2].

À l'autre extrémité du spectre, il y a les enseignants dont les cours ennuyeux et inintéressants amènent la plupart de leurs étudiants à déclarer qu'ils détestent les mathématiques. Et entre ces deux extrêmes naviguent la majorité des enseignants, répondant aux besoins des étudiants qui suivent le nombre minimal de cours de mathématiques pour obtenir leur diplôme.

Merci à l'avance de vos commentaires, réflexions ou anecdotes à ce sujet.

[1] http:// humanities.byu.edu/elc/
   teacher/bestteacher/

[2] http://dalnews.dal.ca/2007/09/19/
   teachingassistants.html

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
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Exact Solutions and Invariant Subspaces of Nonlinear PDEs in Mechanics and Physics

by Victor A. Galaktionov and Sergey R. Svirshchevskii
Chapman & Hall/CRC 2007 xxx + 498 pp $89.95 US

Review by Robert Milson, Dalhousie University

The book under review is concerned with exact solutions of nonlinear evolution partial differential equations, and more specifically with reduction, a key methodology that transforms a PDE into an ordinary differential equation by means of a suitable solution ansatz. The organization is that of a survey monograph centered around the authors' recent work on reduction techniques. The focus is rather more on breadth than on depth. However, the wealth of material — over 100 non-linear models from nearly every branch of applied mathematics, a comprehensive bibliography and extensive historical comments — should appeal to both research specialists and to applied mathematicians interested in a catalog of reduction schemas.

Like numerical methods, exact solutions constitute a general technique for the qualitative study of solutions to complicated non-linear models. Moreover, knowledge of exact solutions is a prerequisite for applying asymptotic and perturbative techniques and for developing a more rigorous theory of existence and uniqueness. Reduction, as a general methodology for the construction of exact solutions, is therefore of great interest.

Every reduction is based on a choice of solution ansatz. Traveling waves, dimensional analysis, and the more general Lie symmetry method which subsumes all of these examples, offer an approach based on invariants of group actions. In the case of evolution equations in one space variable, for example, the ansatz $u(t, x) = f(x)$ is applied to time-invariant systems to obtain an ODE for stationary solutions. Traveling waves and scale-invariant solutions correspond to solutions of the form $u(t, x) = f(x - ct)$ and $u(t, x) = f(tx^k)$, respectively.

A more recent approach, the so-called method of non-linear separation of variables, is based on a different idea: invariant subspaces of non-linear differential operators. Consider, for example, an evolution equation of the form

$$u_t = F(x, u, u^{(1)}, ..., u^{(n)}), \quad u^{(i)} = \frac{\partial^i u}{\partial x^i},$$

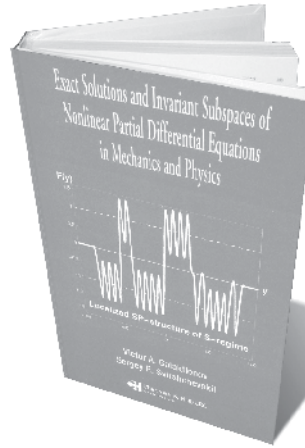where F is a not-necessarily linear function of $n + 2$ variables. Suppose that

$$\mathcal{L} = \mathrm{span}\{f_1(x), ..., f_N(x)\}$$

is a finite dimensional, invariant vector space of functions; i.e., $F(\mathcal{L}) \subseteq \mathcal{L}$. Let us consider solutions of the form

$$u(t, x) = \sum_{i=1}^{N} C_i(t) f_i(x).$$

Such a function satisfies the above evolutionary PDE if and only if $C_1(t), ..., C_N(t)$ satisfy the system of ODEs

$$\dot{C_i} = \Phi_i(C_1, ..., C_N),$$
$$i = 1, ..., N$$

where, by the invariance assumption, there exist functions Φ_i such that

$$F\left(\sum_i a_i f_i\right) = \sum_i \Phi_i(a_1, ..., a_N) f_i.$$

As an even more specific example, consider the evolution equation

$$u_t = F(u, u_x, u_{xx}) := \frac{3}{4} u_x^2 - u_{xx} u.$$

Here, the vector space of polynomials of degree 2 or less is an invariant subspace. Thus, for $u(x) = a_0 + a_1 x + a_2 x^2$, we have

$$F(u) = a_2^2 x^2 + a_1 a_2 x + \frac{3}{4} a_1^2 - 2 a_0 a_2.$$

Indeed, applying the solution ansatz

$$u(x, t) = C_0(t) + C_1(t)x + C_2(t)x^2,$$

the PDE reduces to the following system of quadratically non-linear ODEs

$$\dot{C_0} = \frac{3}{4}(C_1)^2 - 2C_0 C_2, \quad \dot{C_1} = C_1 C_2, \quad \dot{C_2} = (C_2)^2,$$

These admit an explicit solution, namely

$$u(x, t) = C_0(t) + C_1(t)x + C_2(t)x^2,$$

Invariant subspaces of non-linear operators is the central theme of the book in question. The central idea is developed along several directions: a theoretical differential algebra-style analysis aimed at classification, a catalog of specific non-linear operators admitting invariant subspaces, modeling applications, and historical notes and lists of open problems.

The list of non-linear PDEs includes both parabolic and hyperbolic evolution equations, reaction-diffusion and gas dynamics models, thin-film and Kuramoto-Sivashinsky equations, nonlinear dispersion (compacton) equations, KdV-type and Harry Dym models, quasilinear wave and Boussinesq models, and various modifications thereof. The analysis of invariant subspaces covers both the single and the multi-space variable cases, although in the latter case classification results seem to be more difficult and the authors limit themselves to specific derivations and examples. As the book progresses through the various classes non-linear models, qualitative phenomena such as blow-ups, compactons, and interface phenomena are revisited in light of the newly derived solutions.

After an introductory chapter, and a chapter devoted to linear invariant subspaces, Chapter 2 presents a theoretical analysis of invariant subspaces for operators in one space variable. This is the most theoretical chapter in the book. There are a number of rigorous results dealing with invariant polynomial subspaces, upper bounds for the dimension of invariant subspace, and time-independent operators. Of particular interest is the classification result on operators with quadratic non-linearities preserving $\mathcal{P}_n$, the vector space of polynomials of degree n or less.

Chapter 3 is devoted to parabolic equations in one dimension. Equations of thin-film type, Kuramoto-Sivashinsky and Magma models are discussed. There is a particular focus on equations with quadratic non-linearities, but some examples of cubic and higher-order nonlinearities are studied as well. Chapter 4 continues with the parabolic class, but focuses on odd order, KdV-type equation and soliton-type phenomena such as compactons and peakons. Here invariant subspaces of trigonometric functions seem to play an important role. The invariant subspace approach allows the authors to study the corresponding propagation phenomena in terms of the dynamics of the reduced ODEs.

Chapter 5 is devoted to hyperbolic systems in one space variable, such as quasi-linear wave equations. The technique of invariant subspaces still applies, but now the reduced equations are systems of second-order ODEs because the evolutionary term is of the form u_{tt}. The bulk of the chapter is devoted to particular examples and analysis of qualitative phenomena. However, toward the end there is an attempt to develop some theory for invariant vector-valued subspaces.

Chapter 6 applies invariant subspaces methods to non-linear differential operators on $\mathbb{R}^n$ and to multi-dimensional models. The analysis is now associated with systems of non-linear elliptic PDEs, albeit without the generality and completeness of the $n = 1$ case obtained in earlier chapters. Part of the difficulty is the plethora of possibilities of spaces of functions in several variables. Even, in regard to polynomials, one could consider multi-variable polynomials bounded by total degree, tensor products of $\mathcal{P}_n$ or simply, linear combinations of x_i^2, $i = 1, \ldots, n$. Nonetheless, the authors compile an interesting list of reductions and applications such as porous medium equations, the Ernst equation, and multi-dimensional diffusion.

Chapter 7 considers more general field equations with mixed time and space derivatives, or generalized non-linear separation, as the authors call it. As well, in this chapter the authors refine the idea of invariant subspaces by introducing partial invariance, which leads to dynamical systems on invariant subsets rather than subspaces. The basic idea seems to be to employ a solution ansatz that leads to overdetermined dynamical systems, which nonetheless admit non-trivial compatibility constraints. Many of classes of equations and phenomena from Chapters 3-5 are revisited in light of the new exact solutions obtained by these methods.

Chapter 8 introduces yet another refinement of the technique of invariant sub-spaces. Here, the invariant subspace is defined as the solution set of an auxiliary differential operator, rather than by means of an explicit basis. In some instances, the extra differential operator serves as a sign invariant of the evolutionary PDE and provides important qualitative information for general solutions. The exact solutions correspond to the zero-sign stratum. Again, numerous examples are provided, but there is not much in the way of a theoretical development.

Finally, Chapter 9 presents a tentative extension of the technique of invariant subspaces to differential-difference models. The main idea is to consider non-linear difference operators with an invariant subspace of functions. Some examples are given and possible applications to discretizations of PDEs and moving mesh methods are indicated.

EMPLOYMENT OPPORTUNITY

OPERATIONS RESEARCH

Applications are invited for one tenure-track appointment in the Department of Mathematics and Statistics at the Assistant Professor level in the area of Operations Research to commence July 1, 2008. The successful candidate must have a Ph.D. in hand or near completion (expected in 2008), a proven record of independent research excellence, and superior teaching ability. Preference will be given to candidates who can strengthen existing areas of present and ongoing research activity. The successful candidate must be eligible for prompt appointment to the Faculty of Graduate Studies.

Applications must be received by **January 15, 2008**. Applicants should send resumes and arrange for three signed letters of recommendation (one of which should address teaching) to be sent directly to:

Operations Research Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3

E-mail: **or.recruit@mathstat.yorku.ca**, **Website: www.math.yorku.ca/Hiring**

All positions at York are subject to budgetary approval.

York University is an Affirmative Action Employer. The Affirmative Action Program can be found on York's website at 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.

Arthur Cayley, Mathematician Laureate of the Victorian Age
by Tony Crilly
Johns Hopkins University Press, 2006, 784 pp, £46.50

Review by David Singerman, University of Southampton

Arthur Cayley was born on 16 August 1821 in Richmond, Surrey. His father was a merchant who spent much time in St Petersburg, and Arthur spent the first seven years of his life there. After attending prep school, Arthur went to King's College on the Strand where his father paid 18 pounds 17 shillings per annum. This was less than the well-known public schools such as Eton and Harrow. It is probably lucky that the Cayleys did not afford these more expensive schools for there was an excellent mathematical education at King's, whereas the public schools would devote themselves more to the Classics.

In 1838 he entered Trinity College, Cambridge, and in 1842 he entered for the tripos. This was a notoriously difficult examination and the position of Senior Wrangler (the leading candidate in the exam) was of interest to the middle and upper classes and was placed on a par with horse racing in Ascot week. Later in the 19th century the tripos system achieved some level of notoriety. Bertrand Russell, who was seventh Wrangler in 1893, said of the tripos that it "led me to think of Mathematics as consisting of artful dodges and ingenious devices altogether too much like a crossword puzzle." The tripos even tempted G. H. Hardy, who said that "I cannot remember ever having wanted to be anything but a mathematician", to give up mathematics. The most creative mathematical minds would not always achieve the position of Senior Wrangler but Cayley did and this led to the path by which he became Britain's leading mathematician.

He made many stunning discoveries at the forefront of 19th century mathematics. One such, which has had a profound influence on mathematics and is known to all undergraduates, is Matrix Theory. Crilly tells us of the famous Cayley-Hamilton Theorem that apparently Cayley discovered this (Hamilton's version was only for quaternions) but supplied a proof only for the 2x2 and 3x3 cases. However, Cayley worked on many areas of pure mathematics, such as Invariant Theory, Group Theory, non-Euclidean Geometry, and many of the links between Algebra and Geometry. He was not put off by abstraction (at a time when *n*-dimensional space was viewed as an obscure topic) and he reinvented octonions (a year after John Graves discovered them) feeling quite confident at working with non-commutative and non-associative algebras.

