CMS NOTES de la SMC

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# DU BUREAU DU VICE-PRÉSIDENT

**Yvan Saint-Aubin**
*Université de Montréal, Montréal*

Lorsque Joseph Khoury proposa la création du Comité du bilinguisme en novembre 2008, je fus le seul membre du Comité exécutif à exprimer une certaine crainte devant cette proposition. Mais, après une courte discussion, l'Exécutif vota unanimement en faveur de la proposition et les dix membres du Comité sont maintenant en fonction.

## La SMC se dote d'un Comité du bilinguisme

### *Une crainte*

Il est peut-être curieux qu'un francophone soit contre le bilinguisme ou, plus exactement, qu'il se questionne sur la nature d'un Comité du bilinguisme. Il faut donc que je m'explique.

La Société publie déjà de nombreux documents dans les deux langues officielles. Nous recevons les notices des concours et des prix de la Société et les appels de mise en nomination dans les deux langues. Une grande partie du site web de la Société est bilingue; il faut explorer plusieurs liens avant d'en trouver un qui ne soit qu'en anglais. Et la SMC connaît quelques traducteurs professionnels et efficaces dont elle utilise les services au besoin. Alors pourquoi ma crainte?

Cette crainte vient de mon expérience, une expérience bien canadienne! Au cours des ans, plusieurs organismes pancanadiens, incluant la SMC, m'ont demandé de traduire ou de vérifier la traduction de textes, scientifiques ou administratifs. Pratiquement tous ces textes étaient courts et, pendant longtemps, j'acceptais ce pensum. Est-ce si difficile de jeter un rapide coup d'oeil sur quelques lignes? Oh que oui! La traduction n'est pas une tâche facile. Il ne suffit pas d'être à l'aise dans deux langues pour se faire traducteur. Comme les mathématiciens, ces professionnels ont suivi une longue formation rigoureuse et seule l'expérience leur permet d'être rapides et efficaces. (Évidemment leur formation ne les prépare pas toujours à percer les mystères de notre jargon!)

Même si la SMC est déjà largement bilingue dans ses documents publics, il reste toujours des documents à traduire et la SMC n'a pas les moyens de payer pour tous. Comme vice-président préoccupé par le budget déficitaire de la SMC, je serais par exemple contre la traduction systématique des résumés scientifiques de nos réunions d'été et d'hiver. D'autres sociétés canadiennes le font pourtant.

Quoiqu'il en soit, je refuse maintenant ces invitations à traduire ou vérifier une traduction. Ma crainte est que les membres du Comité du bilinguisme soient les prochaines "victimes"!

### *Un constat*

L'anglais, tant en affaires qu'en sciences, est maintenant la lingua franca de la fin du XXe siècle et du début du XXIe. C'est un lieu commun. Cette rapide évolution vers une langue de communication prédominante a eu de riches retombées pour les sciences, et pour les mathématiques en particulier. Toute jeune personne démarrant une carrière scientifique n'a qu'une seule langue étrangère à maîtriser, si ce n'est pas déjà sa langue maternelle, avant d'avoir accès à la littérature de son champ de recherche et de pouvoir disséminer ses propres résultats à grande échelle. Et plus personne ne peut affirmer que tel ou tel résultat lui était inconnu, car il avait été publié dans une langue qu'il ou elle ignore.

Cette prépondérance de l'anglais est récente. Rappelons qu'en 1900, lorsque les mathématiciens font le point et contemplent le futur, David Hilbert (*Mathematische Probleme*) et Henri Poincaré (*L'avenir des*

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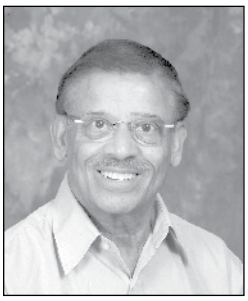
*English page 16*

# EDITORIAL

by Srinivasa Swaminathan
*Dalhousie University, Halifax*



## To Err is Human

One Monday morning a research student lamented that a simple computational error had vitiated some of her results obtained over the weekend. She was upset about the loss of time and work. I consoled her by telling her that this kind of mistake happens to almost every scientist. I related to her how a simple human error recently caused the search engine of Google to blacklist all sites as harmful.

For a period on January 31st of this year, Google users saw a disconcerting sight. Every website found by the search engine was listed with a warning that the site contained software that might be harmful to computers. Even Google's own pages were flagged in this way! Shortly afterwards, Google's website became completely inaccessible. Millions of users across the world were affected. Initially, there was speculation that Google had been maliciously hacked -- no doubt, some wondered if the entire Web had been compromised! However, the truth was more prosaic.

It turned out to be a simple data management mistake, probably caused by a few wrong keystrokes or a careless mouse click. In the process of updating a genuine list of dangerous sites, used by the Google search engine to warn users, the single-character entry "/" was accidentally included in the file. This character apparently acts as a "wild card" in this application, allowing entire families of related URLs to be tagged. Used on its own, it matches any URL whatsoever. Thus, every site scanned was marked as dangerous. Of course, millions of users tried to contact Google to find out what was up; the resulting flood of messages overwhelmed the server and caused the temporary site shutdown.

The problem was solved in about three-quarters of an hour; and Google was up again soon afterwards. While it appears that little harm was done, the incident made many persons realize how dependent they are on Google — and how helpless without it.

It is well known that the English mathematician Charles Babbage was the first to consider the construction of a machine, early in the nineteenth century, to aid in the calculation of mathematical tables. According to one story [1], the origin of his ideas about such machines came to him when the younger Herschel (later Sir John) brought in some calculations that had been performed for the Astronomical Society. In the course of the tedious checking, Herschel found a number of errors causing Babbage to exclaim, "I wish to God these calculations had been executed by steam." "It is quite possible," replied Herschel. From this interchange of remarks arose the obsession that was to guide Babbage for the rest of his life.

One shouldn't grieve over errors whether they are minor or serious ones. They force us to rethink over the matter and lead us in the right path.

*[1] Howard Eves, In Mathematical Circles, Quadrant IV, MAA 2003.*

**NOTES DE LA SMC**

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

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**CMS NOTES**

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

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ISSN :1193-9273 (imprimé/print)
1496-4295 (électronique/electronic)

# ÉDITORIAL

par Srinivasa Swaminathan
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## L'erreur est humaine

Un certain lundi matin, une de mes assistantes de recherche se plaignait qu'une simple erreur de calcul avait corrompu une partie de son travail de la fin de semaine. Elle était fâchée d'avoir perdu du temps et du travail. Je l'ai consolée en lui disant qu'à peu près tous les chercheurs étaient victimes un jour ou l'autre de ce genre d'erreur. Je lui ai raconté comment une simple erreur humaine avait amené le moteur de recherche de Google à mettre tous les sites sur une liste noire.

Pendant une partie de la journée du 31 janvier dernier, les utilisateurs de Google ont été témoins d'une scène déconcertante. Tous les sites trouvés par le moteur de recherche étaient accompagnés d'un avertissement de la présence, sur ces sites, de logiciels dangereux pour les ordinateurs. Même les propres pages de Google portaient cet avertissement! Peu de temps après la découverte, le site de Google est devenu inaccessible. Des millions d'internautes ont été touchés. On a d'abord pensé que Google avait été victime de piratage, voire que tout le Web était attaqué… La réalité était un peu plus banale.

En fin de compte, ce n'était qu'une simple erreur de gestion de données, probablement causée par quelques faux mouvements de clavier ou de souris. Durant la mise à jour de la véritable liste de sites dangereux, dont se sert le moteur de recherche de Google pour mettre ses utilisateurs en garde, le caractère « / » s'est retrouvé dans le fichier par erreur. Dans cette application, ce caractère est apparemment un caractère de remplacement (joker) qui permet de marquer des familles complètes d'URL interreliées. Utilisé tout seul, par contre, il remplace n'importe quelle URL. Ainsi, tous les sites repérés ont été marqués « dangereux ». Évidemment, des millions d'utilisateurs ont essayé de contacter Google pour savoir ce qui se passait; le torrent de messages qui a suivi a engorgé le serveur, ce qui provoqué la fermeture du site.

Le problème a été résolu au bout de quarante-cinq minutes, et Google, rétabli peu après. Il y aurait eu plus de peur que de mal, semble-t-il, mais l'incident a fait prendre conscience à plus d'un internaute à quel point ils étaient dépendants de Google – et démunis sans lui.

Le mathématicien anglais Charles Babbage, c'est bien connu, a été le premier à envisager la construction d'une machine, au tout début du dix-neuvième siècle, pour accélérer les calculs mathématiques. L'histoire raconte [1] – ou du moins une des versions de l'histoire – que l'idée lui serait venue le jour où le jeune Herschel (devenu plus tard sir John) lui a apporté des calculs réalisés pour la Société d'astronomie. Durant le long et pénible processus de vérification, Herschel a relevé certaines erreurs qui ont fait dire à Babbage : « J'aimerais tellement que ces calculs se fassent à la machine! » Ce à quoi Herschel a rétorqué : « Mais c'est tout à fait possible. » De cet échange serait née la quête qui a obsédé Babbage le reste de sa vie.

Nul ne devrait pleurer de ses erreurs, qu'elles soient graves ou non, car elles nous obligent à penser autrement et nous poussent dans la bonne direction.

*[1] Howard Eves, dans Mathematical Circles, Quadrant IV, MAA 2003.*

## CANADIAN ABSTRACT HARMONIC ANALYSIS SYMPOSIUM 2009

*(LAUFEST)*

**Organizers:** Brian E. Forrest (Waterloo), Volker Runde (Edmonton), Keith F. Taylor (Halifax)
**Dates:** May 11-15, 2009
**Venue:** Edmonton

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

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

**Website:**
www.math.ualberta.ca/~laufest/

# BOOK REVIEW Belongs on Every Mathematician's Bookshelf

## *The Princeton Companion to Mathematics*

*by Timothy Gowers;*
*associate editors June Barrow-Green & Imre Leader,*
*Princeton University Press, 2008;*
*1008 pp, cloth, $100.00 (US), ISBN 978-0-691-11880-2.*

***Reviewed by Robin Wilson, The Open University***

Once in a while a book comes along that should be on every mathematician's bookshelf. This is such a book. Described as a 'companion', this 1000-page tome is an authoritative and informative reference work that is also highly pleasurable to dip into. Much of it can be read with benefit by undergraduate mathematicians, while there is a great deal to engage professional mathematicians of all persuasions. The 200 entries were written by over one hundred contributors, selected for their expertise and expository skill.

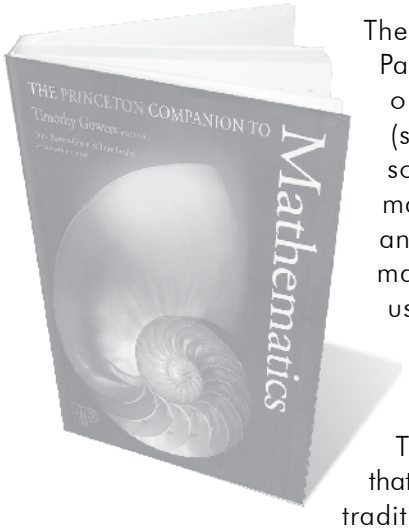
The companion is organized in eight parts. Part I is a masterly introduction, presumably written by the editors, explaining the nature of modern mathematics, its language and grammar, and describing some of the main concepts and subject areas of mathematics (such as vector spaces, limits and hyperbolic geometry). This is followed, in Part II, by a historical overview, organized thematically in seven sections.

The core of the book is in the next two parts. In Part III about a hundred mathematical concepts are described in some detail, ranging from the axiom of choice, braid groups and Calabi–Yau manifolds, via elliptic curves, Jordan normal form and the Mandelbrot set, to matroids, Ricci flow and the Schrödinger equation. These feed into more substantial accounts in Part IV of twenty-six subject areas (such as analytic number theory, harmonic analysis, operator algebras and computational complexity); these take up about one-third of the book.

Part V presents descriptions of thirty-five important theorems and problems, old and new, ranging from the insolubility of the quintic and the prime number theorem to Gödel's theorem, the Atiyah–Singer Index Theorem and the Birch–Swinnerton-Dyer conjecture.

Part VI presents mini-biographies, written by experts, of almost one hundred mathematicians, organized chronologically by birth date from Pythagoras to Bourbaki.

Part VII describes the influence of mathematics in such areas as biology, traffic flow, finance, cryptography, and the relationships between mathematics and music.




The book concludes in Part VIII with essays on general topics (such as problem solving, experimental mathematics, numeracy, and advice to a young mathematician) and a useful chronology of mathematical results and events.

The above outlines show that this is far from being a traditional encyclopedia of mathematics, but they can only hint at the enormous range of topics covered within its pages. As well as the usual mainstream topics, a welcome feature is the serious attention paid to such topics as the history of mathematics and combinatorics that are so often relegated to the sidelines or treated in an unscholarly manner. Although the line had to be drawn somewhere – for example, there is no discussion of mathematics education – the editors have done a fine job in embracing an impressively wide selection of important and interesting topics.

Finally, the publishers should also be congratulated on the high quality of the presentation. The print is easy to read, the paper is of high quality, the diagrams are clear, and the cost of the book, given its size, is remarkably low.

(Reprinted by permission from the Newsletter of the LMS, Feb. 09)

## Letters to the Editors
## Lettres aux Rédacteurs

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

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

## A History of Abstract Algebra

*by Isreal Kleiner,*
*Birkhauser, Boston, 2007;*
*168 pp, paper, $49.95 (US) ISBN 978-0-8176-4648-4*

***Reviewed by Robert Paré, Dalhousie University, Dept. of Mathematics.***

Okay, let me start off right away by saying that I'm a category theorist. I've spent my whole life in and around algebra. But I had never, until now, read about the history of algebra, so my review must be taken in that context.

I enjoyed the book a lot. Because I came to it with an "empty mind", much of the information was new to me. The first six chapters contain enough mathematical detail to keep the "working algebraist" interested. Not just detail, but the historical evolution of and the interconnections among the concepts that we know and love, keeps our interest up. The biographical last chapter is inspiring.

On the other hand, there is not that much mathematics that an undergraduate mathematics student or high school teacher would be turned off. And knowing how a subject evolved and the key players can't help but enrich the experience of algebra.

It is a short, nicely produced book with quite a few pictures (always a plus with me), which I believe would be enjoyed by algebraists, students and teachers alike.

I will now describe the contents of the book.

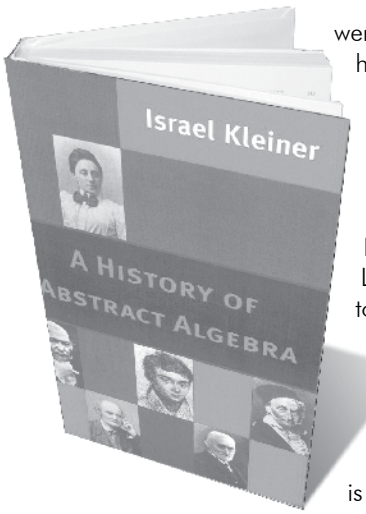
It begins with a short chapter on classical algebra starting with the Ancient Greeks, through the Arab world (which kept the flame alive through the Dark Ages) to Western Europe. The evolution of modern day notation is sketched. Here I learned that the symbol = for equality was introduced as late as 1557 by Robert Recorde, explaining his choice with "noe 2 thynges can be moare equalle".