One of the interests of Crilly's book is that it tells us a lot about British mathematics in the 19th century. Not only does Cayley appear but also Boole, Hamilton, Salmon, De Morgan, Sylvester, Clifford and others. Cayley also had contact with many important European mathematicians such as Hermite, Klein and, towards the end of his life, Poincaré.
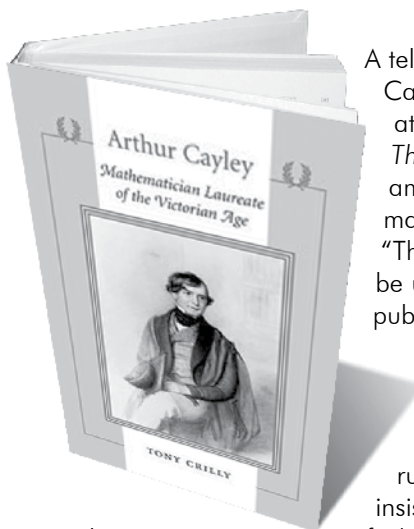
A telling passage of the book is Cayley's Presidential address at the British Association. *The Times* expressed an ambivalence at having a mathematician as President. "That the mathematics would be unintelligible to the general public is not surprising but it would be of only marginal interest to the practical Scientist". *The Times* reported the ominous rumour that the president insisted on a blackboard and a supply of chalk being provided! Many mathematicians of today would sympathise with the speaker. Cayley observed when talking of mathematics in his presidential address to the British Association "The advances have been enormous, the actual field is boundless, the future full of hope." It is this attitude that maintained Cayley as such a formidable mathematician. He died in 1895.

Crilly's book is a beautifully written account of Cayley's life and of British mathematics in the 19th century. It is very well-researched. Just note the 145 pages of additional appendices and notes, including a useful glossary of mathematical terms, some of which have fallen out of use. Every university library should have a copy of this book as well as all those with an interest in mathematical history.

Reprinted from the London Mathematical Society Newsletter (www.lms.ac.uk), No. 358, April 2007, pp 28-29.

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 a l'address suivante : notes-lettres@smc.math.ca.

Music: A Mathematical Offering
by David J. Benson
Cambridge 2007, 411 pp
US $120 hardback US $48 paper.

The author, a professional mathematician and amateur musician, says that this book has been a long time in the making, and this is evident in the result: extremely broad in the topics it covers, so that any reader is sure to find something of interest, and at the same time deep enough in several areas (Fourier analysis, for example, complete with theorems, proofs, and exercises) to serve as a textbook for a serious undergraduate mathematics class.

The book opens with a thorough discussion of the nature of sound and of human perception of sound. This includes a mini-course on the physiology of the ear and an examination of the relevance of the sine wave. This leads to a chapter on Fourier theory, including the Bessel functions (needed for understanding the vibrations of a drum and in sound synthesis) and the Fourier transform. Next comes a chapter entitled "A mathematician's guide to the orchestra", which examines the various classes of instruments (strings, brass, percussion) and the mathematics relevant to each (the one- and two-dimensional wave equations).

The next three chapters, some one hundred pages, deal with some of the many scales that have been constructed to contain as many perfect intervals as possible: Pythagorean, just intonation, mean intonation, and equal temperament, among others. This includes a brief course on the history of music, as the various scales were constructed at various times for particular purposes. Next we have two chapters on digital music: sampling and synthesis. The final chapter, "Symmetry in music", is at a fairly low mathematical level and introduces the reader to some elementary ideas from group theory that can be applied to music. This ends, surprisingly, with an account of how the composer Messiaen nearly discovered the Mathieu group M_{12}!

In addition to the exercises and suggestions for reading and listening with which many sections end, the book itself ends with a number of useful appendices, including one on music theory and one on Bessel functions, together with an extensive bibliography and an unusually detailed index.

Once Upon Einstein
by Thibault Damour
A.K. Peters 2006 xiii+185 pages $24.95 US (paper).

The preface describes the author's aims very well: "This book is not a biography of Einstein. We shall hardly speak of Einstein the husband, the father, the musician, the pacifist, or the Zionist. We shall not discuss his youth in Munich, his studies in Zurich, his difficulty in finding a job, his university career, his social life in the vibrant Berlin of the 1920s, the letter that he wrote to Roosevelt mentioning the possibility of building a nuclear bomb, nor his reclusive life in the small college town of Princeton. This book is even less a course on Einstein's theories, or a review of modern physics. Rather, this book will try to put the reader in Einstein's place, and will encourage the reader to share some of those particular moments when Einstein succeeded in 'lifting a corner of the great veil' — those times when he understood some part of the hidden order of the universe. For someone like Einstein, those moments made up the very essence of his life."

The chapter titles are: The Question of Time, The World's Checkerboard, Elastic Space-Time, Einstein's World-Game, Light and Energy in Grains, Confronting the Sphinx, and Einstein's Legacy. Several chapters are based on specific incidents, for instance the first, which reconstructs a walk in the hills outside Bern with a friend, Michele Besso, in mid-May 1905, during which the basic idea of relativity became clear to him. The last chapter describes what was effectively Einstein's last seminar, at Princeton on April 14, 1954.

The author is a distinguished theoretical physicist — a professor at IHES and a member of the French Academy of Sciences. He writes entertainingly and well, to judge from this translation (by Eric Novak) of the 2005 French original.

John von Neumann: Selected Letters
Edited by Miklós Rédei
History of Mathematics, Vol. 27
AMS/LMS 2005 xxv + 301 pp.

John von Neumann, who died in 1957 at the age of 53, was perhaps the most influential mathematician of the twentieth century. As Peter Lax says in his foreword to this volume, "the tragedy of von Neumann's early death … robbed mathematics and the sciences of a natural leader and an eloquent spokesman." Still quoting Lax, "this collection of letters opens a window on von Neumann's way of thinking, his interests, his relation to people, and his personality…[they] make it possible for the present generation to catch a glimpse of the most scintillating mind of the twentieth century." In her introduction to the volume, von Neumann's daughter, Marina Whitman, points out that the letters also reveal her father's "double life: as an intellectual leader in the ivory tower of pure mathematics and as a man of action, in constant demand as an advisor, consultant and decision-maker to what is sometimes called the military-industrial complex of the United States."

The editor has selected some 120 letters to 70 individuals, consulting a dozen archives in the process, principally the Von Neumann Papers in the Library of Congress. Among the expected names (Garrett Birkhoff, Jacques Dixmier, Marshall Stone, Louis L. Strauss, Stan Ulam) are two Canadians, Israel Halperin and Irving Kaplansky. A 40-page introductory section offers a brief review of von Neumann's life and work, as well as a few photographs.

UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA, CANADA

www.careers.ualberta.ca

Tenure Track Position, Partial Differential Equations

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a tenure-track position in the area of Partial Differential Equations. We primarily seek candidates at the Assistant Professor level, but exceptional candidates at a more senior level will be considered.

The successful candidate will have established accomplishments and outstanding promise in research, as well as a strong commitment to graduate and undergraduate teaching. Candidates must hold a PhD degree. We offer an excellent research environment with a normal teaching load of three courses per year. A close fit with some of the existing research being presently conducted in the Department is an asset.

Alberta is one of the leading Mathematics Departments in Canada and has strong connections with other mathematical institutes, such as the Pacific Institute for the Mathematical Sciences (PIMS), Mathematics of

Information Technology and Complex Systems (MITACS), and the Banff International Research Station (BIRS). For more information about the Department, please visit our website at http://www.math.ualberta.ca/.

Applications should include a curriculum vitae, a research statement, a teaching profile outlining experience and/or interests, and at least three confidential letters of reference.

The closing date for applications is November 16, 2007, or until a suitable candidate is found. Early applications are encouraged.

Interested applicants may apply to:

Arturo Pianzola, Chair
Department of Mathematical and Statistical Sciences
University of Alberta
Edmonton, Alberta, Canada T6G 2G1
Email: chairsec@math.ualberta.ca

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. If suitable Canadian citizens and permanent residents cannot be found, other individuals will be considered. The University of Alberta hires on the basis of merit. We are committed to the principle of equity in employment. We welcome diversity and encourage applications from all qualified women and men, including persons with disabilities, members of visible minorities, and Aboriginal persons.

UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA, CANADA

www.careers.ualberta.ca

Max Wyman Assistant Professorship in Number Theory

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a Max Wyman Assistant Professorship in Number Theory. This is a three-year fixed-term position. The position offers an excellent research and teaching environment with a reduced teaching load (averaging two one-semester courses per year). A startup research grant is included with the position.

We are looking for a person with a PhD (or near completion), excellent research potential, and strong communication and teaching skills. Candidates are expected to develop an independent research program, and will be eligible to apply for federal research funds.

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Information Technology and Complex Systems (MITACS), and the Banff International Research Station (BIRS).

Applications should include a curriculum vitae, research and teaching profiles outlining experience and/or interests, and at least three confidential letters of reference.

The closing date for applications is November 16, 2007, or until a suitable applicant is found. Early applications are encouraged.

For more information about the Department and the University of Alberta, please visit our web page (www.math.ualberta.ca/).

Interested applicants may apply to:

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Edmonton, Alberta, Canada T6G 2G1
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All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. If suitable Canadian citizens and permanent residents cannot be found, other individuals will be considered. The University of Alberta hires on the basis of merit. We are committed to the principle of equity in employment. We welcome diversity and encourage applications from all qualified women and men, including persons with disabilities, members of visible minorities, and Aboriginal persons.

Supplemental Instruction in First Year classes

Vivian Fayowski *Learning Skills Centre*
Jennifer Hyndman *Mathematics*
University of Northern British Columbia

Increased demands for numerate, mathematically competent students have caused many universities to re-evaluate existing support services for and structure of first year mathematics classes. One of the biggest changes in supporting mathematics courses at the University of Northern British Columbia is the use of *Supplemental Instruction* in place of traditional tutorials. Supplemental Instruction involves voluntary participation by students in small group, highly interactive learning activities led by near-peers.

Typically, academic support programs have been developed to assist low achieving students. In contrast, Supplemental Instruction was developed to improve the learning of students in traditionally challenging courses. The SI program evolved in response to the academic needs of students enrolled in problematic courses in professional programs such as the School of Medicine, Dentistry, and Pharmacy at the University of Missouri-Kansas City [UMKC]. It has since been used extensively in a wide range of graduate, undergraduate, and professional school courses, and in a wide range of disciplines [Arendale, 2001], [Martin & Arendale, 1992].

UNBC first introduced Supplemental Instruction in 2002 in the course Calculus for Non-majors (MATH 152). Preliminary findings indicated that the program was improving outcomes in the course, but did not account for factors such as motivation and ability. Vivian Fayowski, Advisor for Math/Stats support at our Learning Skills Centre, chose to study the effects for her Master's degree in Education research [Fayowski, 2005]. Her results indicated that attendance at five or more SI sessions increased average student grades from C to B- even after ability and motivation were accounted for. Incoming grade point average, a value that would reflect these attributes, was used to control for effects of motivation and academic ability. Initially MATH 152 students had access to the more traditional type of tutorials but these were phased out when students chose to attend the Supplemental Instruction sessions and not the tutorials. Supplemental Instruction has since been used in Computer Science, Physics and Experimental Science courses. Most recently, we have introduced it to our Precalculus (MATH 115) course taught by Jennifer Hyndman. The raw data indicates that students who attended at least five Supplemental Instruction sessions had an average grade of B- (2.8 on a 4.0 scale) while those who attended fewer than five sessions had an average grade of C+ (2.3).

The key aspects that make Supplemental Instruction different from tutorials are the activities occurring at the sessions, the training provided to the leaders, and the cohort the leaders are chosen from.

Activities that occur in a Supplemental Instruction session range from creating and playing mathematical games, to non-credit quizzes on an important aspect of the previous day's lecture, to small groups of students solving problems at the board. Other strategies include having students create study aids or mock tests. In order to highlight key concepts of a chapter or unit, a group of students might generate a table of contents for the material. In order to develop test-taking and communication skills, students generate potential test questions, compile a quiz based on these questions, administer the quiz, and discuss solutions. Supplemental Instruction leaders are trained in questioning techniques, effective use of classrooms and chalkboards, and group facilitation strategies. The SI leader's role is to facilitate the sessions and to provide the scaffolding upon which the students build their understanding of concepts. Supplemental Instruction leaders attend all of the lectures and receive seven hours of initial training prior to the start of the semester. They participate in ongoing evaluation and training throughout the semester for a total of about fifteen hours training. The leaders prepare the activities for the Supplemental Instruction sessions and conduct the sessions.

The leaders are instrumental to the success of the program. They are near-peers who normally have completed the course within the previous two years and who received a grade of A or A+. However, SI leaders are selected not only for their excellent grades in the discipline or course but also for their communication skills. SI leaders must create supportive and safe learning environments and furthermore, it is essential that they are able to relinquish control of the sessions in order to avoid being the tutorial assistant at the board. Changing the belief system of the leader has in fact been one of the more difficult aspects of Supplemental Instruction as most of the leaders' primary experience as students in a classroom has been with passive learning. When students are put in the role of leaders, they can quickly revert to what they have experienced and what they are comfortable with, which often is the instructor standing at the front of the room doing the mathematics and the student copying it down. Consequently, supervision and ongoing training are key components of a successful SI program as they

Tenure-Stream Appointments

UNIVERSITY of TORONTO

The Department of Mathematics, University of Toronto anticipates having a number of tenure-stream appointments over the next several years. The appointments will be at the rank of Assistant Professor and will be effective July 1, 2008.

Applicants must demonstrate excellent accomplishments and outstanding promise in research and strong commitment to graduate and undergraduate teaching. Preference will be given to researchers in the areas of Analysis (Code: ANA), Algebraic Geometry (Code: ALG), and Applied Mathematics/Scientific Computation (Code: APM). However, exceptional candidates in all fields of pure or applied mathematics are encouraged to apply (Code: OTHER).

Salary will be commensurate with qualifications and experience.

Application material must include the candidate's Curriculum Vitae and list of publications. Applicants must arrange for four letters of reference, of which at least one letter primarily addresses the candidate's teaching to be provided to the department. Candidates are encouraged to supply a cover letter specifying the code of the most relevant of the above areas. Candidates are also encouraged to supply a research statement, a teaching statement, and the AMS cover sheet. Online applications through **http://www.mathjobs.org/jobs** are preferred. Material can alternately be sent directly to the Appointments Committee, Department of Mathematics, University of Toronto, 40 George Street Room 6290, Toronto Ontario M5S 2E4, Canada. Preference will be given to applications received by **November 15, 2007**.

The University of Toronto offers the opportunity to teach, conduct research, and live in one of the most diverse cities in the world, and is strongly committed to diversity within its community and especially welcomes applications from visible minority group members, women, Aboriginal persons, persons with disabilities, members of sexual minority groups, and others who may contribute to the further diversification of ideas.

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

Coxeter Assistant Professorships

UNIVERSITY of TORONTO

The Department of Mathematics, University of Toronto invites applications for Coxeter Assistant Professorships of three-year duration (non tenure stream). The appointment will begin on July 1, 2008.

We seek candidates who demonstrate strength in teaching and who have significant research promise. Salary will be commensurate with qualifications and experience.

Application material must include the candidate's Curriculum Vitae and list of publications. Applicants must arrange to have four letters of reference, of which at least one letter primarily addresses the candidate's teaching, provided to the department. Candidates are encouraged to send a cover letter specifying that they are applying for a CAP position and specifying whether the candidate is a Canadian citizen/permanent resident. Candidates are also encouraged to send a research statement, a teaching statement, and the AMS cover sheet. Online applications through **http:// www.mathjobs.org/ jobs** are preferred, but material can also be sent directly to the Appointments Committee, Department of Mathematics, University of Toronto, 40 St.George Street Room 6290, Toronto Ontario M5S 2E4, Canada. Preference will be given to applications received by **December 15, 2007**.

The University of Toronto offers the opportunity to teach, conduct research, and live in one of the most diverse cities in the world and is strongly committed to diversity within its community and especially welcomes applications from visible minority group members, women, Aboriginal persons, persons with disabilities, members of sexual minority groups, and others who may contribute to the further diversification of ideas.

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

Ted Mossman Chair in Mathematics

UNIVERSITY of TORONTO

Thanks to a generous gift from James Mossman, the Department of Mathematics, University of Toronto, is proud to announce a search for the Ted Mossman Chair in Mathematics. The appointment is at the level of Professor with tenure and is effective July 1, 2008.

The Chair holder is expected to be an outstanding mathematician, whose research and teaching will make a major contribution to the quality and stature of the department. Salary will be commensurate with experience and qualifications.

Applicants should send a Curriculum Vitae and a short statement about their research program and arrange to have four letters of reference sent to the Ted Mossman Search Committee, Department of Mathematics, University of Toronto, 40 St. George Street Room 6290, Toronto, Ontario M5S 2E4, Canada. Preference will be given to applications received by **November 15, 2007**. Applications through mathjobs **http://www.mathjobs.org/jobs** are also welcome.

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

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prevent sessions from becoming typical tutorials. Another issue that arises is the corresponding view from the students. Many students are initially reluctant to participate as they want the leaders to do the work so that they can watch. However, a well-trained leader can entice the students into actively doing mathematics.

Our research has demonstrated that Supplemental Instruction is a valuable tool effective for improving student final grades, creating participative learning environments and maintaining course expectations. It will continue at UNBC.

References

Arendale, D. (2001) *Review of research concerning the effectiveness of Supplemental Instruction from the University of Missouri-Kansas City and other institutions from across the United States*. Kansas City, MO: The University of Missouri-Kansas City. Retrieved July 6, 2007 from `http://davidarendale.efoliomn2.com`.

Fayowski, V. (2005) *An evaluation of the Supplemental Instruction program implemented in a first year calculus course*. Master's thesis, University of Northern British Columbia, Prince George, BC.

Martin, D.C. & Arendale, D.R. (1992) *Supplemental Instruction: Improving first-year student success in high-risk courses*. National Resource Center for the Freshman Year Experience, University of South Carolina, Columbia, SC

International Center for Supplemental Instruction website `http://www.umkc.edu/cad/SI`.

OCUFA Awards

Each year, for the past quarter century, the Ontario Confederation of University Faculty Associations, has been presenting awards for excellent teaching to roughly ten people in all areas across Ontario. Twenty-one of these have gone to teachers of a mathematical science, and I thought it would be interesting to recall the winners, as they include many whom you already know by reputation. For brevity, I abbreviate their affiliation to CS (computer science), M (mathematics), MS (mathematics and statistics). Each name is accompanied by the year of the award and the institution of the awardee.

2006	Akshai Aggarwal, CS, Windsor
2003	Peter Taylor, MS, Queen's
2002	David Poole, M, Trent
2000	Ronald Scoins, M, Waterloo
1999	Leo Jonker, MS, Queen's
1999	Miroslav Lovric, MS, McMaster
1997	Morris Orzech, MS, Queen's

1994	Eric Muller, M, Brock
1993	Jack Weiner, MS, Guelph
1992	Joseph Mokanski, MS, Guelph
1987	John Herbert, MS, Guelph
1986	John Pugh, CS, Carleton
1984	Donald Solitar, MS, York
1981	Abe Shenitzer, MS, York
1980	Victor Linis, M, Ottawa
1980	John Poland, M, Carleton
1976	R.G. Tross, M, Ottawa
1975	**Graham Wright**, M, Ottawa
1974	H.J. Malik, M, Guelph
1973	O.P. Chandra, M, Windsor
1973	Bruce Kirby, MS, Queen's

The list of winners along with citations for those after 1989 can be found at `http://www.ocufa.on/winners/index.asp`. The editors of the Notes would be pleased to have news of any honours received by the members of your department.

A call to mathematics departments

So far in this academic year, we have featured accounts of programs at Athabasca University, Brock University and the University of Northern British Columbia. In past years, we have occasionally featured other universities. These give the lie to the stereotype of tertiary institutions being insensitive to the needs of their undergraduates. Even though Canadian institutions may differ in their settings, goals and challenges, there is much that we can learn from each other. Please accept my cordial invitation to describe the accomplishments of your own university or college mathematical sciences departments.

This education section has not dealt at all with graduate studies in mathematics. I cannot believe that there are no issues or challenges that we should be discussing, particularly at a time when, in Ontario at least, there is a push to increase the intake when resources might not be adequate. Are the students accepted always adequately prepared? what sort of courses have you found to be most effective in the preparation for graduate studies? are there any problems about supervision or time to degree? how are students prepared for the teaching part of their future careers? what happens to graduate students after they get their master's or doctoral degrees? I would be pleased to receive articles on such issues.

Ed Barbeau `barbeau@math.utoronto.ca`

UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA, CANADA

Tenure Track Position, Algebraic Geometry

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a tenure-track position in the area of Algebraic Geometry. We primarily seek candidates at the Assistant Professor level, but exceptional candidates at a more senior level will be considered.

The successful candidate will have established accomplishments and outstanding promise in research, as well as a strong commitment to graduate and undergraduate teaching. Candidates must hold a PhD degree. We offer an excellent research environment with a normal teaching load of three courses per year. A close fit with some of the existing research being presently conducted in the Department is an asset.

Alberta is one of the leading Mathematics Departments in Canada and has strong connections with other mathematical institutes, such as the Pacific Institute for the Mathematical Sciences (PIMS), Mathematics of Information Technology and Complex Systems (MITACS), and the Banff International Research Station (BIRS). For more information about the Department, please visit our website at http://www.math.ualberta.ca/.

Applications should include a curriculum vitae, a research statement, a teaching profile outlining experience and/or interests, and at least three confidential letters of reference.

The closing date for applications is November 16, 2007, or until a suitable candidate is found. Early applications are encouraged.

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UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA, CANADA

Tenure Track Position, Geometrical Functional Analysis

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a tenure-track position in the area of Geometrical Functional Analysis. We primarily seek candidates at the Assistant Professor level, but exceptional candidates at a more senior level will be considered.

The successful candidate will have established accomplishments and outstanding promise in research, as well as a strong commitment to graduate and undergraduate teaching. Candidates must hold a PhD degree. We offer an excellent research environment with a normal teaching load of three courses per year. A fit with some of the existing research being presently conducted in the Department is an asset. For more information about the Department, please visit our website at http://www.math.ualberta.ca/.

We are looking for specialists in any of the areas of geometric functional analysis including asymptotic theory of normed spaces and high-dimensional convex geometry, related probabilistic methods, geometric inequalities and concentration inequalities, and related discrete mathematics aspects. Current research strengths in the analysis group of the Department include asymptotic geometric analysis, abstract harmonic analysis, Banach spaces, Banach algebras and Banach lattices, operator theory, approximation theory, Fourier and wavelet analysis.

Alberta is one of the leading Mathematics Departments in Canada and has strong connections with other mathematical institutes, such as the Pacific Institute for the Mathematical Sciences (PIMS), Mathematics of Information Technology and Complex Systems (MITACS), and the Banff International Research Station (BIRS).

Applications should include a curriculum vitae, a research statement, a teaching profile outlining experience and/or interests, and at least three confidential letters of reference.

The closing date for applications is November 16, 2007, or until a suitable candidate is found. Early applications are encouraged.

Interested applicants may apply to:

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Department of Mathematical and Statistical Sciences
University of Alberta
Edmonton, Alberta, Canada T6G 2G1
Email: chairsec@math.ualberta.ca

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. If suitable Canadian citizens and permanent residents cannot be found, other individuals will be considered. The University of Alberta hires on the basis of merit. We are committed to the principle of equity in employment. We welcome diversity and encourage applications from all qualified women and men, including persons with disabilities, members of visible minorities, and Aboriginal persons.

UNIVERSITY OF
ALBERTA
EDMONTON, ALBERTA, CANADA

Tenure Track Position, Mathematical Biology

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a tenure track position in the area of Mathematical Biology. We primarily seek candidates at the Assistant Professor level, but exceptional candidates at a more senior level will be considered.

We seek an individual who will fit into our applied mathematics program (dynamical systems, differential equations, numerical methods, fluid dynamics, and probability), and who complements the Department's existing expertise in the mathematical modeling of cell biology, ecology, epidemiology, and physiology. Candidates must have a PhD degree in Mathematics or cognate discipline, an excellent research record in Mathematical Biology, strong communication and teaching skills, and leadership potential. Postdoctoral experience is an asset.

The successful candidate will develop an independent research program, supervise graduate students, and teach at both the graduate and undergraduate levels. We offer an excellent research environment with a normal teaching load of three courses per year. For more information about the Department, please visit our website at http://www.math.ualberta.ca/.

Candidates have the opportunity to join the Centre for Mathematical Biology and participate in its activities. For more information about the Centre for Mathematical Biology, see www. math.ualberta.ca/~mathbio.

Applications should include a curriculum vitae, a research statement, a teaching profile outlining experience and/or interests, and at least three confidential letters of reference.

The closing date for applications is November 16, 2007, or until a suitable candidate is found. Early applications are encouraged.

Interested applicants may apply to:

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Department of Mathematical and Statistical Sciences
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CMS Excellence in Teaching Award
for post-secondary undergraduate teaching in Mathematics

Prix d'exellence en enseignement de la SMC
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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, 2007

Ce prix récompense des contributions exceptionnelles et soutenues en enseignement. Il s'addresse 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.cms.math.ca/prizes`
ou
`http://hed.nelson.com`

Date limite pour soumettre une candidature : 15 novembre 2007

Thomson Nelson is a proud sponsor of this award.

Thomson Nelson est fier de commaditer ce prix.