The next chapter traces the evolution of the theory of groups. We learn of its roots in classical algebra (Lagrange on resolvents), number theory (Gauss in his Disquisitiones Arithmeticae), geometry (Klein in his Erlangen Program) and analysis (Lie's theory of continuous groups).

Chapter 3 is devoted to ring theory. Noncommutative ring theory had its roots in hypercomplex number systems, a.k.a finite dimensional real algebras. These include quaternions (Hamilton), square matrices and group algebra (Cayley) and exterior algebras (Grassmann).

Commutative ring theory on the other had arose from algebraic number theory, algebraic geometry and invariant theory. For example, Kummer's work on Fermat's Last Theorem led him to introduce the vague but fruitful ideal numbers, later made precise in Dedekind's notion of ideal.

The history of rings is followed by a chapter on field theory. Its genesis lies in Galois theory, algebraic number theory, algebraic geometry as well as the theory of congruences. Notable in its development




were Dedekind and Kronecker who had opposing philosophical views on the matter.

Chapter 5 deals with the history of linear algebra. An important name here is Grassmann. His 1844 work "Doctrine of Linear Extension" was difficult to understand and long ignored, but contained many fundamental ideas.

To my mind the most important and influential person discussed is Emmy Noether and who, to some extent, is given a place of prominence in the book (at least on the cover).

The first paragraph of chapter 6 reads in part:

> The prominent algebraist Irving Kaplansky called Emmy Noether the "mother of modern algebra". The equally prominent Saunders Mac Lane asserted that "abstract algebra, as a conscious discipline, starts with Noether's 1921 paper "Ideal Theory in Rings." Hermann Weyl claimed that she "changed the face of algebra by her work".

Not only is she the mother of modern algebra but, I would venture to say, the grandmother of category theory. Consider the words of Alexandrov (quoted from the book under review):

> It was she who taught us to think in terms of simple and general algebraic concepts — homomorphic mappings, groups and rings with operators, ideals — and not in cumbersome algebraic computations; and [she] thereby opened up the path to finding algebraic principles in places where such principles had been obscured by some complicated special situation...

and Jacobson:

> As is quite well known, it was Emmy Noether who persuaded Alexandrov and Hopf to introduce group theory into combinatorial topology and to formulate the then existing simplicial homology theory in group theoretic terms in place of the more concrete setting of incidence matrices.

By all accounts she was hard to understand and would not fare well in our system of student evaluations. On this I leave the last words to Alexandrov (quoted in the book under review):

> To an outsider Emmy Noether seemed to lecture poorly, in a rapid and confusing manner, but her lectures contained a tremendous force of mathematical thought and an extraordinary warmth and enthusiasm.

# BRIEF BOOK REVIEWS

by K. Johnson
*Dalhousie University, Halifax*

## The Computer as Crucible: An Introduction to Experimental Mathematics

*Edited by J. Borwein and K. Devlin*
*AK Peters 2009*
*170pp. $29.95 (US) ISBN 978-1568813431*

A famous mathematician (a Fields medalist) once replied, when urged to think about a particular question, "How can I think about it if I don't know the answer?" This recent book by Jon Borwein and Keith Devlin suggests that the questions to which we don't know the answers are the interesting ones, and that the right tool for attacking them is the computer, particularly the various symbolic computation programs available. In 11 chapters they survey the emerging field of "experimental mathematics" giving a working definition of the field (in chapter 1) and examples of its accomplishments, including high precision computations of pi and other constants, the discovery of summation, integral and limit formulas and the identification of functions based on their graphical characteristics. There is a lot of interesting (and at many points quite deep) mathematics which most will enjoy. Whether you also buy the implicit philosophical argument as to the value of this approach relative to the traditional proving of theorems you must decide on your own.

## A Lifetime of Puzzles: Honoring Martin Gardner

*Edited by E. Demaine, M. Demaine and T. Rogers*
*AK Peters, 2009*
*349pp $49.00 (US) ISBN 9781568812458*

Martin Gardner, for 25 years the Mathematical Recreations columnist for Scientific American, may be the most influential mathematical writer of the 20th century, if influence is measured by the number of people led to a career in mathematics by his writing. At age 94 he is still active and this volume edited by Tom Rodgers and the father and son team of Marty and Eric Demaine celebrates his many achievements. As might be expected where Martin Gardner is involved puzzles of all sorts abound – historical ones (going back to the 15th century) geometric and mechanical ones (including the one, instant insanity, which first lure this reviewer into studying mathematics) logical and linguistic ones (including an article on a new word game, NetWords, by Gardner with two coauthors) and a half dozen articles on combinatorial puzzles. There are also two articles describing Gardner's influence in the community of magicians (where he seems to be just as influential) and one (by Diaconis and Graham) applying some new combinatorial results to construct card tricks.

## Modular Forms and String Duality

*Edited by Noriko Yui, Helena Verrill and Charles F. Doran*
*Fields Institute Communications v.54*
*American Mathematical Society, 2008*
*297 pp. ISBN 978-0-8218-44847*

Recently the traditional connection between physics and mathematics, which usually involves analysis, has been expanded to include number theory with the correct prediction based on physical principles of the number of rational curves of a given degree on the Fermat quintic. This and similar results prompted the organization of a workshop at the Banff research station in June, 2006 on Modular Forms and String Theory to explore the area. One result of the workshop is this volume. Some of the papers are writeups of workshop talks while others report on more recent developments.

The papers are in three general areas – arithmetic and modular forms, geometric and differential equations, and physics and string theory. Together they give a good introduction to this fast growing area.

## The Unravelers: Mathematical Snapshots

*Edited by Jean-Francois Dars, Annick Lesne, Anne Papillault, A.K. Peters. Hd. Wellesley, MA*
*vi + 191pp ISBN 978-1-56881-441-4*

The Institut des Hautes Études Scientifiques (IHES) at Bur-sur-Yvette near Paris is one of the world's great mathematics research institutes and a glimpse into its operations and everyday life is a treat for any mathematician. *The Unravelers: Mathematical Snapshots* is just such a glimpse consisting of photographs taken at IHES between January 2006 and September 2007 and brief essays by 50 of the researchers who were present at the time. The photographs, by Jean François Dars, show a rare sensitivity to the human side of research in mathematics. They capture mathematicians in discussion, in lectures, at the blackboard, or alone wrestling with a problem. The essays are wide ranging, and a bit uneven. A few speak of the history of IHES, which is now 50 years old, with a touch of la vie en rose. More speak about their particular branch of mathematics and its future, and many about the how and why of mathematical research in general. One or two of these are quite opaque but most show great insight and self awareness. A good example, although far from unique, is Alain Connes wide-ranging essay with comments on (mathematical) reality, music and algebra and advice for young researchers.

Ed Barbeau
*University of Toronto*

## A Tribute to Jim Totten

In March, 2008, the mathematical community lost a dear colleague, Dr. James Totten. Jim's work in research, outreach, teaching and problem solving spanned over 30 years. A conference, *Sharing Mathematics: A Tribute to Jim Totten*, that celebrates Jim's spirit will be held May 13-15, 2009 at Thompson Rivers University in Kamloops, BC.

The conference themes are outreach, enrichment, and innovation in mathematics education. We encourage all who knew of Jim's work to participate. The organizers include Jim Bailey (College of the Rockies), Rick Brewster, Faie DeBeck and Robb Fry (Thompson Rivers University), John Grant McLoughlin (University of New Brunswick), Shane Rollans and Mohamed Tawhid (Thompson Rivers University). They can be contacted at SharingMath2009@tru.ca. A website www.tru.ca/sharingmath/ is being set up.

## *"A Taste of Pi" – Long and Lasting*

Malgorzata Dubiel, Veselin Jungic
Simon Fraser University, Burnaby, BC
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The Mathematics Department at Simon Fraser University (SFU) has a long history of bringing the excitement and beauty of mathematics to high school students and the general public through various outreach programs. One of the recent additions to these activities is a program called *A Taste of Pi*.

*A Taste of Pi* was introduced in 2004 to provide enrichment activities to high school students during the school year. The title and idea of the program, as well as the logo, were the brainchild of Veselin Jungic. During each event, students participate in a mathematical presentation and a problem session, and, since 2007, also a science presentation. The program was initially funded by a NSERC PromoSciences grant and the SFU Department of Mathematics, and, later by the Dean of Science, the Interdisciplinary Research in Mathematics and Computational Sciences Centre (IRMACS), and the Pacific Institute for the Mathematical Sciences (PIMS). Information about the program, including the logo and a long (and still growing) list of exciting talks, can be found at the program's website: www.math.sfu.ca/atasteofpi/.

There are two series of talks per year, each consisting of three Saturday sessions: one during the spring in March, April and May, and another during the fall in October, November and December. Participation in the sessions is by invitation only. Letters announcing upcoming sessions are sent to all high schools in the Lower Mainland, public and private, 5-6 weeks before the beginning of each series of sessions. The letters ask mathematics department heads to nominate their best students from grades 9, 10 and 11 for the program. The organizers (Malgorzata and Veselin) review all nominations very carefully, but the vast majority of students are accepted and invited to participate in the program. The number of participants per session has been steadily growing and in Spring 2008 reached a high of 80. The invitees are asked to pay a $15 registration fee for each set of three sessions, to partially cover the costs, and as a commitment to attend the meetings. In many cases, the schools pay the registration fee. Teachers are invited to attend; they pay no registration fee. Usually, there are several teachers in the audience during each presentation.

The events are held in the most modern lecture room at SFU, the IRMACS Presentation Studio, from 9:00 until 12:30. Each event starts with a mathematics presentation, given by faculty members from the SFU Department of Mathematics, or occasionally by faculty visitors to the department. On occasion, colleagues from the mathematics department at UBC have given talks. We are very proud that, during the first five years of the program, we never repeated a presentation, and that only one of the presenters spoke twice –but this was only because he liked the experience so much that he asked us to be allowed to do so.

Our colleagues talk about research, about new and exciting developments in the mathematical sciences, and about contemporary applications of mathematics. The mathematics talks are followed by a problem session, during which students work on problems and activities related to the concepts introduced in the preceding talks. Problem sessions are led either by the presenters themselves, or sometimes by graduate students. The meeting ends with a talk given by a faculty member from another scientific discipline.

Each talk starts with an introduction of the presenter by a student participant. Students volunteer for this activity. They are asked to meet in person with the faculty member, and to get information about the presenter's career and research interests. This information often includes facts about the influence that the presenter's high school teachers and university instructors had in the presenter's choice of the scientific field. The organizers provide a list of possible interview questions, but the interviewers are encouraged to conduct the research about the presenter on their own and to ask questions they find fit. The student's introduction of the speaker is an excellent icebreaker and sets a positive tone for the rest of the meeting.

During the refreshment breaks, and after the event, the students, their teachers and parents have an opportunity to talk to the faculty members and to the graduate students helping with the events. They can ask questions about the talks they have just heard, about mathematics in general, about careers in mathematics and sciences, and about the life at the university.

An interesting fact is that parents often join their children in attending *A Taste of Pi* events. Sometimes it is difficult to say which generation enjoys the talks and activities more!

*A Taste of Pi* meetings present a challenge for all participants. For presenters, the challenge is to explain their research interests, problems they and their research groups are working on, and their applications, to a group of very young smart people[1]. The exposure to mathematics topics that are often very far from high school mathematics is a challenge itself for the student participants. Through the engaging presentation, students' questions, and prepared activities, the topic of the talk unfolds. An important quality of the *A Taste of Pi* talks is lightness, notwithstanding the highbrow pieces. It is always interesting to witness how the magic of mathematics brings the two sides together.

The program also provides a valuable experience to graduate students who help with the problem sessions. They learn to prepare their presentations and to communicate challenging problems to students. On the other hand, graduate students, young people themselves, are great role models and inspiration for high school students attending the program.

For the authors of this note, the most exciting moments of each meeting are when students surround the presenter during the break or after the presentation. For many students, that might be the first time that they talk to a university professor. These moments of direct conversation give an opportunity to students to better understand the forces that make a mathematician, a highly trained and intelligent professional, to spend days (years?) thinking about a problem.

By bringing talented high school students to a university campus and giving them a chance to listen and talk to an actual scientist or a graduate student, the organizers of the series aim to achieve at least three goals. First, an immediate benefit is in making the young audience aware that their own work, talent, and ambition are recognized, respected, and supported by others. Secondly it is possible that some of the participants will be inspired by the talks to choose mathematics or a related science as their career opens[2]. Thirdly, the students get an opportunity to make direct contacts with the people from the university community and vice versa.

The first presentation in the series, titled "A VERY LARGE piece of Pi" was given on March 13, 2004 by Dr. Peter Borwein from the Department of Mathematics, SFU, who is also the founder and the director of IRMACS.

From March, 2004 until December, 2006, an NSERC PromoScience grant, managed through the Faculty of Science, SFU, was the major funding source for the series. From the very beginning, the program was financially and otherwise supported by the Department of Mathematics and the Faculty of Science. Since the fall of 2005, the series has been held in the IRMACS Centre. Currently, the Faculty of Science, the IRMACS Centre, and PIMS finance the series.

The current annual budget for the series is $3000. This includes all promotional material (creating and printing posters and certificates of participation, making T-shirts, managing the website), honoraria for graduate students, two nutrition breaks per meeting, presenters' expenses, bookings of computing labs, and technical and clerical support. Some funds are offered to high school students who incur substantial travel expenses to attend the sessions. For example, we assisted three students from Powell River, BC, with their travel expenses.

The list of all past presenters appears on the program's webpage, www.math.sfu.ca/atasteofpi/.

The website also contains general information about the series, listing of upcoming and past presentations, the names and contact information for the organizers, photographs from previous sessions, and a few useful links. The website was created by Ms. Ivana Filipovic of the Learning Instructional Development Centre (LIDC) at SFU. Following suggestions of the organizers, Ms. Filipovic created the series logo, the general format of posters that announce *A Taste of Pi* meetings, and an *A taste of Pi* T-shirt. The logo and posters give a visual identity to the program. The posters are sent to high schools and various SFU departments as promotional material. All participants get a T-shirt as a memento of their participation in the series.

The organizers are particularly thankful to several teachers who regularly accompany their students to the meetings. Their support and suggestions have been of a great help in improving the series. It seems that, after nine sessions, *a Taste of Pi* community among SFU faculty members and high school teachers has emerged. We support this claim by the fact that students from almost forty BC high schools have participated in the program and that thirty-seven faculty members have given talks.