UNIVERSITY OF LETHBRIDGE AND THE CANADIAN MATHEMATICAL SOCIETY ESTABLISH THE JIPING (JIM) LIU MEMORIAL TRAVEL FUND

The Canadian Mathematical Society (CMS) and the University of Lethbridge announced today the establishment of an annual fund in memory of the late Dr. Jiping (Jim) Liu. Dr. Liu was a popular professor of mathematics and well-respected researcher at the University of Lethbridge who died tragically in a car accident in January 2006.

According to Dr. Hadi Kharaghani, a close personal friend and colleague, "Dr. Liu was an excellent teacher and an outstanding mathematician and his loss is a big one for the university. On a personal level he was a very kind and generous person, a real gentleman".

"Jim Liu was an important member of our family", said Dr. Dennis Fitzpatrick, Vice President Research. "He made the University a better place to study, to do research and to work. We benefited from his generosity, his caring and his passion for learning. He is missed."

"The national meetings of the Canadian Mathematical Society provide an important opportunity for graduate students to display their results to a broad audience of professional mathematicians. Facilitating their access to this forum is a fitting tribute to Dr. Liu's devotion to both education and research," said Dr. Thomas Salisbury, CMS President.

To honour Dr. Liu's contributions to the University of Lethbridge and to continue his legacy of learning and love of education, the University and the CMS have established the Jiping (Jim) Liu Memorial Travel Fund to support the travel costs of graduate students to attend CMS annual winter meetings. For 2007, the Fund will help to support graduate students attending the CMS Annual Winter Meeting which will be held in London, Ontario from December 8-10, 2007.

University of
Lethbridge
FIAT LUX

EMPLOYMENT OPPORTUNITY

The Brookfield Research Instructorship

The Department of Pure Mathematics at the University of Waterloo is proud to announce the inaugural competition for the *Brookfield Research Instructorship*. This prestigious academic position is made possible through the visionary, ongoing support of Mr. J. Frank Brookfield of Waterloo, Ontario. This international competition is aimed at outstanding new mathematicians. The *Brookfield Research Instructorship* will have a duration of two years, renewable for a third year subject to mutual agreement between the candidate and the Department.

The goal of the Instructorship is to enhance research intensity in Pure Mathematics at Waterloo, to provide an opportunity for young researchers to diversify and intensify their research capacity, and to interact with students as teachers and mentors. The *Brookfield Research Instructor* will be someone who can demonstrate leadership and bring fresh ideas to our research enterprise through collaborations with departmental colleagues as well as teaching of graduate and undergraduate courses. The Department will seek to appoint a candidate who is expert in one of the areas of departmental activity: functional analysis, geometry and topology, algebra and logic, or number theory.

The first *Brookfield Research Instructor* will be appointed on July 1, 2008. The fellowship salary will be at least $50, 000 per year, and comes with a $5, 000 annual research grant. In addition to doing research, the Brookfield Research Instructor will be expected to teach five semester-long course (12 weeks) over a three year period.

The closing date for the competition is **December 15, 2007**. Interested candidates should apply to the address below by submitting their curriculum vitae plus a description of research interests and accomplishments, as well as ensure that at least three letters of reference are sent directly to this address.

Professor Frank Zorzitto
Chair, Department of Pure Mathematics
University of Waterloo
Waterloo, Ontario
CANADA, N2L 3G1
e-mail: fazorzit@uwaterloo.ca

We appreciate all replies to this advertisement, but only highly ranked individuals will be contacted. Waterloo is committed to employment equity and encourages applications from all qualified candidates, including aboriginal peoples, persons with disabilities, and members of visible minorities.

Call for Sessions – CMS Winter 2008 Meeting
Appel de sessions – Réunion d'hiver 2008 de la SMC

Additional self-supported sessions play an important role in the success of our meetings. We welcome and invite proposals for self-supported sessions for this meeting (December 6-8, 2008) in Ottawa, Ontario. Proposals should include a brief description of the focus and purpose of the session, the expected number of the talks, as well as the organizer's name, complete address, telephone number, e-mail address, etc. These additional sessions will be incorporated with the other sessions in time blocks allocated by the Meeting Director. All sessions will be advertised in the CMS Notes, on the web sites and, if possible, in the Notices of the AMS and in publications of other societies. Speakers in these additional sessions will be requested to submit abstracts which will be published on the web site and in the meeting programme. Those wishing to organize a session should send a proposal to the Meeting Director by the deadline below.

Les sessions complémentaires autonomes jouent un rôle important dans le succès de nos réunions. Nous vous invitons à proposer des sessions autonomes pour ce congrès qui se tiendra à Ottawa, Ontario, du 6 au 8 décembre 2007. Votre proposition doit inclure une brève description de l'orientation et des objectifs de la session, le nombre de communications prévues et leur durée, ainsi que le nom, l'adresse complète, le numéro de téléphone, l'adresse courriel et les autres coordonnées de l'organisateur. Ces sessions complémentaires seront intégrées aux autres sessions du programme, dans des cases horaires prévues à cet effet par le directeur de la Réunion. Toutes les sessions seront annoncées dans les Notes de la SMC, sur le site Web et, si possible, dans le Notices de l'AMS et les publications d'autres sociétés. Les conférenciers de ces sessions complémentaires devront présenter un résumé qui sera publié sur le site Web et dans le programme de la Réunion. Toute personne qui souhaiterait organiser une session est priée de faire parvenir une proposition au directeur de la Réunion avant la date limite indiquée ci-dessous.

Deadline: December 21, 2007
Date limite : 21 décembre, 2007

Meeting Director / Directeur de la Réunion :
Matthias Neufang
School of Mathematics and Statistics
4364 Herzberg Laboratories
Carleton University
Ottawa, Ontario, K1S 5B6 Canada
Email: mneufang@math.carleton.ca

The following invited (partially funded) sessions have been confirmed for this conference:
Les sessions suivantes (partiellement subventionnées) ont été confirmées :

Applied Partial Differential Equations
Equations différentielles partielles appliquées
Org: D. Amundsen, L. Campbell (Carleton), F. Poulin (Waterloo)

Dynamics of Large Groups and Semigroups
Dynamique des groupes infini-dimensionnels et des semigroupes
Org: Alica Miller (Louisville), Vladimir Pestov (Ottawa)

Geometric Group Theory
Théorie Géométrique des Groupes
Org: Inna Bumagin (Carleton), Benjamin Steinberg (Carleton)

Infinite-Dimensional Lie Theory
Théorie infini-dimensionnelle de Lie
Org: Yuly Billig (Carleton), Alistair Savage (Ottawa)

Operator Algebras
Algèbres d'opérateurs
Org: Benoit Collins (Ottawa), Thierry Giordano (Ottawa)

Probability
Probabilité
Org: Antal Jarai (Carleton), Yiqiang Zhao (Carleton)

CALL FOR NOMINATIONS
2008 David Borwein Distinguished Career Award

APPEL DE MISES EN CANDIDATURE
Prix David-Borwein de mathématicien émérite pour l'ensemble d'une carrière 2008

The David Borwein Distinguished Career Award recognizes mathematicians who have made exceptional, broad, and continued contributions to Canadian mathematics.

A complete nomination dossier consists of:
- A signed nomination statement from a present or past colleague, or collaborator (no more than three pages) having direct knowledge of the nominee's contribution;
- a short curriculum vitae, no more than five pages;
- Two to four letters of support in addition to the nomination;
- Other supporting material may be submitted, no more than 10 pages.

A nomination can be updated and will remain active for three years. Six copies of the complete nomination dossier must arrive at the CMS Executive Office no later than **November 15, 2007**.

Le prix David-Borwein de mathématicien émérite pour l'ensemble d'une carrière rend hommage à un mathématicien qui a fait une contribution exceptionnelle et soutenue aux mathématiques canadiennes.

Le dossier de candidature comprendra les éléments suivants :
- une lettre de mise en candidature signée par un collègue ou un collaborateur actuel ou des années passées (trois pages maximum) qui connaît très bien les réalisations de la personne proposée;
- un bref curriculum vitae, maximum de cinq pages;
- de deux à quatre lettres d'appui, en plus de la mise en candidature;
- tout autre document pertinent, maximum de 10 pages.

Toute mise en candidature est modifiable et demeurera active pendant trois ans. Le dossier complet, en six exemplaires, doit parvenir au bureau administratif de SMC au plus tard le **15 novembre 2007**.

Selection Committee / Comité de sélection
David Borwein Distinguished Career Award / Prix David Borwein pour carrière distinguée
Canadian Mathematical Society / Société mathématique du Canada
577 King Edward, Ottawa, Ontario K1N 6N5

MATHEMATICAL FINANCE

Applications are invited for one tenure-track appointment in the Department of Mathematics and Statistics at the Assistant Professor level in the area of Mathematical Finance to commence July 1, 2008. The successful candidate must have a Ph.D. in hand or near completion (expected in 2008), a proven record of independent research excellence, and superior teaching ability. Preference will be given to candidates who can strengthen existing areas of present and ongoing research activity. The successful candidate must be eligible for prompt appointment to the Faculty of Graduate Studies.

Applications must be received by **January 15, 2008**. Applicants should send resumes and arrange for three signed letters of recommendation (one of which should address teaching) to be sent directly to:

Mathematical Finance Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3

E-mail: **finance.recruit@mathstat.yorku.ca**, Website: **www.math.yorku.ca/Hiring**

All positions at York are subject to budgetary approval.

York University is an Affirmative Action Employer. The Affirmative Action Program can be found on York's website at 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.

CATEGORY THEORY AND ITS APPLICATIONS

Applications are invited for one tenure-track appointment at the Assistant Professor level in the Department of Mathematics and Statistics to commence July 1, 2008. Candidates in the area of Category Theory and its applications to mathematics, computer science or physics will be considered. The successful candidate must have a Ph.D. in hand or near completion (expected in 2008), a proven record of independent research excellence, and superior teaching ability. The successful candidate must be eligible for prompt appointment to the Faculty of Graduate Studies. Preference will be given to candidates who can strengthen existing areas of present and ongoing research activity.

Applications must be received by **January 15, 2008**. Applicants should send resumes and arrange for three signed letters of recommendation (one of which should address teaching) to be sent directly to:

Pure Mathematics Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3

E-mail: **puremath.recruit@mathstat.yorku.ca**, Website: **www.math.yorku.ca/Hiring**

All positions at York are subject to budgetary approval.

York University is an Affirmative Action Employer. The Affirmative Action Program can be found on York's website at 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.

CALL FOR NOMINATIONS - 2008 DOCTORAL PRIZE
APPEL DE MISES EN CANDIDATURE - PRIX DE DOCTORAT 2008

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 dipôme 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 additionelle (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 2008**.

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, 2008**.

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

the Canadian dollar and the US dollar has all but vanished. The CMS strives to price its publications so they are affordable to the widest possible audience and any significant increase in prices would put additional pressure on libraries and result in some loss of revenue.

The CMS makes every effort to keep costs as low as possible not only for accommodation rates but meeting space rental and other direct expenses. It is becoming common for hotel conference rates to be less than those charged by universities. Thus, the working assumption that it is less expensive to hold a meeting on a university campus is no longer valid.

Hotels offer meeting space at no charge provided a sufficient number of delegates stay at the hotel. Unfortunately, if the number of delegates staying at the designated hotels fall below the levels agreed to by contract, the Society is faced with paying significant additional charges for session and plenary meeting rooms.

CMS meetings are hosted by a local university but the work involved now makes it difficult for this to be done solely by local faculty in addition to their other duties. Hence, the CMS Executive Office has had to assume more and more work that used to be done on a volunteer basis.

The Choices

It is certainly desirable to have as many delegates as possible attend each meeting. A strong and varied scientific program is *the* prime factor in attracting speakers and delegates. This makes for a better meeting, and also generates revenue. But it is difficult to imagine that the CMS can attract significantly more delegates to its meetings. Some of the services provided could be eliminated but the impact on the deficit would not be significant. Meetings do garner some support from the publishers who attend but there does not seem to be much room for this support to expand given the typical number of delegates at a CMS meeting. Sponsorships represent yet another approach.

The possibility of only having one meeting per year (June or December) has been considered but the view of members is that two meetings per year are essential for the overall health of Canada's mathematical community.

Another option is to have meeting registration fees reflect the actual costs involved for the meeting. *It is likely this would result in a doubling of the current fees.* Many members have stated that they find the fees high already, but the simple fact is that the current fees do not cover the cost of our meetings.[2] So, higher registration fees may result in lower participation rates for CMS meetings.

We welcome feedback from members on the current situation and any suggestions the CMS might consider. For those members who will be attending the 2007 Winter Meeting in London in December we look forward to talking with you about the best way for the CMS to address this serious situation.

Graham Wright   David Rodgers
Executive Director   Treasurer

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2 For 2008, the registration fees being proposed for the summer and winter meetings are at the same level as for recent meetings.

EMPLOYMENT OPPORTUNITY

Hilton Hotel, London (Ontario)
December 8-10 décembre
Host / Hôte : University of Western Ontario

On behalf of the University of Western Ontario, the Department of Mathematics invites the mathematical community to the CMS Winter 2007 Meeting. The program will include plenary and prize lectures, and a wide variety of sessions, including a contributed paper session.

Au nom de l'Université Western Ontario, le Département de mathématiques invite la communauté mathématique à la Réunion d'hiver 2007 de la Société mathématique du Canada (SMC). Au programme : des conférenciers pléniers et des conférences de lauréats, ainsi qu'une grande diversité de sessions, y compris une session de communications libres.

Prizes and Awards / Prix

Prix Coxeter-James Prize
Vinayak Vastal (University of British Columbia)

Prix de doctorat / Doctoral Prize
Lap Chi Lau (Chinese University of Hong Kong)

Prix Adrien Pouliot Prize
Richard Nowakowski (Dalhousie University)

Prix G. de B. Robinson Award
to be announced / à venir

Plenary Speakers / Conférenciers pléniers

Erich Kaltofen (North Carolina State)
Mikhail Kapranov (Yale)
Blaine Lawson (SUNY/Stony Brook)
Giovanni Landi (Trieste)
Seth Lloyd (MIT)
Otmar Venjakob (Heidelberg)
Marcelo C. Borba (UNESP - São Paulo at Rio Claro)

All activities and scientific talks will be held at the Hilton Hotel and the Delta Armories Hotel.

For the most up-to-date information concerning the program, detailed schedules, registration forms and abstract submission forms, please visit the meeting website at www.cms.math.ca/Events/.

Toutes les activités, y compris celles du programme scientifique, se dérouleront à l'hôtel Hilton et au Delta Armories.

Vous trouverez l'information la plus récente sur les programmes, y compris les horaires détaillés, les formulaires d'inscription et les formulaires électroniques pour l'envoi des résumés au www.smc.math.ca/Events/f.

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.

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.

le Centre de Recherches Mathématiques
The Fields Institute
MITACS
Pacific Institute for the Mathematical Sciences
University of Western Ontario
- Department of Mathematics
- Faculty of Education
- Faculty of Science
- Research Western
- Department of Applied Mathematics
Lethbridge University

Meeting Director / Directeur de la réunion :
Dr. J.F. Jardine (Western)

Chair, Local Arrangements / Logistique locale :
Dr. David Riley (Western)

University of Lethbridge and the Canadian Mathematical Society establish the Jiping (Jim) Liu Memorial Travel Fund

To honour Dr. Liu's contributions to the University of Lethbridge and to continue his legacy of learning and love of education, the University and the CMS have established the **Jiping (Jim) Liu Memorial Travel Fund** to support the travel costs of graduate students to attend CMS annual winter meetings.

For 2007, the Fund will help to support graduate students attending the CMS Annual Winter Meeting which will be held in London, Ontario from December 8-10, 2007.

To apply for funds, please visit www.cms.math.ca/Events/winter07b/student_subsidy

L'Université de Lethbridge et la Société mathématique du Canada créent le Fonds de voyage commémoratif Jiping (Jim) Liu

En hommage à la contribution du professeur Liu à l'Université de Lethbridge, à l'importance qu'il accordait à l'apprentissage et à son amour de l'éducation, l'Université et la SMC s'unissent pour créer le **Fonds de voyage commémoratif Jiping (Jim) Liu**, destiné à favoriser la participation des étudiants des cycles supérieurs aux Réunions d'hiver annuelles de la SMC au moyen de subventions de voyage.

En 2007, le fonds aidera des étudiants des cycles supérieurs à se rendre à la Réunion d'hiver annuelle de la SMC qui se tiendra à London, en Ontario, du 8 au 10 décembre 2007.

Pour faire une demande de subvention, consultez le www.cms.math.ca/Reunions/hiver07/student_subsidy

SESSIONS

Algebraic Combinatorics, Representations and Geometry
Combinatoire algébrique, représentations et géométrie
Org: Lex Renner (Western), Benjamin Steinberg (Carleton)

Marcelo Aguiar (Texas A&M), Mahir Can (Western), Vlastimil Dlab (Carleton), John Fountain (York, UK), Eddy Godelle (Caen), Christophe Hohlweg (UQAM), Zhenheng Li (South Carolina), Zhuo Li (Xiangtan University, China), Martin Malandro (Dartmouth), Claus Mokler (Wuppertal), Franco Saliola (UQAM), Hugh Thomas (UNB), Hamid Usefi (UBC), Steven Wang (Carleton).

Algebraic Stacks
Champs algèbriques
Org: Ajneet Dhillon (Western)

Jarod Alper (Stanford), Arend Bayer (Utah), Renzo Cavalieri (Michigan), Mike Fried (California-Irvine), Yufeng Jiang (UBC), Kiumars Kaveh (Toronto), Daniel Krashen (Yale), Manish Kumar (Purdue), Suresh Nayak (Chennai Mathematical Institute), Behrang Noohi (Florida State), Pramath Sastry (East Carolina), Greg Smith (Queen's), Razvan Veliche (Utah).

Algorithmic Challenges in Polynomial and Linear Algebra
Défis algorithmiques dans l'algèbre polynomiale et l'algèbre linéaire
Org: Stephen Watt (Western)

Carlos Beltran (Toronto), Jon Borwein (Dalhousie), Jacques Carette (McMaster), Wayne Eberly (Calgary), William M. Farmer (McMaster), Mark Giesbrecht (Waterloo), Michael Jacobson (Calgary), Ilias Kotsireas (Wilfrid Laurier), George Labahn (Waterloo), Songxin Liang (Waterloo), John May (Maplesoft), Marc Moreno-Maza (Waterloo), Eric Schost (Waterloo), Arne Storjohann (Waterloo), Yuzhen Xie (Waterloo).

Calculus of Variations in Physics, Geometry and Economics
Calcul des variations, géométrie et économie
Org: Robert McCann (Toronto), Benjamin Stephens (Toronto)

Almut Burchard (Toronto), Adrian Butscher (Stanford), Albert Chau (UBC), Alessio Figalli (Pisa), Ailana Fraser (UBC), Yuxin Ge (Paris XII; Washington), Nassif Ghoussoub (UBC), Marc Henry (Montreal), Young-Heon Kim (Toronto), Abdeslem Lyaghfouri (Toronto), Abbas Moameni (Queen's), Santiago Moreno (UBC), Truyen Nguyen (Akron), Alexander Shnirelman (Concordia), Alina Stancu (Concordia), Dennis The (McGill), Maxim Trokhimtchouk (Berkeley).

Combinatorics and its Applications to Mathematical Physics
Combinatoires et ses applications en physique mathématique
Org: Michael Gekhtman (Notre Dame), Michael Shapiro (Michigan State)

Renzo Cavalieri (Michigan), Leonid Chekhov (Steklov Mathematical Institute, Moscow), Shaun Fallat (Regina), Anna

Felikson (Moscow Independent University), Sergei Fomin (Michigan), Christof Geiss (UNAM, Mexico), Ian Goulden (Waterloo), David Jackson (Waterloo), Peter Magyar (Michigan State), Bruce Sagan (Michigan State), Mark Skandera (Lehigh), John Stembridge (Michigan), Ravi Vakil (Stanford), Dave Wagner (Waterloo).

Complex Analytic Geometry
Géométrie analytique complexe
Org: Tatyana Foth (Western), Finnur Larusson (Adelaide), Rasul Shafikov (Western)

Janusz Adamus (Western), Edward Bierstone (Toronto), Alexander Brudnyi (Calgary), Debraj Chakrabarti (Western), Peter Ebenfelt (UCSD), Xianghong Gong (Wisconsin), Jaehong Kim (Purdue), Damir Kinzebulatov (Toronto), H. Blaine Lawson (SUNY Stony Brook), Jiri Lebl (UIUC), Laszlo Lempert (Purdue), Eugene Poletsky (Syracuse), Sophia Vassiliadou (Georgetown).

Error Control Codes, Information Theory and Applied Cryptography
Codes de contrôle d'erreurs, théorie de l'information et cryptographie appliquée
Org: Aiden Bruen (Calgary), David Wehlau (Queen's and RMC)

Tim Alderson (UNB), Elwyn Berlekamp (Berkeley), Richard Blahut (Illinois), Aiden Bruen (Calgary), Keldon Drudge (prism valuations, Toronto), Peter Dukes (Victoria), Vincent Gaudet (Alberta), Martin Hassner (IBM Hitachi, San José), Olof Heden (Royal Inst. of Technology, Stockholm), Peter Lisonek (SFU), Vassily Mavron (Wales-Aberysthwyth), Jim McQuillan (Western Illinois), Michele Mosca (Waterloo), Aidan Roy (Calgary), Christian Schlegel (Alberta), Claude Tardif (RMC), Dmitry Trukachev (Alberta), David Wehlau (RMC), Shuai Zhang (Alberta).

Graph Theory
Théorie des graphes
Org: Sebastian Cioaba (UC-San Diego), Stephen Kirkland (Regina), Claude Tardif (RMC)

Andrea Burgess (Ottawa), Steve Butler (UC San Diego), Sebastian Cioaba (UC San Diego), Danny Dyer (Memorial), Randy Elzinga (Queen's), Steve Kirkland (Regina), Cynthia Loten (Fraser Valley), Gary MacGillivray (Victoria), Odile Marcotte (UQAM), Dan McQuillan (Norwich), Karen Meagher (Regina), Wendy Myrvold (Victoria), Hamed Shirazi (Waterloo), Claude Tardif (Royal Military College).

History and Philosophy of Mathematics
Histoire et philosophie des mathématiques
Org: Tom Archibald (SFU), Deborah Kent (Hillsdale College)

Tom Archibald (SFU), John Bell (Western), David Bellhouse (Western), James Brown (Toronto), Robert Dawson (St. Mary's), Alexander Jones (Toronto), Deborah Kent (Hillsdale College), Glen van Brummelen (Quest University).

Homotopy Theory
Théorie de l'homotopie
Org: Kristine Bauer (Calgary)

Sunil Chebolu A (Western), Kristine Bauer (Calgary), Julia Bergner (Kansas), Sunil Chebolu B (Western), Dan Christensen (Western), Fred Cohen (Rochester), Veronique Godin (Harvard), Izak Grgruric (UBC), Dan Isaksen (Wayne State), Rick Jardine (Western), Brenda Johnson (Union College), Keith Johnson (Dalhousie), Jack Morava (Johns Hopkins), Hugo Rodriguez Ordonez (Regina), Paul Pearson (Rochester), Kate Ponto (Chicago), Dorette Pronk (Dalhousie), Laura Scull (UBC), Don Stanley (Regina), Enrique Torres (UBC), Tian Yang (Rutgers), Peter Zvengrowski (Calgary).

Iwasawa Theory
Théorie d' Iwasawa
Org: Manfred Kolster, Romyar Sharifi (McMaster)

Mahesh Agarwal (McMaster), Ben Howard (Boston College), Adrian Iovita (Concordia), Jennifer Johnson-Leung (Idaho), Byoung-du Kim (Northwestern), Kumar Murty (Toronto), Jeehoon Park (McGill), Al Weiss (Alberta), Bei Zhang (Columbia).

Mathematical Applications of Category Theory
Applications mathématiques de la théorie des catégories
Org: F. William Lawvere (SUNY-Buffalo), Walter Tholen (York)

Bernard Badzioch (Buffalo), Michael Barr (McGill), John Bell (Western), Marta Bunge (McGill), Jonathon Funk (West Indies), Gabor Lukacs (Manitoba), Ernie Manes (Massachusetts), Philip Mulry (Colgate University), Susan Niefield (Union College), Robert Pare (Dalhousie), Dorette Pronk (Dalhousie), Bob Rosebrugh (Mount Allison), Myles Tierney (UQAM), Richard Wood (Dalhousie)

Mathematical Imagination
Imagination mathématique
Org: George Gadanidis (Western)

Bernard Badzioch (Buffalo), Michael Barr (McGill), John Bell (Western), Marta Bunge (McGill), Jonathon Funk (West Indies), Gabor Lukacs (Manitoba), Ernie Manes (Massachusetts), Matias Menni (Universidad Nacional de La Plata), Philip Mulry (Colgate University), Susan Niefield (Union College), Robert Pare (Dalhousie), Dorette Pronk (Dalhousie), Bob Rosebrugh (Mount Allison), Myles Tierney (UQAM), Richard Wood (Dalhousie).
Panel Discussion moderated by F. William Lawvere.
Presenters: Robert Bilinski (Collège Montmorency), Michelle Cordy (Thames Valley District School Board), Stewart Craven (Toronto District School Board), William Higginson (Queen's), John Kezys (Mohawk College), Donna Kotsopoulos (Wilfrid Laurier)
Panelists: William Higginson (Queen's), Donna Kotsopoulos (Wilfrid Laurier), Peter Taylor (Queen's), Immaculate Namukasa (Western)
Performances: *Calculus: The Musical!* by Sadie Bowman & Mark Guzman, Matheatre; *Math-e-Motion* by Stewart Craven (Toronto District School Board); *Math Imagination Musical Performance* by George Gadanidis (Western), Daryn Bee (Western), Jenna Bee and friends.