We end this note with a quote from Mr. Brian Taylor, a mathematics teacher at Little Flower Academy in Vancouver: "I started taking students to the Taste of Pi lectures in the fall of 2005. The lectures are a wonderful opportunity for students to get an appreciation for the breadth of the field of mathematics. They have enjoyed lectures on mathematical topics as varied as knot theory, graph theory, complex numbers, $n-$dimensional polyhedra, and applied mathematics. The researchers do an excellent job of presenting very difficult topics in a way that is engaging

and accessible, and they really go out of their way to come up with activities that the students can do. The addition of a second shorter lecture by a researcher from a field other than mathematics has also been very successful. The students have enjoyed lectures on everything from volcanoes to cosmology. My students are enrolled in many extra-curricular activities and often choose to miss one or two regularly scheduled sessions of their own so that they can attend the Taste of Pi lectures. I think this speaks to the quality of the lectures and the level of satisfaction on the student's part. I have thoroughly enjoyed the lectures myself, and it has given me much more 'ammunition' to convince good students to pursue mathematics-related fields at the post-secondary level."

**Footnotes**

1. In Einsteins' word: You do not really understand something unless you can explain it to your grandmother.

2. One of the *A Taste of Pi* presenters recently has forwarded us a message from a former participant in the series, currently majoring in mathematics at the University of Toronto. The student wrote, "Back two years ago, I attended the *A Taste of Pi* lectures at SFU, and you delivered a lecture on numerical PDE's. That lecture was one of the most interesting I've ever attended!" The message continues by asking for an advice which undergraduate mathematics courses would be necessary to get into the specific field.

# CALL FOR NOMINATIONS / APPEL DE MISES EN CANDIDATURE

## Prix Adrien-Pouliot Award 2009

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

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

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

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

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

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

**The Adrien Pouliot Award / Le Prix Adrien-Pouliot**
Canadian Mathematical Society / Société mathématique du Canada
1785 Alta Vista Drive, Suite 105
Ottawa, ON K1G 3Y6 Canada

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

*mathématiques*) livrent leur réflexion dans leur langue propre. Pourquoi deux des langues dominantes de la discipline ont vu leur rôle s'éroder? Ce sera aux historiens d'y répondre. Il y a cependant des conséquences moins positives selon moi à cette érosion.

Une première est la qualité de l'anglais tel qu'on le lit dans les journaux scientifiques. Avec un nombre toujours croissant d'auteurs pour lesquels l'anglais n'est pas la première langue, plusieurs maisons d'édition ne parviennent pas à maintenir un standard élevé. Tenter de le faire allongerait d'ailleurs indûment les délais de publication et serait fort coûteux.

La prédominance de l'anglais et le rythme maintenant effréné des carrières scientifiques ont aussi d'autres conséquences, moins immédiates pour les mathématiques, mais importantes pour notre société et notre culture. L'attrait d'apprendre d'autres langues, que ce soit à des fins scientifiques ou culturelles, s'est certainement atténué et c'est une perte pour tous.

L'écriture de textes scientifiques dans une langue élégante ne peut sans doute se faire que dans sa langue maternelle. Deux exemples presque centenaires me viennent immédiatement à l'esprit : *On growth and form* de D'Arcy Thompson et *Les atomes* de Jean Perrin. Restera-t-il dans quelques décennies des scientifiques tentés de rivaliser avec ces maîtres si leur plume n'écrit pas en anglais? Seulement soulever cette question m'étiquette sûrement comme un nostalgique invétéré. Qu'il en soit ainsi.

### Quelle sera la mission du Comité du bilinguisme?

J'interprète la création du Comité du bilinguisme comme une reconnaissance que la SMC peut faire plus pour la place du français au sein de notre Société. C'est mon interprétation, je le souligne. Mais que peut-elle faire de plus? Où le Comité devrait-il mettre ses énergies? En essayant de répondre à cette question, je ne parviens qu'à en soulever d'autres.

Est-ce que la SMC peut vraiment promouvoir la communication des mathématiques en français? Et est-ce son mandat? Faudrait-il que certaines sessions de nos réunions soient menées en français? Certes, si nous avions quelques événements en français, une partie de la communauté pourrait être exclue. Ceci étant dit, à chaque réunion, je rencontre plusieurs collègues d'autres provinces qui semblent se faire une fête de me parler en français. Il y a eu par le passé des conférences plénières en français. Peut-être est-ce une tradition qu'il faut soigner.

Les origines linguistiques de la communauté mathématique canadienne sont très variées, autant que celles de l'ensemble des Canadiens, sinon plus. Aux réunions de la SMC comme aux autres réunions internationales, on entend dans les corridors de nombreuses langues et c'est bien comme ça! Mais si les langues de notre communauté sont si variées, pourquoi ne pas en permettre d'autres lors des réunions? Pourquoi faire une place particulière au français? Évidemment l'anglais et le français sont les deux langues officielles du Canada. Mais je vois une autre raison pour notre communauté, une raison vitale : favoriser la participation des étudiants francophones du pays. Leur groupe est sans doute le plus grand en nombre pour qui la participation à nos réunions est intimidante pour des raisons linguistiques. Certains diront que, s'ils veulent survivre scientifiquement, il est grand temps qu'ils apprennent l'anglais. N'ayez crainte, ils le savent! Mais tous ne sont pas nécessairement prêts, pendant leur doctorat, à écouter quatre jours de conférences en anglais ou à écrire une demande de bourse pour le CRSNG dans une langue autre que la leur. D'ailleurs, est-ce que tous les étudiants des provinces anglophones maîtrisent une seconde langue à ce niveau?

Les Notes de la SMC et Crux Mathematicorum sont largement bilingues. Il faut certainement saluer cet effort, particulièrement pour Crux qui rejoint un jeune public. Les journaux de la SMC acceptent des articles dans les deux langues, même si peu d'articles y paraissent en français. Beaucoup de collègues, et j'en suis, se demandent si le "Publish or Perish" ne serait qu'une version écourtée du vrai slogan "Publish in English or Perish". Avons-nous le sentiment que nos pairs pensent qu'un article paru dans une autre langue que l'anglais est sûrement de seconde classe? Peut-on contrer ce sentiment et est-il utile de le faire?

L'avenir de toutes les langues autres que l'anglais, comme outil de communication scientifique, est menacé. Nous le savons tous et certains y sont probablement indifférents. Pour ceux que ces menaces inquiètent, les solutions ne sont pas évidentes. Des gestes concrets sont-ils nécessaires? De quelle nature? Faut-il créer des librairies numériques des textes scientifiques français, anciens et modernes? Faut-il organiser des rencontres internationales où les communications se font, à parts égales, en deux langues?

### Le futur

Le Comité du bilinguisme a été créé et sa mission déjà décrite sur la page web de la Société. Comme pour bien d'autres jeunes comités, son véritable rôle sera défini par ses premiers membres. Leur tâche sera ardue. Leur but ne sera évidemment pas de réinstituer le français (et l'allemand et le russe!) comme langue mathématique prédominante. Mais même déterminer les modestes actions en fonction des moyens limités dont il dispose sera difficile. Je vous invite à leur envoyer vos idées et je leur souhaite bonne chance.

Bernard Hodgson, Joseph Khoury, François Lalonde et Christiane Rousseau ont lu une version préliminaire de ce texte et m'ont suggéré des pistes pour l'améliorer. Je les en remercie. Le contenu final n'engage que moi.

# CALL FOR NOMINATIONS / APPEL DE MISES EN CANDIDATURE

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

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

## Prix Coxeter-James Prize Lectureship — 2010

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

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

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

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

## Prix Jeffery-Williams Prize Lectureship — 2011

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

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

## Prix Krieger-Nelson Prize Lectureship — 2011

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

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

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

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

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

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

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


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

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

**Scientific Committee / Comité scientifique:**

**Canada:**
Alejandro Adem (UBC)
Walter Craig (McMaster)
Andrew Granville (Montréal)

**Mexico:**
Fernando Brambila (SMM; UNAM)
Isidoro Gitler (CINVESTAV)
Jose Seade (UNAM)

**Plenary Speakers / Conférenciers pléniers :**
James Arthur (Toronto)
Xavier Gomez-Mont (CIMAT)
Onesimo Hernandez-Lerma (CINVESTAV)
Niky Kamran (McGill)
Rachel Kuske (UBC)
Alberto Verjovsky (UNAM-Cuernavaca)

## SESSIONS

**Algebra**
**Algèbre**
Org: Christoff Geiss (UNAM), Arturo Pianzola (Alberta)

**Algebraic Geometry and Singularity Theory**
**Géométrie algébrique et théorie des singularités**
Org: Ed Bierstone (Toronto), Leticia Brambila (CIMAT), Jacques Hurtubise (McGill), Jose Seade (UNAM)

**Analysis**
**Analyse**
Org: Salvador Pérez-Esteva (UNAM), Malabika Pramanik (UBC)

**Combinatorics and Graph Theory**
**Combinatoire et théorie des graphes**
Org: Hortensia Galeana (IMATE-UNAM), Luis Goddyn (SFU), Miguel Pizaña (UAM-I)

**Differential Geometry**
**Géométie differentielle**
Org: Niky Kamran (McGill), Oscar Palmas (UNAM), Adolfo Sanchez Valenzuela (CIMAT)

**Dynamical Systems**
**Systèmes dynamiques**
Org: Florin Diacu (Victoria), Renato Iturriaga (CIMAT), Ernesto Pérez-Chavela (UAM)

**Optimization and Approximation**
**Optimisation et approximation**
Org: Michael Friedlander (UBC), Pedro Gonzalez Casanova (DGSCA; UNAM), Luis Verde-Star (UAM-Itzapalapa)

**Partial Differential Equations**
**Equations aux dérivées partielles**
Org: Monica Clapp (UNAM), Nassif Ghoussoub (UBC), Pablo Padilla (UNAM)

**Probability**
**Probabilité**
Org: Ana Meda (UNAM), Edwin Perkins (UBC)

**Topology**
**Topologie**
Org: Ian Hambleton (McMaster), Jose Luis Cisneros-Molina (UNAM), Miguel Xicotencatl (CINVESTAV)

CMS Winter Meeting 2009
*Host: University of Windsor*
December 5-7, 2009, Windsor, Ontario

CMS Summer Meeting 2010
*Host: University of New Brunswick - Fredericton*
June 4 - 6, 2010, Fredericton, New Brunswick

CMS Winter Meeting 2010
*Host: University of British Columbia*
December, 2010, Vancouver, British Columbia

Réunion d'hiver 2009 de la SMC
*Hôte : Université Windsor*
5 - 7 décembre 2009, Windsor (Ontario)

Réunion d'été 2010 de la SMC
*Hôte : Université de Nouveau-Brunswick*
4 - 6 juin 2010, Fredericton (Nouveau-Brunswick)

Réunion d'hiver 2010 de la SMC
*Hôte : Université de Colombie-Britannique (UBC)*
décembre 2010, Vancouver (Colombie-Britannique)

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

www.cms.math.ca/Events/CMEF2009/

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

## Theme of the 2009 Forum

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

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

## Plenary Speakers

Rina Zazkis, joint with CtC (Faculty of Education, SFU)
Reconsidering Basic Mathematical Assumptions in Teacher Education
Hugh Burkhardt
(Shell Center for Mathematical Education, University of Nottingham)
Making School Mathematics Functional: A Stool Needs Three Legs
Steven Rasmussen (Key Curriculum Press)
The Vantage Point of Publisher: One View of Curriculum Development

## Sponsors

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

- CAIMS
- Canadian Mathematical Society
- Centre de recherches mathématiques
- Fields Institute
- MITACS
- Pacific Institute for the Mathematical Sciences (PIMS)
- Simon Fraser University

## Co-organizers

Malgorzata Dubiel (SFU)
Viktor Freiman (Moncton)
Peter Taylor (Queen's)

www.smc.math.ca/Reunions/FCEM2009

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

## Thème du Forum 2009

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

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

## Conférences plénières

Rina Zazkis (Faculty of Education, SFU)
Repenser les hypothèses mathématiques de base en formation des enseignants
Hugh Burkhardt
(Shell Center for Mathematical Education, University of Nottingham)
Rendre les mathématiques fonctionnelles à l'école : un tabouret doit avoir trois pattes
Steven Rasmussen (Key Curriculum Press)
Le développement des programmes du point de vue d'un éditeur

## Commanditaires

Le FCEM 2009 remercie ses commanditaires de leur grande générosité :

- Centre de recherches mathématiques
- Fields Institute
- MITACS
- Pacific Institute for the Mathematical Sciences (PIMS)
- SCMAI
- Société mathématique du Canada
- Université Simon Fraser

## Coorganisateurs

Malgorzata Dubiel (SFU)
Viktor Freiman (Moncton)
Peter Taylor (Queen's)

# BLOCK SCHEDULE

<table>
<tr><th>THURSDAY/JEUDI<br>June 4 juin</th><th>SATURDAY/SAMEDI<br>June 6 juin</th><th>SUNDAY/DIMANCHE<br>June 7 juin</th><th>MONDAY/LUNDI<br>June 8 juin</th></tr>
<tr><td rowspan="6">18:00-22:00<br>Executive Committee Meeting<br>Réunion du Comité exécutif</td><td>8:00 – 16:30<br>Registration/Inscription<br>9:30 – 16:30<br>Exhibits/Expositions</td><td>8:00 – 16:30<br>Registration/Inscription<br>9:30 – 16:30<br>Exhibits/Expositions</td><td>8:00 – 16:00<br>Registration/Inscription</td></tr>
<tr><td>8:30 – 9:00<br>Opening/Ouverture</td><td rowspan="2">8:00 – 10:00<br>Scientific Sessions</td><td rowspan="2">8:00 – 10:00<br>Scientific Sessions</td></tr>
<tr><td>9:00 – 9:45<br>Susan Montgomery<br>Plenary Lecture</td></tr>
<tr><td colspan="3">10:00 – 10:30<br>Break / Pause</td></tr>
<tr><td rowspan="2">10:30 – 12:00<br>Scientific Sessions</td><td>10:30 – 11:15<br>Jeremy Gray<br>CSHPM Plenary Lecture</td><td>10:30 – 11:15<br>Gaoyong Zhang<br>Plenary Lecture</td></tr>
<tr><td>12:00 – 12:30<br>David Poole<br>CMS Teaching Award Lecture</td><td>11:30 – 12:15<br>Stephen Kudla<br>CMS Jeffery-Williams Lecture</td><td>11:30 – 12:15<br>Yael Karshon<br>CMS Krieger-Nelson Lecture</td></tr>
<tr><td>FRIDAY/VENDREDI<br>June 5 juin</td><td>CMS AGM<br>CSHPM AGM</td><td colspan="2">12:30 – 14:00<br>Lunch Break</td></tr>
<tr><td rowspan="5">11:00 AM – 13:00<br>Development Group Luncheon<br>Lunch du groupe de développement<br>(Junior Common Room, MUN)<br><br>13:30 – 18:30<br>Board of Directors Meeting<br>Réunion du conseil d'administration<br>(Junior Common Room, MUN)</td><td>14:00-15:00<br>Scientific Sessions</td><td>14:00-15:00<br>Scientific Sessions</td><td>14:00-15:00<br>Scientific Sessions</td></tr>
<tr><td>15:00 – 15:45<br>Michael Sigal<br>Plenary Lecture</td><td>15:00 – 15:45<br>Elizabeth Billington<br>Plenary Lecture</td><td>15:00 – 15:45<br>Michael Mackey<br>Plenary Lecture</td></tr>
<tr><td colspan="2">16:00 – 16:15<br>Break/Pause</td></tr>
<tr><td>16:15 – 17:45<br>Scientific Sessions</td><td>16:15 – 17:15<br>Scientific Sessions</td><td>16:15 – 17:15<br>Scientific Sessions</td></tr>
<tr><td>18:00 –19:00<br>Helaman Ferguson<br>Public Lecture</td><td rowspan="2">18:30 Buses depart for banquet<br><br>19:00 - 19:30<br>Reception (cash bar)<br>Réception (bar payant)<br><br>19:30 – 22:30<br>Banquet<br>(Woodstock Colonial Restaurant, Paradise, NL)</td><td rowspan="2"></td></tr>
<tr><td>18:30 -20:00<br>Welcome Reception<br>Réception d'accueil</td><td>19:00 – 20:00<br>Reception</td></tr>
</table>