Mathematics of Finance
Finance mathématique
Org: Matt Davison (Western), Rogemar Mamon (Western), Mark Reesor (Western)

Alex Badescu (Calgary), Dave Bolder (Bank of Canada), Abel Cadenillas (Alberta), Joe Campolieti (Wilfrid Laurier), Matt Davison (Western), Keldon Drudge (Prism Valuation, Waterloo), Marcos Escobar-Anel (Ryerson), Matheus Grasselli (McMaster), Jeremy Graveline (Minnesota), Tom Hurd (McMaster), Cody Hyndman (Concordia), Sebastian Jaimungal (Toronto), Madhu Kalimipalli (Wilfrid Laurier), Valery Kholodnyi (Platts Ltd.), Adam Kolkowiecz (Waterloo), Hua Li (Calgary), Roman Makarov (Wilfrid Laurier), Dave Saunders (Waterloo), Luis Seco (Toronto), Anatoliy Swishchuk (Calgary), Matt Thompson (Queen's), Ken Vetzal (Waterloo), Xikui Wang (Manitoba).

Non-Commutative Geometry
Géométrie non commutative
Org: Masoud Khalkhali (Western)

Katia Consani (Johns Hopkins), George Elliott (Toronto), Heath Emerson (Victoria), Sasha Gorokhovsky (Boulder), Li Guo (Rutgers), Piotr Hajac (Warsaw, Poland), Nigel Higson (Penn State), Jerry Kaminker (Davis), Atabey Kaygun (Columbus), Marcelo Laca (Victoria), Gianni Landi (Trieste), Hanfeng Li (Buffalo), Snigdhayan Mahanta (Fields Institute), Henri Moscovici (Columbus), John Phillips (Victoria), Raphael Ponge (Toronto), Ian Putnam (Victoria), John Roe (Penn State), Claude Schochet (Wayne State), Xiang Tang (St. Louis).

Nonlinear Wave Equations and Applications
Équations d'ondes non linéaires et leurs applications
Org: Walter Craig (McMaster), Catherine Sulem (Toronto)

Stephen Anco (Brock), Oliver Diaz-Espinosa (McMaster), Clement Gallo (McMaster), Jiansheng Geng (McMaster ; Nanjing), Philippe Guyenne (Delaware), Konstantin Khanin (Toronto), David Lannes (Bordeaux), Jeremy Quastel (Toronto).

Quantum Information Theory in Quantum Gravity
Théorie de l'information quantique en gravité quantique
Org: David Kribs (Guelph), Fotini Markopoulou (Perimeter Institute)

Cedric Beny (Waterloo), Louis Kauffman (Illinois-Chicago), Achim Kempf (Waterloo), Robert Martin (Waterloo).

Contributed Papers
Communications libres
Org: Tatyana Foth (Western)

UQAM, Montréal (Québec)
June 1-6 juin

Prix / Prizes and Awards

Prix Cecil Graham pour thèse de doctorat de la SCMAI / CAIMS Cecil Graham Doctoral Dissertation Award

Prix de recherche de la SCMAI / CAIMS Research Prize

Prix d'excellence en enseignement de la SMC / CMS Excellence in Teaching Award

Prix Krieger-Nelson de la SMC / CMS Krieger-Nelson Prize - Izabella Laba (UBC)

Conférence Jeffery-Williams de la SMC / CMS Jeffery-Williams Prize - Martin Barlow (UBC)

Prix étudiants du Réseau MITACS / MITACS Student Awards

Prix du concours de présentations par affiches de MITACS / MITACS Poster Competition Prizes

Conférenciers pléniers / Plenary Speakers

Yves André (CNRS-ENS, Paris)
Olivier Biquard (Strasbourg)
Luc Devroye (McGill)
Andrew Granville (Montréal)
Alice Guionnet (CNRS-ENS, Lyon)
Rick Kenyon (UBC)
Gérard Laumon (CNRS-Orsay)
Mary Pugh (Toronto)
Eric Sere (Paris-Dauphine)
Nicole Tomczak-Jaegermann (Alberta)
Nizar Touzi (CREST-Paris)
Jianhong Wu (York)

Conférence populaire / Public Lecture

Yvan Saint-Aubin (Montréal)

Sessions

Combinatoire algébrique / Algebraic Combinatorics
Org: Christophe Hohlweg (Fields Institute) and Franco Saliola (UQAM)

Groupes algébriques et sujets reliés / Algebraic Groups and Related Topics
Org: Phillippe Gille (Paris-Sud), Zinovy Reichstein (UBC)

Topologie algébrique / Algebraic Topology
Org: Alejandro Adem (UBC), Bob Oliver (Paris XIII)

Théorie analytique des nombres / Analytic Number Theory
Org: Philippe Michel (Montpellier), Ram Murty (Queen's)

Géométrie arithmétique et théorie des nombres Arithmetic Geometry and Number Theory
Org: Gaëtan Chenevier (CNRS-ENS, Paris), Henri Darmon (McGill)

Formes automorphes / Automorphic Forms
Org: Stephen Kudla (Toronto), Colette Moeglin (CNRS-IMJ)

Lois d'échelle critiques pour polymères et percolation Critical Scaling for Polymers and Percolation
Org: Edwin Perkins (UBC), Wendelin Werner (Paris Orsay)

Analyse complexe et théorie des opérateurs / Complex Analysis and Operator Theory
Org: Emmanuel Fricain (Lyon), Javad Mashreghi (Laval) and Thomas Ransford (Laval)

Systèmes dynamiques complexes / Complex Dynamical Systems
Org: Xavier Buff (Toulouse), Misha Lyubich (Toronto), Tan Lei (Cergy-Pontoise)

Mathématiques financières / Financial Mathematics
Org: Nizar Touzi (CREST-Paris), Thomas Salisbury (York)

Analyse géométrique et nonlinéaire / Geometric and Nonlinear Analysis
Org: Pengfei Guan (McGill), Emmanuel Hebey (Cergy)

Mécanique des fluides industrielle / Industrial Fluid Mechanics
Org: Neil Balmforth (UBC), Jean Frédéric Gerbeau (INRIA), Bertrand Maury (Paris Orsay)

Méthodes cinétiques en EDP / Kinetic Methods in Partial Differential Equations
Org: François Castella (Rennes), Reinhard Illner (Victoria)

Éducation Mathématique / Mathematics Education
Org: Michèle Artigue (Paris), Bernard Hodgson (Laval)

Théorie des modèles et applications à la géométrie Model Theory and Applications to Geometry
Org: Zoé Chatzidakis (CNRS), Patrick Speissegger (McMaster)

Géométrie non commutative et K-théorie pour algèbres d'opérateurs / Non-Commutative Geometry and K-Theory for Operator Algebras
Org: Alain Connes (Collège de France-IHES), George Elliott (Toronto)

Dynamique nonlinéaire dans les sciences de la vie Nonlinear Dynamics in Life Sciences
Org: Jacques Bélair (Montréal), Pascal Chossat (CIRM-Marseille), Fahima Nekka (Montréal), Jianhong Wu (York)

Analyse numérique des systèmes hyperboliques Numerical Analysis for Hyperbolic Systems
Org: Marc Laforest (École Polytechnique de Montréal) and Emmanuel Lorin (Paris-Sud XI)

Équations aux dérivées partielles / Partial Differential Equations
Org: Henri Berestycki (Paris), Robert Jerrard (Toronto)

Théorie des probabilités / Probability Theory
Org: Martin Barlow (UBC), J.F. Le Gall (Paris XI-ENS)

Calcul scientifique / Scientific Computing
Org: Christine Bernardi (CNRS-Paris VI), Anne Bourlioux (Montréal), Bryan Wetton (UBC)

Théorie des ensembles et ses applications / Set Theory and its Applications
Org: Alain Louveau (Paris VI) and Stevo Todorcevic (Toronto; Paris Dauphine)

Statistique / Statistics
Org: Yannick Baraud (Nice), Boris Levit (Queen's)

Processus stochastiques en évolution, écologie et génétique / Stochastic Processes in Evolution, Ecology and Genetics
Org: Donald Dawson (Carleton), Sylvie Méléard (Ecole Polytechnique-Paris X)

Topologie symplectique et de contact / Symplectic and Contact Topology
Org: Emmanuel Giroux (CNRS-ENS Lyon), Yael Karshon (Toronto)

Topologie, noeuds et sujets reliés / Topology, Knots and Related Fields
Org: Michel Boileau (Toulouse), Stephen Boyer (UQAM)

Méthodes variationnelles et numériques en géométrie, physique et chimie / Variational and Numerical Methods in Geometry, Physics and Chemistry
Org: Lia Bronsard (McMaster), Eric Cances (ENPC), Maria Esteban (CNRS - Paris-Dauphine)

Femmes en mathématiques / Women in Mathematics
Org: Barbara Keyfitz (Fields), Marie-Françoise Roy (Rennes)

Directeurs scientifiques du Congrès / Scientific Directors:
Octav Cornea (Montréal), Nassif Ghoussoub (UBC), François Loeser (École normale supérieure)

Comité scientifique / Scientific Committee:
Jean-Pierre Bourguignon (Institut des Hautes Études Scientifiques)
Étienne Ghys (ENS, Lyon)
Arvind Gupta (SFU and MITACS)
Barbara Keyfitz (Fields and Houston)
François Lalonde (CRM and Montréal)
William F. Langford (Guelph)
Claude Le Bris (École nationale des Ponts et Chaussées)
Etienne Pardoux (Université de Provence)
Gilles Pisier (Paris VII)
Christiane Rousseau (Montréal)

Mots du trésorier et du directeur administratif
par David Rodgers et Graham P. Wright
trésorier   directeur administratif

FINANCEMENT DES RÉUNIONS DE LA SMC

La SMC aura des décisions difficiles à prendre si elle souhaite maintenir ses Réunions semestrielles, généralement considérées comme l'une de ses principales activités. En effet, la Société prévoit terminer l'année 2007 avec un imposant déficit au budget de fonctionnement *général*. Ne parvenant plus à absorber les déficits, la Société doit trouver des moyens d'accroître ses revenus de façon appréciable ou de réduire ses dépenses.

Pour l'instant, les droits d'inscription, les subventions et les dons affectés aux Réunions couvrent amplement les coûts *directs* de ces rencontres (dépenses des conférenciers, aide aux étudiants diplômés, location de salles, matériel audiovisuel et autre, impression, fournitures, repas, etc.). On estime que les *coûts directs* des deux Réunions de 2007 s'élèveront à 261 895 $. Les revenus tirés des Réunions ne couvrent toutefois pas les frais administratifs associés à ces rencontres [salaires des employés du bureau administratif et frais administratifs directement associés à l'organisation des Réunions – avant et après – ainsi que le coût des services électroniques relatifs aux Réunions].

En 2007, on estime que les frais administratifs liés aux deux Réunions se chiffreront à 152 155 $. Ces frais sont payables à même les autres revenus de la SMC. Ce ne sont pas là de nouveaux frais : ils s'élevaient à 144 170 $ en 2006 et à 64 648 $ en 2005. Si l'on tient compte des frais directs et administratifs des deux rencontres, le *déficit* des Réunions d'été et d'hiver 2006 est de 202,20 $ par participant[1]. Les revenus provenant des autres activités de la Société ne suffisent pas à combler ce déficit.

De nombreuses associations organisent leurs congrès de manière à ce qu'elles génèrent un surplus qui sert à financer d'autres activités. Pour ce faire, elles demandent souvent des droits d'inscription beaucoup plus élevés (par ex., les membres paient jusqu'à 450 $ aux congrès de la SSC, et 475 $ à ceux de la SIAM), elles accueillent un très grand nombre de participants (3 000 ou plus) ou elles éliminent certains des services habituellement offerts lors des Réunions de la SMC. Certaines sociétés tiennent de nombreuses rencontres régionales plus modestes, mais elles ont les moyens de ne pas récupérer les frais administratifs afférents, déjà couverts par un très grand congrès annuel.