(as of March 17, 2009)

## 2009 CMS MEMBERSHIP RENEWALS
## RENOUVELLEMENTS 2009 À LA SMC

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

✦ ✦ ✦

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

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

June 6-8 juin, 2009
www.cms.math.ca
Host: Memorial University of Newfoundland
Hôte : Université Memorial de Terre-Neuve

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

## Prizes and Awards / Prix

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

## Plenary Speakers / Conférenciers pléniers

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

## Public Lecture / Conférence publique

Helaman Ferguson (Sculptor)

## SESSIONS

**Algebraic Combinatorics**
**Combinatoire algébrique**
Org: Karen Meagher, Steve Kirkland (Regina)

**Algebraic Geometry and Topology (joint Canada/Korea)**
**Géometrie algébrique et topologie (conjointe Canada/Corée)**
Org: Alejandro Adem (UBC), Jong Hae Keum (KIAS)

**Algebraic Group Actions and Invariant Theory**
**Actions algébriques des groupes et théorie des invariants**
Org: Eddy Campbell (Memorial), Jianjun Chuai (Memorial), David Wehlau (RMC; Queen's)

**Combinatorial Designs and Related Topics**
**Designs combinatoires et sujets connexes**
Org: Václav Linek (Winnipeg), Nabil Shalaby (Memorial)

**Financial Mathematics**
**Mathématiques financières**
Org: Rogemar Mamon (Western), Cody Hyndman (Concordia)

**Geometric Harmonic Analysis and Partial Differential Equations**
**Analyse harmonique géométrique et équations aux dérivées partielles**
Org: Jie Xiao (Memorial)

**Graph Searching**
Org: Anthony Bonato (Ryerson), Danny Dyer (Memorial), Gary MacGillivray (Victoria)

**Groups and Hopf Algebras**
**Groupes et algèbres de Hopf**
Org: Yuri Bahturin, Mikhail Kotchetov (Memorial), David Radford (Illinois), Earl Taft (Rutgers)

**History and Philosophy of Mathematics**
**Histoire et philosophie des mathématiques**
Org: Tom Drucker (Wisconsin-Whitewater)

**History of the Relationship Between Mathematics and the Physical Sciences**
**Liens historiques entre les mathématiques et les sciences physiques**
Org: Tom Archibald (SFU)

**Interactions between Algebraic Geometry and Ring Theory**
**Interactions entre géométrie algébrique et théorie des anneaux**
Org: Jason Bell (SFU), Colin Ingalls (UNB)

**Mathematical Physics**
**Physique mathématique**
Org: Marco Merkli, Chris Radford (Memorial)

**Mathematics Education**
**Éducation mathématique**
Org: Sherry Mantyka (Memorial)

**Nonlinear Dynamics and Applications**
**Dynamique non linéaire et ses applications**
Org: Gail Wolkowicz (McMaster), Yuan Yuan, Xiaoqiang Zhao (Memorial)

**Numerical Analysis and Scientific Computing**
**Analyse numérique et computations scientifiques**
Org: Jahrul Alam (Memorial), Wenyuan Liao (Calgary)

**Operator Algebras**
**Algèbres d'opérateurs**
Org: Andrew J. Dean (Lakehead), George Elliott (Toronto), Marco Merkli (Memorial)

**Reaction-Diffusion Systems and Their Applications**
**Systèmes de réaction-diffusion et leurs applications**
Org: David Iron, Theodore Kolokolnikov (Dalhousie), Chunhua Ou (Memorial)

**Topological Algebra, Topology, and Functional Analysis**
**Algèbre topologique, topologie et analyse fonctionnelle**
Org: Alex Karassev (Nipissing), Gábor Lukács (Manitoba), Paul Szeptycki (York)

**Contributed Papers**
**Communications libres**
Org: Shannon Sullivan (Memorial)

# From the Desk of the vice president

## A Committee on Bilingualism for the CMS

When Joseph Khoury proposed the creation of a Bilingualism Committee in November of 2008, I was the only Executive member who expressed concerns about the idea. Still, after a brief discussion, the Executive Committee voted unanimously in favour of the proposal, and the ten members of the new body have taken up their duties.

### *A concern*

It might seem curious to have a Francophone speak out against bilingualism or, more precisely, to question the nature or purpose of a committee on bilingualism. Of course, I must explain.

The CMS already publishes many documents in both official languages. We receive CMS competition and award notices, as well as calls for nominations, in both languages. A hefty part of its Web site is bilingual—indeed, you have to click on quite a few links before you come upon a unilingual English page. What's more, the CMS calls on seasoned professional translators when the need arises. So, what am I concerned about exactly?

Well, the concern stems from my personal experience … a uniquely Canadian one! Over the years, several pan-Canadian organizations, CMS included, have asked me to translate documents or to check translations, both scientific and administrative. Most of the documents were short and, for the longest time, I agreed to take on the task. How tough could it be, looking over a few lines or paragraphs? Very tough, I soon learned. Translation is no cake walk. And feeling "at ease" in both official languages is no licence to translate. Like mathematicians, professional translators undergo long, rigorous training, and only through sustained experience do they achieve maximum speed and efficiency--of course, their training doesn't always prepare them for the challenge of unravelling the mysteries of our own mathematical jargon!

Though the CMS is already bilingual for the most part, documents always remain to be translated, and our organization doesn't have the means to pay for all of the work required. As a vice-president concerned by the CMS's budget deficit, I could not support systematically translating the scientific summaries of our summer and winter meetings. Yet, other Canadian organizations do so.

No matter, I now turn down requests to check translations or to translate myself. My fear is that the members of the Bilingualism Committee will become the next "victims".

### *An observation*

The English language, both in business and in science, is now the *lingua franca* of the late 20th and early 21st centuries. As such, this is an obvious statement. Our rapid march toward a predominant language of communication has bolstered science in general and mathematics in particular. Any young person launching a scientific career now has only one foreign language to master (if it's not already his or her first language) to gain access to the scientific literature of his or her field of research and to be able to share his or her study findings on a broad scale. And now, individuals can't claim that such and such a result was unknown to them because it had been published in a language they did not know.

The preponderance of English at this level is recent. Indeed, in 1900, when mathematicians were taking stock of their discipline and contemplating the future, David Hilbert (*Mathematische Probleme*) and Henri Poincaré (*L'avenir des mathématiques*) shared their reflections in their first language. So why did two of our discipline's primary languages see their role dwindle to such an extent? Only historians will be able to unravel the mystery. Still, the erosion comes with its share of negative effects, as I see it.

The first is the quality of English as we now witness in scientific journals. With more and more authors for whom English isn't their first language, a number of publishing houses fail to maintain high language standards. Indeed, trying to do so would cause undue publishing delays and cost a hefty amount.

The predominance of English and the now frenzied pace at which scientific careers evolve have added consequences—less immediate for the field of mathematics, but certainly significant for our society and our culture. The appeal of learning other languages, be it for scientific or cultural reasons, has waned—and that's a loss for each and every one of us.

Truth be told, writing an elegant, masterful scientific article is possible only when we do so in our mother tongue. Two almost century-old examples come immediately to mind: *On growth and form* by D'Arcy Thompson and *Les atomes* by Jean Perrin. A few decades from now, will any scholars try to rival these masters if their first language is not English? Of course, merely raising the issue makes me a hopeless nostalgic. So be it.

### *What will the mission of the Bilingualism Committee be?*

I see the establishment of the Bilingualism Committee as recognition that the CMS can do more to secure the place of French within the Society. That's *my* interpretation, make no mistake. But what more can the Society do exactly? Where should the Bilingualism Committee focus its attention? Oddly enough, in trying to answer that question, all I do is come up with others.

Can the CMS truly promote French-language communication in mathematics? Is that its role? Should certain parts of our meetings take place in French? Of course, if we held a few events in French, part of our community would be left out. That said, at each of our meetings, I meet up with colleagues who seem to revel in their efforts to speak to me in French. Come to think of it, we've had plenary conferences in French before—maybe we should consider that as a worthy tradition and maintain it.

The linguistic origins of Canada's mathematical community are varied indeed, as much if not more than those of Canadians as a whole. At CMS meetings, you hear an array of languages in the hallways and lobbies, like at other international gatherings—and that's how it should be. So, if our community boasts so many languages, why not use some of them at our meetings? Why grant a special status to French? Yes, English and French are Canada's two official languages. But I see another reason when it comes to our community, and a vital one at that: entice the country's Francophone students to get involved. Theirs

is certainly the largest group for which participating in our meetings proves intimidating linguistically. Some of us may say that if these up-and-comers want to survive scientifically, it's high time they learned English. Don't kid yourself: they know that already. But not all of them are ready, as aspiring PhDs, to absorb four days of English-language conferences or to write an NSERC scholarship application in anything but their first language. And might I ask: do all students from English-speaking provinces master a second language well enough to do that themselves?

The *CMS Notes* and *Crux Mathematicorum* are bilingual for the most part. That effort warrants our praise, especially in the case of *Crux,* which targets a younger audience. CMS' journals do accept articles in either official language, though few appear in French. Many colleagues—and I include myself here—are wondering if "*Publish or Perish*" is simply short form for the real slogan: "*Publish in English or Perish*." Are we under the impression that our peers see articles in languages other than English as second rate? Can we counter that sentiment, and is it worthwhile doing so?

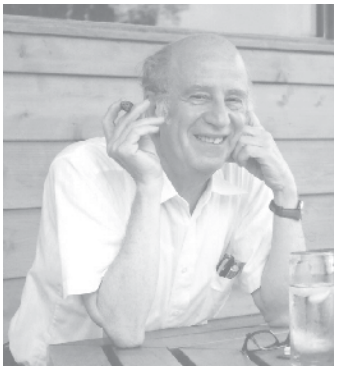
As channels of scientific discourse, languages other than English face a precarious future. We all know that, and some of us probably care little about it. But for those unsettled by the threat, finding a solution is a daunting challenge. Do we need to take concrete measures? If so, what kind? Do we need to assemble digital libraries or repositories of French-language scientific articles, both ancient and contemporary? Do we need to organize international gatherings where communications take place equally in *two* languages?

### Looking ahead…

The Bilingualism Committee is up and running, and its terms of references already appear on the CMS Web site. As for many other budding committees, its actual role and focus will come from its founding members—and that will prove to be an arduous task. Clearly, the objective isn't to reinstate French (nor German, nor Russian!) as the predominant language of mathematics. Still, even setting a modest course of action within the limited means at the Bilingualism Committee's disposal will be tough. So, I encourage you to pass along your thoughts and insights…and I wish the best of luck to each and every member.

Bernard Hodgson, Joseph Khoury, François Lalonde and Christiane Rousseau reviewed a preliminary version of this text and put forward a few ideas to fine-tune it. I thank them for that. I take full and sole responsibility, however, for this final published version.

## IN MEMORY OF: WILLIAM O.J. MOSER *(McGill University, Montreal, QC)*



William O. J. Moser (1927–2009) was born in Winnipeg, and graduated in 1949 from the University of Manitoba, following which he obtained a Master's degree in Mathematics in 1951 at the University of Minnesota. Moser's Ph.D. Thesis, written at the University of Toronto under H. S. M. Coxeter, evolved into the oft-cited standard Ergebnisse reference on combinatorial group theory (1957) known to generations as "Coxeter and Moser". Before arriving at McGill he held faculty positions at the University of Saskatchewan and the University of Manitoba. Much of his later seminal mathematical work was in the area now known as *discrete geometry*, where, with Peter Brass and János Pach, he published in 2005 *Research Problems in Discrete Geometry*. Moser's interest in problem solving extended far beyond this definitive monograph, and he was active for many years in provincial and national mathematics competitions for pre-university students, and in the publication for the Mathematical Association of America of *Five Hundred Mathematical Challenges* with E. Barbeau and M. Klamkin; with bawdy humour and other irreverence, problem solving was but one of the missions he shared with his older brother Leo Moser (1921–1970), who was also a mathematician. Willy, as he was known to his friends, served as President (1973–1975) and in other capacities in the Canadian Mathematical Congress — the predecessor to the Canadian Mathematical Society, and received their Distinguished Service Award in 2003. His experience in editing the Congress's journals served him well subsequently in multiple capacities, including editing his friends' writing — whether or not they requested it. Moser's relations with colleagues were more brotherly than collegial. Typically one might find in his entourage a speed chess match, a peripatetic friend expounding latest discoveries and conjectures, and others enjoying the conversion to mathematics of the potent coffee Willy brewed for his academic family, all bathed in the pungent second-hand smoke of Willy's cigar or pipe. He stubbornly remained active as an Emeritus Professor at McGill after his retirement in 1997, and after a subsequent stroke. On receiving the CMS Distinguished Service Award in 2003, he addressed the audience in these terms: *Be generous and patient as teachers, be active in projects which benefit the mathematical community and, above all, have as long and as happy a mathematical life as I have had, and am still having.*

He will be missed.

# 2008 ANNUAL REPORTS / RAPPORTS ANNUELS 2008

*The 2008 reports from the standing committee chairs are in the language provided by the chair. The Advancement in Mathematics, Mathematical Competitions, Nominating, Publications, Research, Student, and Women in Mathematics committee reports will appear in the May issue of the CMS Notes.*

*Les rapports 2008 des présidents de comités permanents sont livrés dans la langue de rédaction d'origine. Les rapports des comités sur l'avancement des mathématiques, des concourts mathématiques, des mises en candidature, des publications, de la recherche, d'étudiant et des femmes en mathématiques paraîtront dans le numéro de mai des Notes de la SMC.*

## EXECUTIVE DIRECTOR'S ANNUAL REPORT

*Graham P. Wright (University of Ottawa)*

### An Unexpected Year

What was going to transpire during 2008 could not have been predicted as the year started.

Since 1979, the CMS Executive Office has been located on the Campus of the University of Ottawa at 577 King Edward Avenue, in a building adjacent to the Department of Mathematics and Statistics. As the scope of the Society's activities grew so did the space requirements for the Executive Office staff and renovations were made to accommodate the resulting expansion. The CMS Executive Office occupied the entire building and although the space had some limitations, the rental costs were low.

Early in 2008, the office used by the Meetings Coordinator had problems with the roof that the University of Ottawa determined were not cost-effective to repair. Temporary measures were taken to enable the office to be used until July. The remaining offices were re-configured to accommodate all of the staff within the space available. This partial move was completed by the end of July.

As has been reported previously, during the demolition of the Meetings Coordinator's office at the beginning of August, serious structural problems were found in other parts of 577 King Edward Avenue. These problems meant that the Executive Office had to be relocated urgently as a matter of safety. With significant help from the Chair and staff of the Department of Mathematics and Statistics and from the Dean and staff of the Faculty of Science, temporary space was secured on the campus of the University of Ottawa. The move, in effect the second in six weeks, took place during the first week of September.

It had been hoped this temporary space would be available until the summer of 2009 but the CMS was informed it would have to vacate the space by the end of 2008. After an exhaustive search, no space could be found to enable the Executive Office to remain on the campus of the University of Ottawa and the best alternative was to rent space from the Canadian Pharamacists Association at 1785, Alta Vista Drive. Although not on the campus, the new location is relatively close to the University of Ottawa. Unfortunately, although very competitive, the rental costs for this commercial space are considerably more than the costs of being associated with the University of Ottawa. The serious space shortage that currently exists at the University of Ottawa should decrease in three years or so and, at that time, it may be possible for the Executive Office to move back on campus. A letter requesting a meeting with Allan Rock, President, University of Ottawa, to discuss future plans and the possibility to relocate on campus was sent in early 2009.

The third move took place at the end of December 2008 and the Executive Office was functioning at the new location by the first week of January 2009. I wish to commend and thank all of the staff at the Executive Office for dealing with a turbulent period in a very professional manner such that disruptions in services were minimized. Indeed, the significant disruptions were transparent to many members and subscribers. I also wish to thank Joseph Khoury, Associate Executive Director, for all of his efforts and support during this difficult period.

The Society's electronic services have expanded considerably in recent years but this was an area where more staff resources were needed to deal with increasing demands. In April 2008, Steve La Rocque joined the CMS Web Services Group in Ottawa. This has resulted in projects being completed that have been pending for a long time. One important project was the re-design of the CMS Website that was launched in June 2008. Work is now underway to re-vamp the journals pages and the electronic delivery of the Society's periodicals.

In August 2008, Susan Latreille left on maternity leave and is scheduled to return September 2009. Solange Hupé was hired on a limited term contract as the Assistant to the Executive Director. In December 2008, Rachel Cunningham resigned from the position of Administrative Assistant. Rachel wished to spend some time in Europe and may locate permanently in Ireland. Taking into account the available space at the Alta Vista Drive location and the significant financial pressures on the Society, the position has not been filled at this time. The duties of the Administrative Assistant are being assumed by other staff positions and the arrangement will be monitored going forward to determine the best strategy for the long-term.

The 2008 CMS Awards Banquet was combined with the University of Waterloo banquet for the winners of its competitions. The combined banquet took place on June 12, 2008 and was a very successful event for the students, parents, and sponsors. The arrangement will be continued for future years and I wish to thank Ian VanderBurg, Director, Centre for Education in Mathematics

and Computing (CEMC), for making this possible.

The 2008 IMO Send-off Reception was hosted by the Fields Institute and took place on June 27. There was very good media coverage for the event and several sponsors participated and made presentations to the team. The sponsors were impressed with the achievements and talents of the students. I wish to thank Barbara Keyfitz and the staff of the Fields Institute for their assistance with this highly successful event.

Thanks to the efforts of all of the organizers, the partners and the host university (Université de Québec à Montréal), the 2008 Canada-France Congress featured a superb program of plenary, prize and public lectures, 33 scientific sessions, and a number of related activities. Close to 800 participants attended the Congress. 475 participants attended the 2008 Winter Meeting, hosted by Carleton University. The 2008 Winter Meeting, with 11 plenary and prize lectures, a public lecture and 23 sessions was one of the best-attended CMS Winter meetings. Further details regarding these meetings can be found in the Research Committee Report.

In March 2008, the CMS lost a most valued colleague and friend – Jim Totten. Jim was the Editor-in-Chief of CRUX with MAYHEM until December 31, 2008 and was helping Václav Linek (Winnipeg) in the transition of editorial responsibilities until his untimely death. The CMS is very grateful to Václav (Vazz) for assuming extra editorial duties. A conference, *Sharing Mathematics: A Tribute to Jim Totten*, hosted by Thompson Rivers University, will be taking place from May 13-15, 2009.

The Society's periodicals continue to appear on schedule thanks to the efforts of all the editors, and the staff of the CMS Publications Office at the University of Manitoba.

Twenty-eight titles have appeared in the CMS Books Series with Springer and further titles will be released in the near future. Two books in the CMS Treatises in Mathematics Series with A.K. Peters have appeared and the third book is in the final stages of preparation. The first book (Summa Summarum) received excellent reviews. The first book (Problems from Murray Klamkin – The Canadian Collection) in the new Problem Series with the Mathematical Association of America appeared at the end of 2008.

The 8th volume in the ATOM series has been published (Problems for Mathematics Leagues III) and the 9th volume (The CAUT Problems) will be available in early 2009.

From May to August 2008, David Rodgers, CMS Treasurer, and Gerri Jensen were resident in Ottawa. I much appreciated the assistance David provided with many aspects of the Society's financial and administrative operations during this period. The CMS is also indebted to David and Gerri for their leadership and tireless efforts with the Society's fund raising initiatives.

As detailed in the Treasure's Report for 2008, although there will be a deficit in the Operations Fund, the deficit will be significantly less than projected. The decrease in the deficit arises from a number of factors including; increased donations from members, a most successful 2008 Winter Meeting, increased participation in the Sun Life Financial Canadian Open Mathematics Challenge, additional contract work, and some committee and administrative expenses being lower than estimates.

2008 was supposed to be my last year as the CMS Executive Director. Joseph Khoury was to assume the position of Executive Director effective January 1, 2009 but, for personal reasons, was not able to assume the position. I agreed to remain as CMS Executive Director for the short-term while the position is advertized, a person hired, and training is completed. It is hoped these steps will be completed by June 30, 2009. The CMS Board of Directors approved my re-appointment as the Executive Director and Secretary for the period January 1, 2009 to June 30, 2009, and I am grateful that Joseph Khoury will be continuing as Associate Executive Director, on a part-time basis (25%), for the same period.

My decision to continue as the Society's Executive Director and Secretary was greatly influenced by the excellent staff at the Executive Office, the support from the chairs and members of all the committees, the editors of our publications, and the assistance received from the President (Anthony Lau), the Past President (Thomas Salisbury) and the other members of the CMS Executive Committee.

## Education Committee Report

*Chair: Joseph Khoury (Ottawa)*

The role of the Education Committee is to help implement education strategies, consistent with the Society's mission and Strategic Plan. The Committee is also involved in developing new ideas and strategies that expand existing programs or in creating new programs with the goal of impacting more students and educators. This is accomplished by reviewing reports and issues that impact mathematics education in Canada, by carefully selecting the winners for Society's education prizes, and by recommending support for provincial and local educational activities.

In addition to selecting the winner for the Adrien Pouliot Award, choosing judges for the Canada Wide Science Fair, the Halton Peel Data Fair, appointing and assisting the organizers for the education sessions at both semi-annual meetings and overseeing the provincial grants applications, the Committee is now responsible for selecting the recipient of the CMS Excellence in Teaching Award. The Excellence in Teaching Award focuses on the recipient's proven excellence as a teacher at the undergraduate level, as exemplified by unusual effectiveness in the classroom and/or commitment and dedication to teaching and to students.

The Committee met twice in 2008 and the main activities throughout the year can be summarized as follows:

- The 2008 CMS Excellence in Teaching Award was presented to Dr. Edward Bierstone (Toronto) at the Second Canada-France Congress in Montreal. The Chair of the Committee introduced Dr. Bierstone before his talk.
- At the Summer Meeting in Montreal, the Committee selected Dr. Harley Weston (Regina) as the 2008 recipient of the Adrien Pouliot Award. Dr. Weston was presented the Award at the Winter Meeting Banquet in Ottawa.
- The 2008 Summer Meeting Education Session in Montreal was organized by Michèle Artigue (Paris) and Bernard Hodgson (Laval). The theme was "Technology and the teaching/learning of mathematics" and the session attracted many well-known mathematics educators from Canada and France.
- The 2008 Winter Meeting Education Session in Ottawa was organized by John Poland (Carleton) and Benoit Dionne (Ottawa). The theme was "Transition from High School to University" and the session included a very interesting panel discussion on the topic.
- The Committee secured organizers for the education sessions at both the 2009 semi-annual meetings. The organizer for the meeting in St-John's (June) is Sherry Mantyka from Memorial University of Newfoundland and the organizer for the meeting in Windsor (December) is Dragana Martinovic from the Faculty of Education, University of Windsor.
- The Committee approved a total of $2,950.00 in support of educational activities in Alberta, Manitoba, Newfoundland, Ontario, Prince Edward Island and Quebec.
- The 2008 Canada-Wide Science Fair took place on the Campus of the University of Ottawa in May. The Chair of the CMS Education Committee judged for the special award sponsored by the CMS ($1,000). The winner of the CMS award was Ethan Toumishey from St. Stephen High School in New Brunswick for his project "Take a Slide Down the Learning Curve".
- The 2008 Halton Peel Data Fair was held on April 3rd in Burlington for intermediate level students. The CMS prize winners were Hannah Aikman and Amy He from Pineland PS, HDSB for their project "If You Had $1000, What Charity Would You Choose?" and Tahmid Abdulla, Alexander's PS, HDSB for his project "TV and Video Games Versus Reading and Studying".
- The Education Committee Chair also chaired the NSERC/CMS Math in Moscow Scholarships competitions committee. The winners of the Spring Competition were Kyle Hambrook (Lethbridge) and Maxime Fortier Bourque (Laval) and the winner of the Winter Competition was Saman Gharib (UBC).
- The sub-committee for the CMS Excellence in Teaching Award met in Ottawa in December and chose the recipient for the 2009 Award. The winner will receive the Award at the Summer Meeting in St. John's.
- The CMS Math Camps provide an excellent opportunity to bring together talented students and to offer them a variety of enriching mathematical activities that demonstrate that the field of mathematics is fun, challenging, and rewarding. The Math Camp Coordinator (Daryl Tingly) is a member of the Education Committee. In 2008, thirteen regional camps and one national camp took place with at least one camp in every province with nearly 350 students participating. For 2009, about 400 students are expected. The committee is delighted by the continued success of the Math Camps Program. Comments from participants and organizers were extremely positive. A survey of participants shows that a vast majority indicated an increased interest in Mathematics, Science and Engineering.

## Electronic Services Committee Report

*Chair: Jacques Carette (McMaster)*

The Electronic Services Committee (ESC) provides policy oversight for the services provided by the Electronic Services Group in Ottawa and the Publications Office in Winnipeg.

For the Electronic Services Group, 2008 was a mixed year. After a number of years of turbulence, staffing at the Ottawa Office seems to have stabilized, and I am pleased to report that the CMS can look forward for this to have a very positive impact in 2009.

In 2008, the improvement in staffing produced visible results: the Society's website got a long-overdue makeover. Not only does the new website look much better, information is much easier to find. Furthermore, the underlying infrastructure has been modernized, so that further upgrades to the website, including addition of relevant content, should be greatly simplified.

Behind the scenes, further work was done: newer, more stable servers are now in place, which should insure reliable services. The office infrastructure stayed operational (save for short periods) through two moves in 2008. That these moves were generally invisible to CMS members reflects a large amount of work in the Office to make it so.

The Web Services Group continues to provide contract services to the Statistical Society of Canada (SSC). It is important that when the CMS undertakes contract work it should provide benefits to the CMS and not interfere with the mission of CMS electronic services.

In 2009, it is anticipated that more of the work of the Electronic Services Group will be directly visible to the membership. The ESC considers it very important to find an appropriate balance between pure infrastructure work that provides benefits for

the effectiveness of the CMS Executive Office staff, and work that is more directly visible and useful to the CMS members. For example, in conjunction with the Publications Office, a revamping of the web site for the Society's periodicals is planned in ways similar to the main web site. This should also allow for improved electronic delivery of our journals.

The Publications Office continues to produce issues of CMS periodicals on a timely basis with few problems, as well as providing editorial and technical assistance to other CMS-supported publications. While the Publications Office also has had issues with staffing and hardware problems, these did not have a visible effect on the publications, for which those responsible should be congratulated.

## Endowment Committee Report

*Chair: Karl Dilcher (Dalhousie)*

The main task of the Endowment Grants Committee is to adjudicate proposals for projects that request financial support from the CMS Endowment Grants Competition. Projects that are funded must contribute to the goals of the CMS and to the broader good of the Canadian mathematical community.

The committee was allocated $16,000 for the 2008 competition. Fifteen applications were submitted, of which six were funded. Given the very limited allocation, only two applications could be funded in full, but only for the first year. All others received partial funding, also for one year only. The total allocated amount was awarded. All applicants have been notified of the funding decisions.

The successful applications from the 2008 Endowment Grants Competition were:

- Contributing to the costs of a championship of mathematical games for school children involving thousands of students across Quebec and bringing hundreds to the Laval University campus.
- The Canadian version of an international contest-game for students in Grades 3-12; the CMS Endowment Grant will help with the expansion to more cities.
- Supporting the production of a high-quality French-language mathematical publication and its distribution to schools in Quebec.
- A French-language web-based mathematics competition based in Moncton, with mathematical problems at varying levels and expecting to reach thousands of students.
- Supporting mathematics competitions and a mathematics fair in Northern Ontario, aimed at students between Grade 7 and Grade 12.
- Supporting the 2009 Canadian Mathematics Education Forum, which will take place in May at Simon Fraser University.

More details on the successful applications can be found on the CMS website:

www.cms.math.ca/Grants/EGC/

Reports on projects funded in the past can also be found at this site.

Once again, the applications showed a great degree of diversity; they came from seven provinces, showed a good gender and linguistic distribution, and the target groups ranged from Grade 3 (elementary school) to university and teacher education.

The Endowment Grants Committee expects that, in spite of the difficult financial situation, a meaningful competition for Endowment Grants can also be held in 2009.

## Finance Committee Report

*Chair: Kenneth Davidson (Waterloo)*

This year was the second year in a row that the Society has passed a deficit budget for the coming year. Several unusual events have made this necessary, and the CMS has had to dig into its diminishing reserve funds to cope.

First, we are still suffering from loss of publication revenue due to the strong Canadian dollar this past year, since the vast majority of journal subscriptions are paid in US dollars. The current depressed state of our dollar is, in fact, good for the Society; and the predicted deficit will be much less if this prevails. To address this matter, the Finance Committee has established a sub-committee to look into currency hedging.