Les bonnes nouvelles

Les Réunions semestrielles de la SMC des dernières années ont connu un franc succès à de nombreux égards. Le nombre de sessions spéciales a augmenté considérablement, ce qui a attiré un grand nombre de participants. La Réunion d'hiver 2007 (London) accueillera 10 conférences principales et de lauréats, 17 sessions spéciales et plus de 450 participants. C'est là une situation bien différente d'il y à peine dix ans : nous présentions alors 6 sessions et accueillions moins de 200 personnes par Réunion.

En outre, la SMC a commencé à tenir certains de ses congrès en conjonction avec ceux d'autres sociétés et du Réseau MITACS. La Réunion d'été 2007 tenue à Winnipeg était une réunion conjointe SMC/MITACS. En 2008 se tiendra le deuxième *Congrès Canada-France* associé à un congrès conjoint auquel participeront la SMC, la *Société canadienne de mathématiques appliquées et industrielles*, le *Centre de recherches mathématiques*, l'*Institut Fields*, l'*Institut des sciences mathématiques*, le *Réseau MITACS*, l'*Institut du Pacifique pour les sciences mathématiques*, la *Société de mathématiques appliquées et industrielles*, la *Société mathématique de France* et l'*Université du Québec à Montréal*. La deuxième Réunion *SMC/Société mexicaine de mathématiques* se tiendra quant à elle à Vancouver en août 2009.

D'autres propositions de congrès en collaboration avec d'autres sociétés mathématiques ont aussi été lancées pour les prochaines années.

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1   Mentionnons que les dépenses associées aux réunions de travail de la SMC ne sont pas comprises dans ces chiffres, mais qu'elles proviennent d'autres sources.

Director of the Cryptologic Research Institute

Applications are invited for the position of **Director of the Cryptologic Research Institute (CRI)**, a new research institute of the Communications Security Establishment (CSE) to be located in Ottawa, Ontario, Canada. The aim of the CRI is to bring together talented mathematicians from various disciplines to conduct fundamental research in areas of mathematics of interest to CSE.

The Director of the CRI will:

1. help recruit and then lead a team of about 25-50 academic and government staff;
2. provide a strong and innovative vision for the future growth of the CRI; and
3. liaise with other research organizations.

A successful candidate will have:

1. a proven ability to lead and inspire research groups;
2. a world renowned reputation in some aspect of mathematics, statistics, or data mining;
3. visibility within, and respect of, the mathematical community;
4. administrative experience at least equivalent to chairing a mathematical department; and
5. strong interpersonal skills.

The position is for a 3-year fixed term, running from September 2008 to September 2011, with some part time involvement from April 2008 to September 2008.

A detailed description of the Director position can be obtained by contacting Dr. Drew Vandeth at **Drew.Vandeth@cse-cst.gc.ca**.

Applicants must have Canadian, British, or American citizenship and be able to obtain a security clearance.

Please communicate interest in this position to Drew.Vandeth@cse-cst.gc.ca. Applications will receive fullest consideration if received by December 1st, 2007 and applications will remain open until the position is filled. The Communications Security Establishment subscribes to employment equity.

Directeur(trice) de l'Institut de recherche cryptologique

Nous acceptons les candidatures pour le poste de **directeur ou directrice de l'Institut de recherche cryptologique (IRC)**, le nouvel institut de recherche du Centre de la sécurité des télécommunications (CST) qui ouvrira ses portes à Ottawa, en Ontario (Canada). L'IRC a pour objectif de rassembler des mathématiciens de talent de diverses spécialités qui effectueront de la recherche fondamentale en mathématiques dans des domaines d'intérêt pour le CST.

Le directeur ou la directrice de l'IRC aura les tâches suivantes :
1. aider à recruter environ 25-50 universitaires ou employés du gouvernement, puis diriger cette équipe;
2. offrir une vision neuve et solide pour assurer la croissance de l'IRC dans l'avenir;
3. assurer la liaison avec d'autres organismes de recherche.

Le candidat ou la candidate idéal(e) aura les qualités suivantes :
1. capacité indiscutable de diriger et d'inspirer les groupes de recherche;
2. renommée internationale dans le domaine des mathématiques, des statistiques ou de l'exploration de données;
3. présence au sein de la communauté mathématique et respect de cette communauté;
4. expérience administrative équivalant au minimum à la direction d'un département de mathématiques;
5. grandes aptitudes interpersonnelles.

Ce poste est à durée déterminée pour trois ans ferme, allant de septembre 2008 à septembre 2011. Le candidat ou la candidate retenu(e) devra également commencer à temps partiel entre avril et septembre 2008.

Vous pouvez vous procurer une description plus détaillée de ce poste auprès de Drew Vandeth, Ph. D. à l'adresse suivante : **Drew.Vandeth@cse-cst.gc.ca**.

Les candidats et candidates doivent avoir la citoyenneté canadienne, britannique ou américaine et être admissible à une habilitation de sécurité.

Veuillez nous faire part de votre intérêt pour ce poste à l'adresse suivante : Drew.Vandeth@cse-cst.gc.ca. Les candidatures reçues avant le 1er décembre 2007 feront l'objet d'un examen approfondi. Le concours sera ouvert jusqu'à ce que le poste soit doté. Le Centre de la sécurité des télécommunications souscrit au principe d'équité en matière d'emploi.

Mots du trésorier et du directeur administratif *continued*

La réaction des participants est très positive, non seulement pour ce qui est de l'excellente qualité du programme scientifique, mais aussi du lieu des rencontres et de la logistique. Le volet scientifique de nos Réunions fonctionne à merveille. Nous devons toutefois trouver une façon d'en assurer la viabilité financière.

Les difficultés

Il y a quelques années, les recettes provenant du taux de change entre le dollar canadien et le dollar américain et de notre programme de publications couvraient les déficits des Réunions de la SMC.

En 2007, le huard et le dollar américain sont pratiquement au pair. La SMC tient à maintenir ses publications à des prix abordables pour en assurer une large diffusion, et toute hausse appréciable alourdirait le fardeau des bibliothèques et entraînerait une baisse des recettes.

La SMC s'efforce constamment de réduire ses coûts (hébergement, location de salles et autres dépenses directes). Il est de moins en moins rare que les prix demandés par les hôtels soient inférieurs à ceux exigés par les universités pour l'organisation d'un congrès. On ne peut donc plus partir du principe qu'il coûte moins cher de tenir un congrès sur un campus que dans un hôtel.

Les hôtels offrent des salles de réunion gratuitement à condition qu'un nombre suffisant de participants réservent une chambre chez eux. Malheureusement, si le nombre de participants qui restent à l'hôtel est inférieur au nombre précisé dans le contrat, la Société doit payer des frais supplémentaires assez élevés pour tenir ses sessions spéciales et conférences plénières.

Même si ce sont des universités qui accueillent les Réunions de la SMC, la charge de travail est devenue telle que le corps professoral de l'université hôte ne parvient pas à tout faire seul, compte tenu de sa charge de travail habituelle. Le bureau administratif de la SMC absorbe ainsi une part de plus en plus grande du travail qui se faisait auparavant par des bénévoles.

Les choix

Il est certainement souhaitable d'accueillir le plus de participants possible à nos Réunions. La clé du succès auprès des conférenciers et des participants est sans contredit la grande qualité et la diversité de notre programme scientifique. C'est non seulement une garantie d'une rencontre de qualité supérieure, mais aussi de revenus plus élevés. Il est difficile d'imaginer que la SMC pourrait attirer beaucoup plus de participants qu'elle n'en attire déjà à ses Réunions. Il serait possible d'éliminer certains des services offerts, mais l'incidence sur le déficit serait négligeable. Les Réunions bénéficient par ailleurs d'un apport financier des maisons d'édition qui exposent, mais il ne semble pas y avoir place à l'expansion compte tenu du nombre habituel de participants à nos Réunions. Les commandites seraient une autre possibilité à envisager.

Nous avons également étudié la possibilité de tenir une seule Réunion par année (en juin ou en décembre), mais nos membres estiment que deux rencontres annuelles sont essentielles à la vitalité de la communauté mathématique canadienne.

Une autre option serait de relever les droits d'inscription au coût réel des Réunions. *Un tel choix pourrait avoir pour effet de doubler les droits actuels.* De nombreux membres ont mentionné que les droits étaient déjà assez élevés, mais il n'en reste pas moins que les droits actuels ne couvrent pas le coût des Réunions[2]. Ainsi, une hausse des droits d'inscription pourrait entraîner une baisse de la participation à nos Réunions.

Nous sollicitons vos commentaires et vos suggestions quant à la situation actuelle de la SMC. Nous aurons l'occasion de discuter avec ceux et celles d'entre vous qui participeront à la Réunion d'hiver 2007 à London en décembre de la façon dont la SMC pourrait se sortir de cette mauvaise posture.

David Rodgers
Trésorier

Graham Wright
Directeur administratif

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2   En 2008, les droits d'inscription proposés pour les Réunions d'été et d'hiver sont comparables à ceux des Réunions précédentes.

IMO 2007 REPORT: THROUGH THE EYES OF A DEPUTY LEADER

By Adrian Tang, University of Calgary

Seated comfortably watching his onboard movie, this Deputy Leader tried to catch some shut-eye before arriving in Hanoi, Vietnam for the 48th International Mathematical Olympiad (IMO). My past experience in flying told me that I was going to remain awake for the rest of this flight. My mind wandered back to the weeks of training that the team had endured. With alternating days of lectures, mock competitions, games of Mao and Mafia, mountain excursions and badminton, the team trained well and enjoyed the breathtaking view of the Rocky Mountains in Banff. While training we were joined by the Mexico IMO team. Through mathematics, hikes and soccer games, our Canadian team formed friendships with our Mexican counterpart. On a humourous note, a bet was made between the Canadian and the Mexican team as to which team will score higher at the IMO. If Canada wins, then Canada will win the famous sombreros from each of the Mexican team members. If Mexico wins, then Canada must relinquish its strong, brave and adorable mascot moose Canmoo to the Mexican team.

After two weeks of intense training, our six team members certainly deserved some rest. In fact, while this Deputy Leader tried to fight off the insomnia, the six team members were asleep, possibly dreaming of the IMO competition itself, possibly some medals and the experience that the country of Vietnam will bring to them. The six team members are **Kent Huynh** from University of Toronto Schools in Toronto, **Steven Karp** from Lord Byng Secondary School in Vancouver, **Alexander Remorov** from William Lyon Mackenzie Collegiate Institute in Toronto,

Yan (Cynthia) Li from Dr. Norman Bethune Collegiate Institute in Toronto, **Jarno Sun** from Western Canada High School in Calgary, and **Jonathan Schneider** from University of Toronto Schools in Toronto. For these students, it is their first IMO experience. As they soon discovered, the IMO experience is much more than the competition itself. It is a unique opportunity for the team to immerse themselves in a new culture and to engage in social activities with an international group of students. Our Deputy Observer this year is **Ms Minh-Lac Bui** from CP Rail

Back row: Jarno Sun, Kent Huynh, Steven Karp, Alexander Remorov, Jonathan Schneider and Yan (Cynthia) Li. Middle row: Bill Sands, Minh-Lac Bui and Adrian Tang. Front row: Canmoo

in Calgary. Her help at the training camp and help to converse in Vietnamese with Vietnam locals proved to be invaluable to the team. Our Team Leader is **Dr. Bill Sands** from the University of Calgary. He had already left for Hanoi a few days prior. As a Team Leader, he is part of the IMO Jury who will choose the six problems to appear in the IMO competition.

The training itself would not be possible without the aid of several external trainers. They travelled from various places to the training in Calgary and Banff to make their contributions to this year's team. Many thanks to Yufei Zhao (from MIT), Lily Yen (from Capilano College in Vancouver), Mogens Hansen (from Vancouver), Amir Amiraslani (from University of Calgary), Felix Recio (from University of Toronto), Rogelio Valdez Delgado (the Mexican Deputy Leader from Universidad Autónoma del Estado de Morelos), Alex Fink (from University of California, Berkeley), David Rhee (from University of Waterloo) and Ed Doolittle (from University of Regina). With many years of IMO experience and IMO medals amongst this elite list of trainers, the team certainly benefited from their knowledge, wisdom and experience. We trained at the University of Calgary for a few days with local students before moving to the beautiful Banff International Research Station (BIRS) where the students trained intensely but also basked themselves in the glorious mountain sceneries.