Secondly, the CMS unexpectedly had to vacate the rented space on the campus of the University of Ottawa. This has required securing space off-campus at a much higher rent, as well as the additional workload for the staff.

We also have the transition to a new Executive Director, with the proposed retirement of Graham Wright. This transition has been delayed to 2009 and will incur some additional expenses.

Finally, the market meltdown has resulted in a significant decrease in the CMS Endowed and Contingency Funds.

Clearly the CMS cannot continue to operate with deficit budgets. While a number of the key issues are unlikely to persist, it is nevertheless important for the Society to pursue avenues to secure and increase our revenues. There are really only three sources of funding.

The primary one is publications. One step taken this year was the introduction of an electronic-only price for the Society's journals. It is hoped that this will stem the decline in subscriptions as well as win back some subscribers.

The second main source of funds is membership fees. The Executive Committee has launched a concerted effort to increase the number of members among Canadian university faculty. There has been a significant increase in membership this past year, and a new push this year will hopefully continue the trend. I hope all members will encourage colleagues to join—especially new faculty members.

The third source of possible income is fundraising. The Society has made a concerted effort over the past few years, but it has not been particularly successful except for sources that have been staunch supporters of certain education initiatives for a long time. The attempt to find significant new funds for other areas has not been very successful but this was definitely not due to a lack of effort. Securing new major donors seems very unlikely and it is important for the Society to make every effort regarding the stewardship of existing sponsors. In the future, it appears that the CMS needs to focus on individuals as a means to increasing donations.

All together, the current picture is not rosy, but certainly looks as if there is a light at the end of the tunnel.

## International Affairs Committee Report

***Chair: Christiane Rousseau (Montréal) to September 22 and Richard Kane (Western) from September 23***

The International Affairs Committee (IAC) is the liaison committee that serves as the voice of Canadian mathematics within the International Mathematical Union (IMU). It is officially a committee of the National Research Council (NRC) and NRC provides most of the funding used to support the participation of Canadian mathematics within the IMU. Countries that are members of the International Mathematical Union are divided into five groups with Canada belonging to Group V, the highest group, consisting of only 10 countries.

Every four years, the IMU organizes an International Congress of Mathematicians (ICM). These Congresses are the major events of the mathematical world. In particular, the Fields Medals are presented at these Congresses. The most important initiative in the Canadian mathematical community during 2008 was the preparation and submission of a Canadian bid to hold ICM 2014 in Montreal. This bid was a sequel to the unsuccessful, but very well received, bid to hold ICM 2010 in Montreal. The ICM will conduct a site visit to Montreal in March of 2009 and the recommendation of the Site Committee regarding the three competing bids (Brazil, Canada, Korea) for ICM 2014 will be announced by May 31, 2009.

The major task of the IAC is to facilitate Canadian participation in IMU committees and activities. During 2008 the IAC completed a comprehensive effort to raise the level of Canadian participation in International Congresses. This initiative was a response to the small number of Canadian speakers at recent ICM's, small in comparison to the perceived stature of Canadian mathematics. Anticipating an official call in 2008 by the Secretary of the IMU for input by National Organizations to the Program Committee of ICM 2010, the IAC organized in 2007 the preparation of a list of Canadian mathematicians who deserve consideration as speakers at ICM 2010. The IAC first nominated 20 small sub-committees (consisting of two or three individuals) in each discipline covered by a session at ICM 2006. These sub-committees identified deserving Canadians in their discipline and arranged for short rationales to be prepared for each candidate. The IAC then nominated a General Committee that evaluated these suggestions and formulated a single list. The final list was submitted to the Secretary of the IMU in May 2008.

In the past few years there has been an increasing level of scrutiny by NRC regarding ongoing funding commitments. In particular, NRC's International Affiliations program came under review in 2007 and it was decided by NRC that a detailed annual performance review (APR) questionnaire would be sent out to all participants in the program with the goal of determining the strongest candidates for continued support. The APR evaluation is centered around two criteria: the relevance of the international affiliation within the Canadian context and the effectiveness of the liaison committee or supporting organization in "generating beneficial results and outcomes for Canadians". This detailed report on the impact of the International Affairs Committee was completed and submitted to NRC for the first time in February of 2008.

In 2007, the IMU issued a call for proposals which would offer "a sustainable location with associated suitable infrastructure at which the IMU secretarial staff could reside for a (long) period of time, and at which the costs of running the IMU operations is either low or covered by some long term grant/subsidy or the like." In response to this call, the Fields Institute has submitted a bid for hosting the secretarial staff of IMU, on a long-term basis, in Toronto.

The IAC unsuccessfully submitted the name of Jacques Hurtubise as the Canadian entry in a random draw conducted by the IMU to determine a member of the IMU Nominating Committee from Group V countries. Similar draws were conducted to determine a member from Group I and II countries and from Group III and IV countries. This Nominating Committee will determine the initial election slates for IMU positions which will be voted upon at the 2010 IMU General Assembly.

Finally, the year 2008 marked the end of Christiane Rousseau's four year term as IAC chair. She has been a diligent and effective chair throughout that period, helping to raise the profile of Canadian mathematics at the international level. In particular, the above described initiative to bring Canadian mathematics to the attention of the ICM 2010 Program Committee would not have taken place without her considerable efforts. It might also be mentioned that she chaired the organizing committee for the very well received Canadian ICM 2010 bid and is an active participant in the committee dealing with the 2014 bid.

## Invested Funds Committee Report

*Chair: David Bates*

The Invested Committee met at the Fields Institute, Toronto, twice during 2008, once in April and again in October. During the April meeting, investment strategy for the Endowed Funds was reviewed and the current passive investment approach using indexed funds was affirmed. Discussion of the issue of whether or not to consider using currency hedging for the funds concluded that, because this was only an operational issue for the CMS and not an investment return/risk issue, currency risk should be handled outside of the Invested Funds Committee. Suggestions regarding minor changes to the asset mix of the portfolio were deferred to the October meeting for a decision.

The global credit crisis, and the resulting economic downturn, dominated the discussions during the October meeting. A review of the Investment Fund Report as of September 30, 2008 revealed a yearly overall investment return of -10.69%, after the payment of the allocations approved in 2007 and annual administration fees, leaving the total funds invested at $1,436,888. The decline of the Canadian dollar, relative to the US dollar, served to cushion the effects of the recent market declines. In view of the size and global nature of the decline, it was decided inappropriate to consider any change in asset mix at this time.

Concern regarding the additional market declines that took place early in October prompted a postponement of the allocation vote until the effect of these declines on the invested funds was revealed. A subsequent report by TD Asset Management showed the valued of the invested funds as of October 16, 2008 to be $1,322,737 – an additional annual decline of approximately 6.3% since the end of the September. Concern for the preservation of the Endowed Funds' capital in the current economic conditions prompted the Committee to reduce the funding level for each endowment fund to 3% of the corresponding fund value less administration costs. The following projected allocations for the Endowed Funds for 2009, net of administration fees, were approved: $5,425 for the CMS Endowment Fund, $2,645 for the Olympiads Fund, and $693 for the David Borwein Fund.

At the October meeting, Tim Appelt announced his resignation from the Committee after serving the CMS for over 13 years as an investment consultant on the Finance Committee and subsequently on the Invested Funds Committee. The CMS is extremely grateful for Tim's contributions to the Society and wish him all the best.

## RAPPORT ANNUEL 2008 DU DIRECTEUR ADMINISTRATIF

*Graham P. Wright (Université d'Ottawa)*

### Une année toute en rebondissements

Nul n'aurait pu prévoir, en début d'année, les événements qui ont marqué 2008.

Depuis 1979, le bureau administratif de la SMC est hébergé sur le campus de l'Université d'Ottawa au 577, avenue King-Edward, dans un bâtiment adjacent au Département de mathématiques et de statistique. Le besoin d'espace pour accommoder le personnel s'est accru au rythme de la croissance des activités de la Société, si bien qu'il a fallu faire d'importantes rénovations, et que le bureau administratif de la SMC a fini par occuper tout le bâtiment. Malgré quelques contraintes et l'espace restreint, le loyer était peu élevé.

Au début de 2008, on a constaté un problème au niveau du plafond du bureau de la coordonnatrice des Réunions, problème que l'Université d'Ottawa n'a pas jugé rentable de réparer. Il a fallu prendre des mesures temporaires pour que le bureau soit habitable jusqu'en juillet. Une reconfiguration des bureaux restants a permis d'accueillir tout le personnel dans l'intervalle, et ce déménagement partiel s'est terminé à la fin de juillet.

Comme nous en avons déjà parlé, de graves problèmes structuraux ont été détectés au début d'août dans d'autres parties du 577 de l'avenue King-Edward durant la démolition du bureau de la coordonnatrice des Réunions. Il a fallu déménager le bureau administratif de toute urgence par mesure de sécurité. Grâce à l'aide du directeur et du personnel du Département de mathématiques et de statistique, ainsi que du doyen et du personnel de la Faculté des sciences, nous avons trouvé des locaux temporaires sur le campus de l'Université d'Ottawa. Ce déménagement, le deuxième en six semaines, a eu lieu la première semaine de septembre.

Nous avions espéré pouvoir rester à cet endroit jusqu'à la fin de l'été 2009, mais l'Université nous a informés qu'il faudrait libérer les locaux à la fin de 2008. Après une recherche exhaustive, nous n'avons pas trouvé de place pour garder le bureau administratif sur le campus de l'Université d'Ottawa. Notre meilleure option a donc été de louer des bureaux à l'Association des pharmaciens du Canada, au 1785, promenade Alta Vista. Même si nous ne sommes pas sur le campus, le nouvel emplacement est assez près de l'Université d'Ottawa. Malheureusement, même si le loyer est très concurrentiel par rapport au marché, il est beaucoup plus élevé que celui que demandait l'Université. La pénurie de locaux que vit en ce moment l'Université d'Ottawa devrait s'atténuer d'ici trois ans à peu près. À ce moment-là, le bureau administratif pourrait se réinstaller sur le campus. Nous avons d'ailleurs écrit au recteur Allan Rock, au début de 2009, pour discuter de nos projets et de la possibilité de ramener la Société à l'Université d'Ottawa.

Le troisième déménagement s'est donc produit à la fin de décembre 2008, et le bureau administratif était opérationnel dès la première semaine de janvier 2009. Je tiens à remercier le personnel du bureau d'avoir géré cette période de turbulence avec autant de professionnalisme, de sorte que les interruptions de services ont été minimales. En effet, bien des membres et abonnés n'ont rien vu de tous ces chambardements. J'aimerais aussi remercier Joseph Khoury, directeur administratif adjoint, de ses grands efforts et de son soutien durant cette période difficile.

Les Services électroniques de la Société ont connu une croissance fulgurante au cours des dernières années, sans toutefois que les ressources humaines n'augmentent au même rythme. En avril 2008, Steve La Rocque s'est donc joint à l'équipe des services web de la SMC à Ottawa. Depuis son arrivée, des projets qui étaient en attente depuis longtemps se sont réalisés, notamment la refonte du site de la SMC, dont la nouvelle version a été lancée en juin 2008. L'équipe travaille en ce moment à la mise à jour des pages de nos revues et à la parution électronique des périodiques de la Société.

En août 2008, Susan Latreille est partie en congé de maternité et devrait revenir au travail en septembre 2009. Solange Hupé a été engagée pour un contrat à durée limitée en tant qu'adjointe du directeur administratif. En décembre 2008, Rachel Cunningham a quitté son poste d'adjointe administrative. Elle a quitté le Canada pour l'Europe et pourrait s'installer en Irlande de façon permanente. Compte tenu de l'espace dont nous disposons sur Alta Vista et des contraintes financières qui pèsent sur la Société, nous n'avons pas encore pourvu ce poste. Pour l'instant, les tâches de l'adjointe administrative sont donc distribuées entre les autres membres du personnel, mais nous réévaluerons la situation au fur et à mesure et verrons ce qu'il faut faire à long terme.

Le banquet des prix de la SMC 2008 a été jumelé au banquet où l'Université de Waterloo remettrait ses propres prix. L'événement, qui s'est tenu le 12 juin 2008, a

remporté un très vif succès auprès des étudiants, parents et commanditaires. La formule sera sûrement reprise dans les années à venir. Je remercie Ian VanderBurg, directeur du Centre d'éducation en mathématiques et en informatique, d'avoir rendu cet événement possible.

La réception pour souligner le départ de l'équipe de l'OIM 2008 s'est déroulée à l'Institut Fields le 27 juin. L'activité a reçu une excellente couverture médiatique, et plusieurs commanditaires y ont participé et fait des présentations. Ces derniers se sont dits impressionnés des réalisations et du talent des élèves. J'aimerais remercier Barbara Keyfitz et le personnel de l'Institut Fields de leur aide dans l'organisation de cette belle réussite.

Grâce au travail des organisateurs, des partenaires et de l'université hôte (l'Université du Québec à Montréal), le congrès Canada-France 2008 a présenté un superbe programme de conférences plénières, publiques et de lauréats, 33 sessions scientifiques et plusieurs activités connexes. Près de 800 participants y ont pris part. Quelque 475 participants ont assisté à la Réunion d'hiver 2008, tenue à l'Université Carleton. Avec ses 11 conférences plénières et de conférenciers, sa conférence publique et ses 23 sessions au programme, ce fut l'une des Réunions d'hiver les plus populaires de l'histoire de la SMC. Pour de plus amples renseignements sur ces rencontres, on consultera le rapport du Comité de la recherche.

En mars 2008, la SMC a perdu l'un de ses collègues et amis les plus précieux en la personne de Jim Totten. Le mandat de Jim comme rédacteur en chef du CRUX with MAYHEM devait se terminer le 31 décembre 2008; il aidait Václav Linek (Winnipeg) durant le transfert des responsabilités, jusqu'à son départ soudain. La SMC est très reconnaissante envers Václav (Vazz) des tâches éditoriales supplémentaires qu'il a accomplies. L'Université Thompson Rivers sera l'hôte d'une conférence intitulée Sharing Mathematics: A Tribute to Jim Totten du 13 au 15 mai 2009.

Les périodiques de la Société continuent de paraître selon l'horaire prévu grâce aux efforts de tous les rédacteurs et du personnel du bureau des publications de la SMC, à l'Université du Manitoba.

Vingt-huit titres sont déjà parus dans la collection « Ouvrages de mathématiques de la SMC », en collaboration avec Springer, et d'autres titres paraîtront bientôt. Deux ouvrages ont été publiés dans la collection « Traités mathématiques de la SMC », en collaboration avec A.K. Peters, et le troisième en est aux dernières étapes de préparation. Le premier ouvrage (Summa Summarum) de cette collection a reçu d'excellentes critiques. Le premier numéro de la nouvelle collection « Problem Series with the Mathematical Association of America » (Problems from Murray Klamkin -- The Canadian Collection) est paru à la fin de 2008.

Le 8$^{e}$ volume de la collection ATOM vient de paraître (Problems for Mathematics Leagues III), et le 9$^{e}$ volume (The CAUT Problems) sortira au début de 2009.

De mai à août 2008, David Rodgers, trésorier de la SMC, et Gerri Jensen ont élu domicile à Ottawa. Je suis très reconnaissant à David pour sont aide à de nombreux aspects des opérations financières et administratives de la Société durant cette période. La SMC doit aussi une fière chandelle à David et Gerri pour leur direction et leurs efforts soutenus au chapitre des activités-bénéfices de la Société.

Comme vous le lirez en détail dans le rapport du trésorier 2008, nous terminerons l'année avec un budget de fonctionnement déficitaire. Le déficit sera toutefois beaucoup moins élevé que prévu, et ce, en raison de plusieurs facteurs, notamment : une hausse des dons des membres; le vif succès de la Réunion d'hiver 2008; une hausse de la participation au DOCM; des contrats supplémentaires; des dépenses de comités et des dépenses administratives inférieures aux prévisions.

L'année 2008 devait être ma dernière à titre de directeur administratif de la SMC. Joseph Khoury devait prendre ma place à compter du 1$^{er}$ janvier 2009, mais il n'a pu le faire pour des raisons personnelles. J'ai donc accepté de demeurer en poste à court terme, durant la période de recrutement, d'embauche et de formation de la personne qui me remplacera. Nous espérons que ces étapes seront franchies d'ici le 30 juin 2009. Le conseil d'administration a approuvé mon retour au poste de directeur administratif et secrétaire pour la période s'échelonnant du 1$^{er}$ janvier 2009 au 30 juin 2009, et je remercie Joseph Khoury de conserver le poste de directeur administratif adjoint à temps partiel (25 %) durant cette période.

Ma décision de rester en tant que directeur administratif et secrétaire de la SMC a été grandement influencée par l'excellent personnel du bureau administratif, le soutien des présidents et membres des comités, les rédacteurs de nos publications et l'aide du président (Anthony Lau), du président sortant (Thomas Salisbury) et des autres membres de l'exécutif de la SMC.

## CANADIAN MATHEMATICAL SOCIETY / SOCIÉTÉ MATHEMATIQUE DU CANADA

Room SH-3420, Université du Québec à Montréal, Montréal, (Québec), Tuesday June 3, 2008.
The meeting was called to order at 12:50 p.m. There were 31 members in attendance.

**1. Adoption of the agenda.**
The agenda was accepted as circulated.

**2. Minutes of the previous meeting.**
**G–08–1 MOTION (Robert Woodrow/Michael Bennett)**
**That the minutes of the previous Annual General Meeting, held on June 1, 2007 at the Delta Hotel, Winnipeg, Manitoba be accepted.** *Carried Unanimously*

**3. Matters Arising.**
There were no matters arising which would not be covered during the meeting.

**4. President's and Advance of Mathematics Committee Report.**

**4.1. CMS Executive Director – Transition Arrangements.**
Thomas Salisbury summarized the discussions that had taken place with Joseph Khoury and Graham Wright regarding the transitional arrangements for the Executive Director position. Agreements have been signed with the University of Ottawa regarding the use of office space in the Department of Mathematics and Statistics to June 30, 2009.

Wright will continue as the CMS Executive Director until December 31, 2008 and Joseph Khoury has been appointed as the Associate Executive Director for the period July 1, 2008 to December 31, 2008. Salisbury thanked the University of Ottawa for its cooperation in reaching the transitional arrangements for Khoury's appointment.

Khoury has also been appointed as the CMS Executive Director from January 1, 2009 until June 30, 2009. Before May 1, 2009, Khoury must notify the University of Ottawa if he will not be returning in July 2009. If he will be continuing, and the CMS would need to establish a further contract with him. Wright and the CMS and Khoury and the CMS have signed agreements for the periods mentioned above.

**4.2. 2009 Mathematics Education Forum.**
Salisbury reported that the 2009 Math Education Forum is scheduled to take place in Vancouver from April 30 to May 3. This will be the fourth in the series of fora. The organizational structure has involved three co-chairs (France Caron, Malgorzata Dubiel, Peter Taylor), but France Caron has had to step down, and has been replaced by Viktor Freiman of the Université de Moncton.

**4.3. ICM 2014.**
Christiane Rousseau has informed the CMS that a decision has been taken by those in Montreal, along with the rest of the Canadian community, to submit a bid for ICM 2014. Rousseau is leading the bid and Bruno Rémillard has accepted to be the main organizer if Canada is successful. The CMS Board has committed to provide $100,000 for ICM 2014, should the bid be successful. Rousseau indicated that the Institutes have also pledged their support.

The preparation of the bid will be inspired by much of what was done for the 2010 bid. The 2010 bid was prepared by the NRC, which will also be preparing the bid for 2014.

**4.4. Joint Meetings between the CMS and the Korean Mathematical Society and the Sociedad Matematica Mexicana.**

The Korean Mathematical Society (KMS) has expressed great interest in developing ties with the Canadian mathematical community. The KMS has agreed to host a special session with the Canadian Mathematical Society at their annual meeting in October 2008.

The speakers for the CMS/KMS session of the meeting of the Korean Mathematical Society October 23 - 25, 2008 in Jeju, Korea will be:

- Alejandro Adem (UBC)
- Bruce Reed (McGill)
- Nicole Tomczack-Jaegermann (Alberta)
- Roland Speicher (Queens)
- Anthony Lau (Alberta)

As a reciprocal gesture, a joint special session will take place at the CMS Summer Meeting in Newfoundland in June 2009, with five speakers from Korea.

The second CMS/SMM joint meeting will be held in August 2009 in Vancouver and will be hosted by PIMS.

**4.5. Fund-raising Matters.**
As of the CMS Winter 2007 meeting, major new fund-raising revenues had not yet materialized from the Society's fund-raising initiatives. Salisbury was pleased to report that results have now been coming in, and the educational activities of the Society are nearly fully funded. SunLife Financial has become the title sponsor of the Canadian Open Mathematics Challenge. The Imperial Oil Foundation is a major sponsor of the International Mathematical Olympiads program. NSERC PromoScience, the Harold Crabtree Foundation, TD Bank Financial Group and the RBC Foundation are providing funding for the Math Camps program in 2008, as are many provincial governments.

As Development Coordinator, Mark Bowman was a great help in assembling a range of fund raising materials. As part of reconfiguration of the fund raising initiative, Bowman left the CMS. Fund raising efforts are continuing, and the CMS Treasurer David Rodgers and Gerri Jensen are putting substantial efforts into garnering corporate and foundation support for CMS activities.

The establishment of the US charitable corporation "Friends of the CMS" has been approved and formal confirmation has been received from the US Internal Revenue Service. Consequently, tax receipts can be issued for US based donations.

**4.6. Other Matters.**
On the advice of the CMS Human Rights Officer, Salisbury wrote to the Chadian government regarding an abducted mathematician. External Affairs Canada was also contacted in this regard.

**5. Treasurer's Report.**
Rodgers drew attention to the Treasurer's Report and Audited Statement for the year 2007, which had been included in the meeting documents.

In September 2007, the projected deficit in the Operations Fund for 2007 was $158,099. Through a combination of reduced projected expenses and increased projected revenues, the 2007 Audited Statements show a deficit of $129,674. Most of the 2007 deficit is due to an unanticipated mid-year increase in non-North American postage rates, the dramatically weakened US dollar, and the inability to achieve 2007 fund-raising goals.

The 2008 budget projects a deficit of $54,000, in large part due to one-time transitional costs associated with the Executive Director position.

Relative to the 2008 budget, steps were taken to:

- Approve a supplemental increase in 2008 subscription rates to bring them to an overall 6.6% to cover increased production and postage costs.
- Render financially neutral a decision to add pages to the Journal by making a slight change to the page size.
- Re-double efforts to approach CMS members and subscribers for the Journal and Bulletin who have not renewed for 2008, and to grow the subscription base for CRUX with MAYHEM (CwM). A promotional brochure for CwM has been mailed initially to about 850 institutions.
- Eliminate all foreign exchange revenue (approximately $75,000) from the 2008 budget.
- Institute a formal quarterly review of key financial indicators benchmarked against 2007 results.

Rodgers and Gerri Jensen have identified about 110 corporations and foundations as fund raising prospects which appear to have funding goals which are a good fit with the CMS. Of these, 60 have been contacted. So far, four of these organizations have indicated a strong interest and the intention to take CMS proposals to their Board.

At the Board of Directors Meeting, which took place on June 1, 2008, the fee for CMS meetings was increased by $50. This, together with other measures, will reduce the subsidy to the CMS meetings from other operations from about $72,000 per meeting to around $40,000.

Planned giving materials (brochure and web site pages) have been developed and copies of the brochure are available at this meeting.
So far this year, revenues are up slightly in all categories.

**5.1. Audited Statement.**
**G-08-2 MOTION (Board of Directors)**
**That the Audited Statements for the period ending December 31, 2007 be accepted.** *Carried Unanimously*

**5.2. Treasurer's Financial Report.**
Rodgers pointed out a misprint on page 6 of the Treasurer's Report, where the projected 2008 budget deficit of $54,586 was erroneously indicated as a surplus.

**G-08-3 MOTION (Board of Directors)**
**That the Treasurer's Report for the period ending December 31, 2007 be accepted, as amended.** *Carried Unanimously*

**5.3. Appointment of auditors.**
In spite of a modest increase in auditing fees, the audit costs are still a good value for the work done.

**G-08-4 MOTION (Board of Directors)**
**That the firm of Raymond Chabot Grant Thornton be appointed as auditors of the Canadian Mathematical Society for the period ending December 31, 2008.** *Carried Unanimously*

**6. Executive Director and Secretary's Report.**
Wright highlighted the contribution which David Rodgers and Gerri Jensen have been making to the fundraising effort.

Wright reported that Denise Charron, Membership and Publications Agent, and Laura Alyea, Membership and Publications Assistant, who were hired in the latter part of 2007, have transitioned into their duties and the impact of the change on membership and publications services was minimal. Charron is facilitating promotion of memberships and CMS publications.

For the past several years, a significant number of projects related to the CMS web site and other electronic services have either not been done or been significantly delayed, largely due to insufficient staff resources. Steve La Rocque, who helped with the Math Central Web Site in Regina and who had been providing limited assistance for the CMS on a contract basis prior to 2008, agreed to come to Ottawa on a temporary basis from February to April. This has resulted in notable progress being made in a number of areas, for example, the re-design of the CMS Web Site.

Alan Kelm, the CMS Web Services Manager, requested that effective June 1, 2008, his time be reduced to 90% and that the savings from this change enable the CMS to hire Steve La Rocque on a contract basis (28 hours per week) from May 18 for the remainder of 2008. The impact on the salary budget for 2008 would be an increase of just under $9,000 and the savings in salaries related to the fund raising activities more than offsets this increase. Both Alan Kelm and Steve La Rocque are very pleased that the CMS has agreed to this arrangement.

Effective August 2008, Susan Latreille, Assistant to the Executive Director, will be taking maternity leave, possibly until May 2009. A temporary replacement will be hired for the administrative duties from August 2008 to May 2009.

Once again, the use of personalized email reminders for membership renewals was well-received. Income from membership fees for 2007 was lower than 2006. Significant efforts are underway to increase membership, either through retention of current members or efforts to attract new members.

The staff continues efforts to maintain and increase the level of subscriptions to CMS periodicals. A CRUX with MAYHEM promotional brochure has been produced which is being distributed to strong high schools as well as colleges and other potential subscribers in Canada and the US.

It was with considerable sadness that the CMS learned of the untimely death, on March 9, 2008, of Jim Totten, one of the Editors-in-Chief of CRUX with MAYHEM. Dr. Bill Sands, University of Calgary, represented the CMS at the Celebration of Jim's Life at Thompson Rivers University. The CMS is making a contribution to the Jim Totten Scholarship.

Dr. Vaclav Línek, had been appointed as an Editor-in-Chief (CRUX with MAYHEM) with Jim as of January 1, 2008. Although it had been anticipated that he would assume overall responsibilities in July 2009, he took over all of the editorial duties immediately. The May issue was delayed but is now in production. The CMS is very grateful to Vaclav for all his efforts on behalf of CRUX with MAYHEM.

The CJM, CMB and CMS Notes continue to appear on or ahead of schedule and are available on-line. The CMS Notes Editors-in-Chief have had their terms extended by three years.

Six responses to the CMS Request for Proposals regarding production and subscription management of the CMS journals have been received and are being reviewed. Rodgers and Wright will be continuing the review process during the summer.

It has been agreed to combine the CMS Competitions Awards Banquet with the Banquet of the Centre for Education in Mathematics and Computing, University of Waterloo. The Banquet will take place from 5:30 to 8:30 p.m. on Thursday June 12, 2008.

The IMO Summer Training Seminar will take place at Wilfrid Laurier University from June 27 to July 9, 2008. The 2008 IMO Send-off Reception and media event will take place at the Fields Institute on Friday June 27.

On behalf of himself and the staff at the Executive Office, Wright thanked Tom Salisbury for his leadership and tremendous efforts on behalf of the Society over the past two years.

**7. 2007 Annual Report to the Members.**
Law requires that the Society produce and approve an annual report. Copies were available for review. Some minor errors have been found and will be corrected.
**G-08-5 MOTION (Board of Directors)**
**That the 2007 Annual Report to the Members be accepted, as amended.** *Carried Unanimously*

**8. Reports from Committees.**
**Advancement of Mathematics:**
Matters pertaining to the Advancement of Mathematics Committee have already been reported upon.

**Education:**
Wright reported on behalf of Joseph Khoury that the Education Committee is proposing changes to the Terms of Reference for the CMS Excellence in Teaching Award.

The CMS Board of Directors has approved that the selection for the CMS Excellence in Teaching Award and for the Adrien Pouliot Award be the responsibility of a sub-committee of the Education Committee. This is similar to the research awards where the selection is done by a sub-committee of the Research Committee. The Terms of Reference for the two sub-committees have been approved and the Terms of Reference for the Education Committee are being modified to reflect the work of these sub-committees.

Members are encouraged to nominate their colleagues for prizes. Organizers for Education Sessions at upcoming meetings have been selected.

**Electronic Services:**
Jacques Carette reported that the re-designed CMS website is now on-line, and its organization facilitates access to useful information. Recent staffing changes are expected to result in more visible improvements to services for members.

**Endowment Grants:**
Karl Dilcher commented on the 2007 Endowments Grants Competition. Only $16,000 was available for allocation, although there were 18 applications from 8 of the 10 provinces. Due to limited funds, grants for only a single year were awarded. Members are encouraged to submit proposals for the 2008 Competition.

**Finance:**
Kenneth Davidson explained that due to budget deficits, all aspects of the Society's expenditures have been carefully examined. This review has resulted in some reduction in expenditures, and there has been some improvement in the financial situation. It is hoped that the CMS will return to having balanced budgets by 2009.

**International Affairs:**
Christiane Rousseau noted that a list of proposed Canadian speakers has been submitted to the Programme Committee for ICM 2010. A bid is being assembled for hosting ICM 2014 in Canada.