We arrived in Hanoi and met our tour guide at Hanoi International Airport. New visitors to South-East Asia soon felt their first experience of the summer humidity and the super-aggressive drivers. Hollers and screams echoed through the bus as scooter bikes around the bus turned and swerved in seemingly-suicidal manners that would get you arrested in Canada. Regardless, we saw the beautiful countryside in Vietnam en route to Hanoi and looked forward to experiencing Vietnam. Alas, the excursions had to wait. The competition was two days away. But if the students were nervous, they certainly didn't show it. Upon arriving at their hotel, the students were soon checked in, signed up for chess, badminton and volleyball tournaments and dipped into the hotel swimming pool. Our Canadian students showed why we are known to be one of the friendliest teams at the IMO.

The opening ceremony was very festive and colourful. From traditional Vietnamese dance performances to an appearance

and speech by Vietnam Prime Minister Nguyen Tan Dung, the IMO opening ceremony provided a fantastic introduction to the experience to come over the upcoming days. From a distance, standing in the upper balcony of the auditorium, was our Team Leader Dr. Bill Sands. The team waved enthusiastically at our Team Leader, knowing in the back of their minds that Day One of the competition is on the following day.

During Day One of the competition, the Deputy Leaders were taken on an excursion to the Museum of Ethnology and the Temple of Literature. The latter is a place where Vietnamese school students go to pray prior to an examination. Perhaps it is the IMO competitors rather than the Deputy Leaders that should visit here before the competition! I also wondered whether if by praying at the temple, I could send waves of ingenious insights to our Canadian team. I figured it couldn't hurt. I said my little prayer. We returned to the hotel, in anticipation of meeting our students. I was met with six bright smiles. Canada had a good Day One.

The first of three problems of the IMO was a nice algebra question where a solution can be found by doodling sequences of numbers until a pattern can be derived. The second problem was a neat geometry problem which can be solved by observing the Simson Line in the diagram. The third problem was an extremely difficult combinatorics problem. In fact, only 1 out of all 520 IMO participants received full marks on this problem. The problem is stated as follows:

> *In a mathematical competition some competitors are friends. Friendship is always mutual. Call a group of competitors a clique if each two of them are friends. (In particular, any group of fewer than two competitors is a clique.) The number of members of a clique is called its size.*
>
> *Given that, in this competition, the largest size of a clique is even, prove that the competitors can be arranged into two rooms such that the largest size of a clique contained in one room is the same as the largest size of a clique contained in the other room.*

Our students fared well on the first two problems but were unable to garner marks for Problem 3. Given the difficulty of this problem however, this was not surprising as any mark on this problem would have been a nice bonus for Canada. So did my prayer at the Temple of Literature work? I feel our students did just as well without it. But it was a worth a shot. The team laughed and enjoyed the rest of the day in anticipation of Day Two of the competition. Some spent time in the pool. Others went touring the streets of Hanoi, sightseeing, shopping and haggling

with the street vendors. Minh-Lac's language and haggling abilities got us some extremely good deals on clothing and accessories. For this, the team was very grateful. Five Canadian dollars for a nice shirt, anyone? Then again, the cost of living in Vietnam is very low compared to that of Canada. We enjoyed delicious filling meals for less than five Canadian dollars and actually had trouble spending all the money that we exchanged for our entire stay.

Day Two of the IMO proved to be difficult for Canada. Problem 4 was an easy geometry problem which was solved by all of our students. Problems 5 and 6 were extremely difficult number theory and algebra problems respectively. Despite the difficulty of Day Two of the IMO, Canada did well and I am very proud of every member of our team. They performed well and represented Canada admirably.

The Deputy Leaders soon joined the Leaders in Ha Long Bay, a spectucular seaside area of Vietnam away from Hanoi, to coordinate the six problems. (In fact, Ha Long Bay is to be named one of the seven World Natural Wonders.) Bill, Minh-Lac and I worked diligently for each problem, reading every word, diagram and Greek letter the students wrote to extract as many marks as we could. We smiled at the many beautiful solutions that our students wrote and chuckled at some of the silly (but not costly) mistakes that our students wrote during the last-minute and panicking moments in the four and a half hours of the IMO. Then again, mathematicians make much bigger mistakes in research papers written over four and a half years. So who are we to judge? The coordination went fairly smoothly and we truly felt we gave the students the maximum possible score.

At the closing ceremony, a silver medal was awarded to Alexander Remorov, bronze medals were awarded to Kent Huynh, Steven Karp and Yan Li and an honourable mention awarded to Jarno Sun. Canada placed 27th out of 93 countries. Given that this is every team member's first IMO experience, this is an excellent

Closing Ceremonies: Adrian Tang, Steven Karp, Alexander Remorov, , Jarno Sun, Kent Huynh, Yan (Cynthia) Li, Jonathan Schneider, Bill Sands and Minh-Lac Bui

result. Remember that friendly bet with Mexico? I am proud to say that Canada won the bet and each student came home wearing a sombrero. Most importantly, our mascot Canmoo remains safe with the Canadian IMO team.

On the final day, we said our farewell to Vietnam and returned to Canada. The students once again slept through their flight home while the Deputy Leader remained sleepless watching movies, ordering Cup Noodles and drifting into daydream. I looked around to see the sleeping students and thought about how well they performed, how well they represented Canada and their accomplishments. Four medals, one honourable mention, six

Do the Math
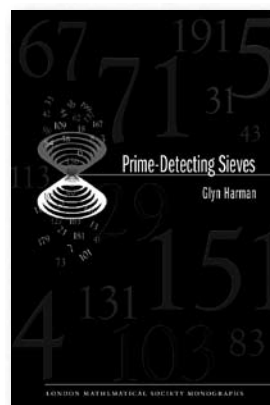
Prime-Detecting Sieves
Glyn Harman

This book seeks to describe the rapid development in recent decades of sieve methods able to detect prime numbers. No other book has undertaken such a systematic treatment of prime-detecting sieves. Among the many topics Glyn Harman covers are primes in short intervals, the greatest prime factor of the sequence of shifted primes, Goldbach numbers in short intervals, the distribution of Gaussian primes, and the recent work of John Friedlander and Iwaniec on primes that are a sum of a square and a fourth power, and Heath-Brown's work on primes represented as a cube plus twice a cube. This book contains much that is accessible to beginning graduate students, yet also provides insights that will benefit established researchers.
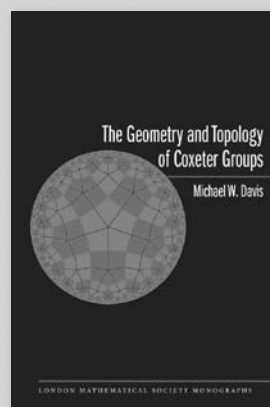
The Geometry and Topology of Coxeter Groups
Michael W. Davis

"For years to come mathematicians will be writing 'terminology and notation follow Davis' in the introductions to papers on the geometry and topology of infinite Coxeter groups."
—John Meier, Lafayette College

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Tenure Track Position, Mathematical Finance

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a tenure track position in the area of Mathematical Finance. We primarily seek candidates at the Assistant Professor level, but exceptional candidates at a more senior level will be considered.

The successful candidate will have established accomplishments and outstanding promise in research, as well as a strong commitment to graduate and undergraduate teaching. Candidates must hold a PhD degree. We offer an excellent research environment with a normal teaching load of three courses per year. A close fit with some of the existing research being presently conducted in the Department is an asset.

Alberta is one of the leading Mathematics Departments in Canada and has strong connections with other mathematical institutes, such as the Pacific Institute for the Mathematical Sciences (PIMS), Mathematics of Information Technology and Complex Systems (MITACS), and the Banff International Research Station (BIRS). For more information about the Department, please visit our website at http://www.math.ualberta.ca/.

Applications should include a curriculum vitae, a research statement, a teaching profile outlining experience and/or interests, and at least three confidential letters of reference.

The closing date for applications is November 16, 2007, or until a suitable candidate is found. Early applications are encouraged.

Interested applicants may apply to:

Arturo Pianzola, Chair
Department of Mathematical and Statistical Sciences
University of Alberta
Edmonton, Alberta, Canada T6G 2G1
Email: chairsec@math.ualberta.ca

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. If suitable Canadian citizens and permanent residents cannot be found, other individuals will be considered. The University of Alberta hires on the basis of merit. We are committed to the principle of equity in employment. We welcome diversity and encourage applications from all qualified women and men, including persons with disabilities, members of visible minorities, and Aboriginal persons.

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Max Wyman Assistant Professorship in Mathematical Biology

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a Max Wyman Assistant Professorship in Mathematical Biology. This is a three-year fixed-term position. The position offers an excellent research and teaching environment with a reduced teaching load (averaging two one-semester courses per year). A startup research grant is included with the position.

We are looking for a person with a PhD, an excellent research record in Mathematical Biology, and strong communication and teaching skills. Candidates are expected to develop an independent research program, and will be eligible to apply for federal research funds. They are expected to participate in graduate training and to be active in the Centre for Mathematical Biology (www.math.ualberta.ca/~mathbio). All aspects of Mathematical Biology will be considered. Current interests within the department include ecology, epidemiology, medicine and physiology.

Alberta is one of the leading Mathematics Departments in Canada and has strong connections with other mathematical institutes, such as the Pacific Institute for the Mathematical Sciences (PIMS), Mathematics of Information Technology and Complex Systems (MITACS), and the Banff International Research Station (BIRS).

Applications should include a curriculum vitae, research and teaching profiles outlining experience and/or interests, and at least three confidential letters of reference.

The closing date for applications is November 16, 2007, or until a suitable applicant is found. Early applications are encouraged.

For more information about the Department and the University of Alberta, please visit the our web page (www.math.ualberta.ca).

Interested applicants may apply to:

Arturo Pianzola, Chair
Department of Mathematical and Statistical Sciences
University of Alberta
Edmonton, Alberta, Canada T6G 2G1
Email: chairsec@math.ualberta.ca

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. If suitable Canadian citizens and permanent residents cannot be found, other individuals will be considered. The University of Alberta hires on the basis of merit. We are committed to the principle of equity in employment. We welcome diversity and encourage applications from all qualified women and men, including persons with disabilities, members of visible minorities, and Aboriginal persons.

Tenure Track Position, Statistics and Probability

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a tenure-track position in the area of Statistics and Probability. We primarily seek candidates at the Assistant Professor level, but exceptional candidates at a more senior level will be considered.

The successful candidate will have established accomplishments and outstanding promise in research, as well as a strong commitment to graduate and undergraduate teaching. Candidates must hold a PhD degree. We offer an excellent research environment with a normal teaching load of three courses per year. A close fit with some of the existing research being presently conducted in the Department is an asset. Our Statistics and Probability group encompasses a broad spectrum of research interests, ranging from such interdisciplinary areas as Biostatistics and Environmetrics, through core research areas such as Regression, Design, Sampling and notions of Robustness and of Statistical Learning as applied to these and other areas, and on to theoretical investigations as embodied by Mathematical Statistics, Probability, and Stochastic Processes.

Alberta is one of the leading Mathematics Departments in Canada and has strong connections with other mathematical institutes, such as the Pacific Institute for the Mathematical Sciences (PIMS), Mathematics of Information Technology and Complex Systems (MITACS), and the Banff International Research Station (BIRS). For more information about the Department, please visit our websites at http://www.mathstat.ualberta.ca/ and http://www.stat.ualberta.ca/.

Applications should include a curriculum vitae, a research statement, a teaching profile outlining experience and/or interests, and at least three confidential letters of reference.

The closing date for applications is November 16, 2007, or until a suitable candidate is found. Early applications are encouraged.

Interested applicants may apply to:

Arturo Pianzola, Chair
Department of Mathematical and Statistical Sciences
University of Alberta
Edmonton, Alberta, Canada T6G 2G1
Email: chairsec@mathstat.ualberta.ca

Tenure Track Position, Representation Theory

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a tenure-track position in the area of Representation Theory. We primarily seek candidates at the Assistant Professor level, but exceptional candidates at a more senior level will be considered.

The successful candidate will have established accomplishments and outstanding promise in research, as well as a strong commitment to graduate and undergraduate teaching. Candidates must hold a PhD degree. We offer an excellent research environment with a normal teaching load of three courses per year. A close fit with some of the existing research being presently conducted in the Department is an asset.

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Fields Institute
Postdoctoral Fellowships 2008-09

Description: Applications are invited for postdoctoral fellowship positions at the Fields Institute in Toronto for the 2008-2009 academic year. The Thematic Program on Arithmetic Geometry, Hyperbolic Geometry and Related Topics will take place at the Institute July to December 2008 and the Thematic Program on O-Minimal Structures and Real Analytic Geometry will take place at the Institute from January to June 2009. The fellowships provide for a period of engagement in research and participation in the activities of the Institute. They may be offered in conjunction with partner universities, through which a further period of support may be possible.

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

Deadline: **December 7, 2007**, 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.

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