**Invested Funds:**
On behalf of David Bates, Salisbury reported that the Invested Funds Committee continues to monitor investment portfolio

performance, and review asset allocation. The Committee has also been considering currency hedging, although none has been undertaken so far.

**Mathematical Competitions:**
Neal Madras reported that the 2007 IMO was held in Hanoi, Vietnam. The Canadian team placed 27th out of 93 teams. Four members of the 2007 team will be on the Canadian IMO team for 2008.

The 2007 COMC was written by a record number of about 7,000 students. The top 50 of these students were invited to compete in the CMO. For the first time, a further 200 students were invited to complete an additional set of problems, and 35 of these students were invited to also compete in the CMO.

The Board of Directors has approved a change in the eligibility rules for the Canadian Mathematical Olympiad. The revisions will make the rules simpler to implement.

Kalle Karu of UBC will be taking over from Ed Barbeau as Chair of the CMO Committee and Christopher Small of Waterloo will replace Bill Sands as Chair of the IMO Committee. Thanks were expressed to Barbeau and Sands for their many years of service.

**Nominating:**
Edgar Goodaire mentioned that the Nominating Committee is responsible for filling nearly 150 positions on CMS committees and the Board. He expressed appreciation for the many volunteers who serve on CMS committees, and pointed out that they make a significant impact upon the mathematical community.

**Publications:**
On behalf of Matthias Neufang, Karl Dilcher reported on the appearance of new books in the CMS books series. Wright mentioned that two books are in preparation for the CMS Treatises in Mathematics series and three books are in preparation for the Canadian Problems Series. Henri Darmon has been appointed as Editor-in-Chief of the Treatises in Mathematics series. Wright outlined some approaches being considered to address the backlog of papers awaiting publication in the Journal.

**Research:**
Edward Bierstone explained that the main tasks of the Research Committee are to arrange for sessions and plenary speakers for CMS meetings, and to select recipients for the research prizes. He summarized the status of preparations for the next four CMS meetings. The Research Committee has supported the proposal to discontinue funding for core sessions at CMS meetings. Plenary speakers will also be invited to cover their own costs if they have access to other funding.

**Students:**
Jenna Tichon stated that the Student Committee sponsors regional student conferences, and has funds to support four such events this year. The Committee organized a panel discussion for students at the current meeting, and it was well attended. The Canadian Undergraduate Mathematics Conference (CUMC) will occur July 9-12 at the University of Toronto. Students should be encouraged and supported to attend this conference. The Committee is working to establish a scholarship for sending undergraduate students to the CUMC. The Committee is recruiting additional members and has recently found an Atlantic representative.

**Women in Mathematics:**
Yvan Saint-Aubin reported on behalf of Ping Zhou that the Committee is organizing the fourth Connecting Women in Mathematics Across Canada (CWiMAC) workshop, to be held in Ottawa just prior to the 2008 Winter Meeting. The workshop provides an opportunity for networking of women mathematicians, as well as an opportunity for mentoring participants who are at early stages in their career.

**Math Camps:**
Wright reported on behalf of Daryl Tingley that 15 regional camps and one National Camp are taking place in 2008. The camps are well-funded, and additional sites would be welcomed. Donors are especially interested in supporting camps that target under-represented groups. Quebec is one of several provinces that could benefit from additional camps.

**9. Other Business.**
Salisbury reported that the Associate Publisher position will be discontinued when Jon Borwein steps down at the end of June. Each Editorial Board now has one or more Editors-in-Chief and is therefore able to operate on its own.

Salisbury thanked outgoing committee chairs Bill Sands, Ed Barbeau, and Edgar Goodaire, as well as Associate Publisher Jon Borwein for their dedicated service to the CMS.

On behalf of the members of the Society, Lau thanked Salisbury for his leadership, dedication and hard work as President of the Society.

Wright thanked the organizers of the Second Canada-France Congress for their outstanding work in organizing such a large and successful meeting.

**10. Adjournment.**
The meeting adjourned at 1:53 p.m.

President
**Thomas Salisbury**

Secretary
**Graham P. Wright**

Recording Secretary
**Alan Kelm**

# CALENDAR OF EVENTS / CALENDRIER DES ÉVÉNEMENTS

## APRIL 2009 AVRIL

**30 - May 3 Canadian Mathematics Education Forum 2009**
**Host: Pacific Institute for the Mathematical Sciences (Vancouver)**
**SFU Vancouver Campus**
www.cms.math.ca/Events

## MAY 2009 MAI

**4-8** Combinatorics, Randomization, Algorithms and Probability
(CRM, Montreal, QC)
www.crm.umontreal.ca/CARP09/Index.php

**8-10** Workshop on "Connections in Geometry & Physics"
(Perimeter Inst. for Th. Physics, Waterloo, ON)
www.math.uwaterloo.ca/~gap/

**10-15** ICMI (International Commission on Math Instruction) Study Conference on 'Proof and Proving in Mathematics Education'
(Taipei, Taiwan)
www.icmi19.com

**27-31** Fields Institute Workshop on Geometry Related to the Langlands Programme
University of Ottawa, Ottawa, Canada
www.fields.utoronto.ca/programs/scientific/08-09/Langlands

## JUNE 2009 JUIN

**6 - 8 CMS/CSHPM Summer Meeting 2009**
**Memorial University of Newfoundland, St. John's (NL)**
www.cms.math.ca/Events

**9 - 13** International Conference on Nielsen Theory and Related Topics
Memorial University of Newfoundland, St. John's (NL)
keppelma@unr.edu

**14 - 20** 47th International Symposium on Functional Equations
(Gargnano, Italy)
GianLuigi.Forti@mat.unimi.it

**10 - 14** Annual meeting of the Canadian Applied and Industrial Mathematics Society (CAIMS 2009)
(University of Western Ontario,London, ON)
www.apmaths.uwo.ca/CAIMS2009

**15-18** 3rd International Conference On Maths and Stats (Athens, Greece)
www.atiner.gr/

**15-19** Analytic Theory of automorphic forms
(Woudschoten, Netherlands)
www.math.uu.nl/rb65

**15-July 3** Summer School and Conference in Geometric Representation Theory and Extended Affine Lie Algebras (University of Ottawa)
www.fields.utoronto.ca/programs/scientific/08-09/geomrep/

**22-July 3** SMS Summer School on Computational and Experimental Approaches to Automorphic Forms
(CRM, Université de Montreal, QC)
benhima@CRM.UMontreal.ca

**25-28** Computer Algebra in Education session of ACA 2009
(Ecole de technologie superieure, Montreal, QC)
http://aca2009.etsmtl.ca/Education/
Univ. Bialystok,

**28-July 4** Workshop on Geometric Methods in Physics
(University of Bialystok, Bialowieza, Poland)
www.wgmp.uwb.edu.pl/index.html,
voronov@manchester.ac.uk

## JULY 2009 JUILLET

**10 - 22 The 50th International Mathematical Olympiad (Bremen, Germany)**
www.cms.math.ca/Competitions/IMO/

**12-Aug 8** AARMS (Graduate) Summer School 2009, UNB-Fredericton
www.aarms.math.ca/summer/

**27 - 30** The Society for Mathematical Biology Annual Meeting
(UBC, Vancouver, BC)
www.math.ubc.ca/research/MathBio/SMB2009/

## AUGUST 2009 AOÛT

**3 - 8** International Congress on Mathematical Physics (ICMP09)
(Clarion Congress Hotel, Prague, Czech republic)
www.icmp09.com

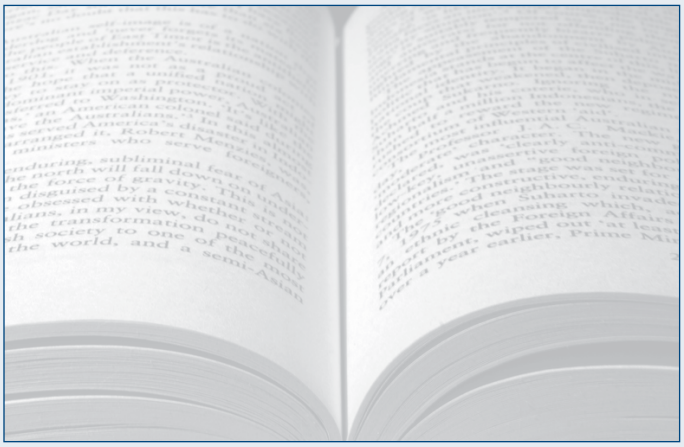
**12 - 14** 18th USENIX Symposium
(Le Centre Sheraton Hotel Montreal,West Montreal, QC)
www.usenix.org/events/sec09

**13-15 Second CMS/SMM Meeting 2009**
**Host: Pacific Institute for the Mathematics Sciences (PIMS)**
**University of British Columbia, Vancouver (BC)**
www.cms.math.ca/Events/CMS-SMM-2009/

## OCTOBER 2009 OCTOBRE

**12-16** Algebra, Geometry, and Mathematical Physics 5th Baltic-Nordic Workshop (Bedlewo, Poland)
www.agmf.astralgo.eu/bdl09/

## 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.

**Avez-vous écrit un livre récemment?**
Vous aimeriez une critiques littéraires de celui-ci dans les Notes de la SMC? Si oui, veuillez faire parvenir une copie au rédacteur des critiques littéraires.

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

# Tarifs et horaire 2009 Rates and deadlines

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

| Issue date/ date de parution | Content deadline / Date limite pour contenu |
|---|---|
| February / février | December 1 / le 1 décembre |
| March / mars | January 15 / le 15 janvier |
| April / avril | February 15 / le 15 février |
| May / mai | March 15 / le 15 mars |
| September / septembre | July 15 / le 15 juillet |
| October / octobre | August 15 / le 15 août |
| November / novembre | September 15 / le 15 septembre |
| December / décembre | October 15 / le 15 octobre |

| Net rates / tarifs nets | Institutional Members / Library<br>Membres institutionnels / Bibliothèques | Corporate Members<br>Membres Organisationels | Others/Autres |
|---|---|---|---|
| Full page / page complète | 260.00 | 485.00 | 645.00 |
| 3/4 page | 240.00 | 445.00 | 595.00 |
| 1/2 page | 160.00 | 295.00 | 395.00 |
| 1/4 page | 95.00 | 175.00 | 235.00 |
| Back cover | 325.00 | 615.00 | 815.00 |
| Inserts | 195.00 | 375.00 | 495.00 |

For more than 4 pages, or for the printing and inserting of camera ready material, please send a sample to the CMS Notes for a quote.
Surcharges apply for prime locations - contact notes-ads@cms.math.ca. Subscription to the Notes is included with the CMS membership. For non-CMS members, the subscription rate is $60 (CDN) for subscribers with Canadian addresses and $60 (US) for subscribers with non-Canadian addresses.

Pour plus de 4 pages, ou pour l'impression et l'inclusion d'une copie prête à la reproduction, veuillez envoyer un exemple aux Notes de la SMC afin d'obtenir un estimé.
Des suppléments sont applicables pour des places de choix - communiquer avec notes-ads@smc.math.ca. L'adhesion à la SMC comprend l'abonnement aux Notes de la SMC.
Le tarif d'abonnement pour les non-membres est de 60 $ CDN si l'adresse de l'abonné est au Canada et de 60 $ US si l'adresse est à l'étranger.

# New and Noteworthy from Springer

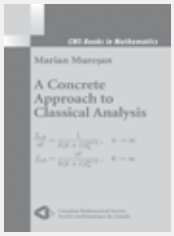
## Least-Squares

### Finite Element Methods

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

Finite element methods have become one of the most versatile and powerful methodologies for the approximate numerical solution of PDEs. This book is a thorough yet concise guide to the theory and practice of least-square finite element methods.

2009. Approx. 285 p. (Applied Mathematical Sciences, Volume 166) Hardcover
ISBN 978-0-387-30888-3 ► **approx. $69.95**

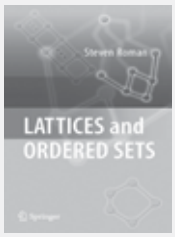



## A Concrete Approach to Classical Analysis

**M. Muresan**, Babes-Bolyai University, Cluj-Napoca, Romania

Mathematical analysis offers a solid basis for many achievements in applied mathematics and discrete mathematics. This new textbook is focused on differential and integral calculus, and includes a wealth of useful and relevant examples, exercises, and results enlightening the reader to the power of mathematical tools. The intended audience consists of advanced undergraduates studying mathematics or computer science.

2008. Approx. 455 p. 29 illus. (CMS Books in Mathematics) Hardcover
ISBN 978-0-387-78932-3 ► **$69.95**

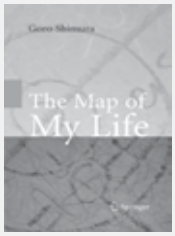



## Lattices and Ordered Sets

**S. Roman**, Irvine, CA, USA

This book is a thorough introduction to the subject of ordered sets and lattices, with an emphasis on the latter. It can be used for a course at the graduate or advanced undergraduate level or for independent study. Prerequisites are kept to a minimum, but an introductory course in abstract algebra is recommended, since many of the examples are drawn from this area.

2008. Approx. 330 p. 43 illus. Hardcover
ISBN 978-0-387-78900-2 ► **$69.95**




## The Map of My Life

**G. Shimura**, Princeton University, Princeton, NJ, USA

In this book, the author writes freely and often humorously about his life, beginning with his earliest childhood days. He describes his survival of American bombing raids when he was a teenager in Japan, his emergence as a researcher in a post-war university system that was seriously deficient, and his life as a mature mathematician in Princeton and in the international academic community. Such luminaries as Chevalley, Oppenheimer, Siegel, and Weil figure prominently in its anecdotes.

2008. VI, 212 p. 5 illus. Hardcover
ISBN 978-0-387-79714-4 ► **$34.95**

## Generalized Measure Theory

**Z. Wang**, University of Nebraska at Omaha, Omaha, NE, USA; **G. J. Klir**, Binghamton University, Binghamton, NY, USA

This comprehensive text examines the relatively new mathematical area of generalized measure theory. It begins with preliminaries and new concepts, followed by a detailed treatment of important new results regarding various types of nonadditive measures and the associated integration theory. Topics are motivated by numerous examples, culminating in a final chapter on applications of generalized measure theory. A sound background in mathematical analysis is required.

2008. Approx. 415 p. 25 illus. (IFSR, International Series on Systems Science and Engineering, Volume 25) Hardcover
ISBN 978-0-387-76851-9 ► **$79.95**

## Galois Theory


**S. H. Weintraub**, Lehigh University, Bethlehem, PA, USA

Books on Galois theory nowadays bear a great debt to E. Artin's classic text which relies heavily on linear algebra. In this book, the choice of topics and clarity of presentation further emphasize the special linear algebra approach to the subject. Included in this second edition is a new chapter on transcendental extensions..Undergraduates and beginning graduate students will appreciate this worthwhile addition to the Galois theory literature.

2nd ed. 2009. Approx. 225 p. (Universitext) Softcover
ISBN 978-0-387-87574-3 ► **$59.95**