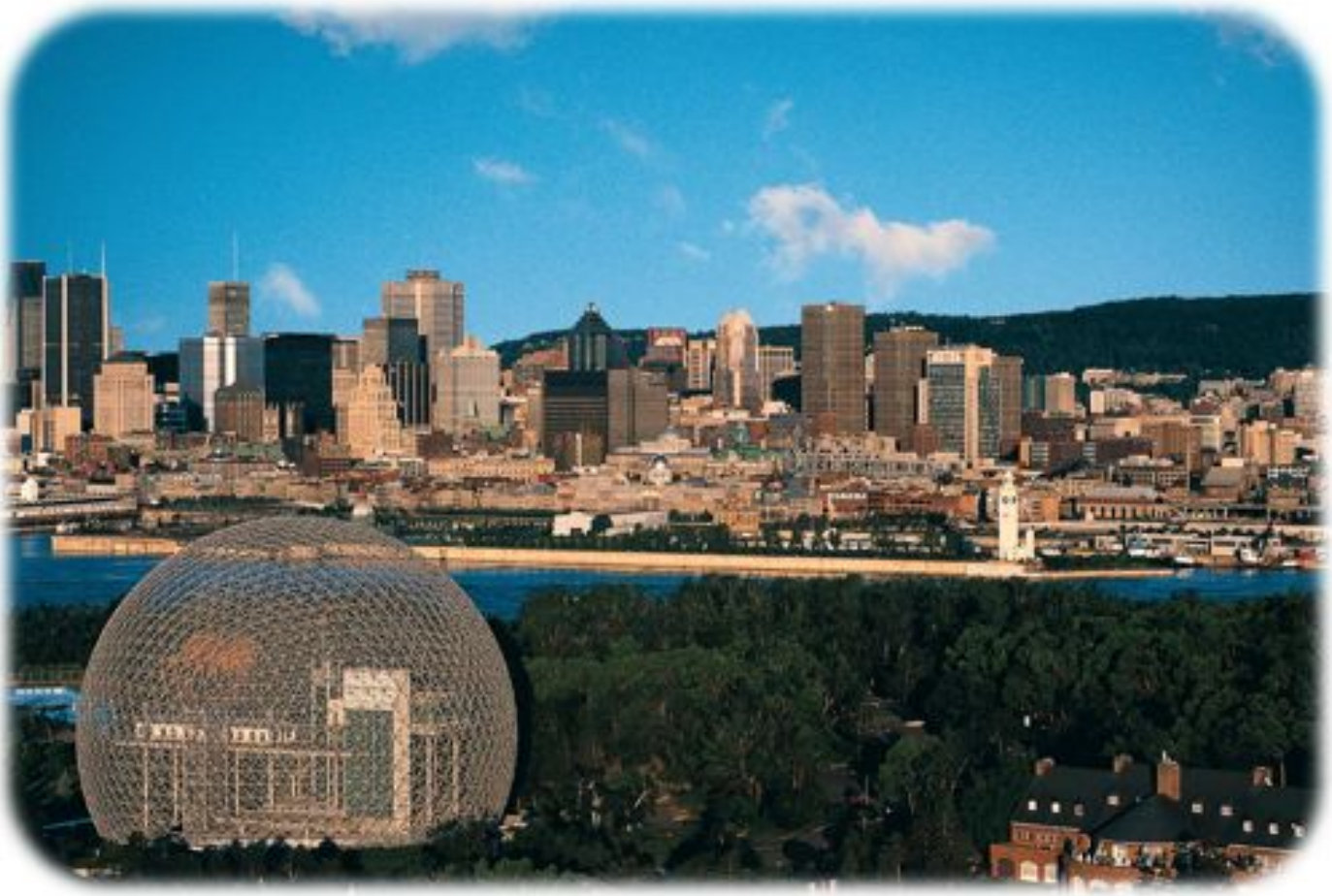
Bulletin

CAIMS SCMAI

Newsletter



Fall 2007 Number 62

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Submissions

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Advertising Rates

Inserts and non-advertising submissions (including letters to the editor) should be negotiated with the Secretary. Information about deadlines, payment and acceptable formats should be directed to the Secretary.

Publication Information

The Canadian Applied and Industrial Mathematics Society / Société Canadienne de Mathématiques Appliquées et Industrielles (CAIMS•SCMAI) is a member society of the International Council for Industrial and Applied Mathematics (ICIAM). The newsletter is published at least once a year.

Editors: Abba Gumel and Dhavide Aruliah
Design and Production: James Treacy
Photographs: Ken Jackson, Jack Macki and Hongbin Guo

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Past President's Report

by Bill Langford, CAIMS·SCMAI President, 2005–7

The very successful 2007 Annual Meeting in the beautiful setting of the Banff Conference Centre marked the end of my two-year term as President of CAIMS·SCMAI. As President, I gained admiration for the many outstanding people who work on behalf of CAIMS·SCMAI. This gives me great optimism for the future growth and success of our Society. In this Report, I would like to summarize some CAIMS·SCMAI activities that I have been involved with in the past two years.

Certainly one highlight of my term as President has been the signing of the Reciprocal Membership Agreement between CAIMS·SCMAI and SIAM. This comes into effect with the 2008 membership year. Under this agreement, a regular member of CAIMS·SCMAI who lives outside the USA is eligible for a 20% discount on annual SIAM membership fees. Similarly, a regular member of SIAM who lives outside of Canada is eligible for a 30% discount on annual CAIMS·SCMAI membership fees. (The differential in the discount percentages is more than offset by the large difference in fees of the two societies.) The full text of the agreement is shown on page 25 and is posted on our website. A SIAM membership form, for CAIMS·SCMAI members wishing to join SIAM at the reciprocal membership rate, is now available on the SIAM website. CAIMS·SCMAI has always enjoyed very good relations with SIAM. Many Canadian applied mathematicians are already members of both societies and this number surely will increase under the new reciprocal agreement. Such an agreement has been a goal of the CAIMS·SCMAI Board for many years. I want to express my heartfelt thanks to former Board Member Leah Keshet and SIAM President Marty Golubitsky for initiating the discussions last year that led to this agreement.

In the past two years I served as the CAIMS·SCMAI representative on the Mathematics-NSERC Liaison Committee that was created to discuss with NSERC officials the impact of proposed changes in the funding mechanisms for the three mathematical sciences institutes (CRM, Fields and PIMS). After much discussion, last year the various proposals crystalized into two options for the funding of the mathematics institutes: (1) the Envelope Option, in which the institute funding and GSC 336+337 Discovery Grant funding would be combined in a common envelope with the possibility to transfer money between them, and (2) the Major Resources Support (MRS) Option, in which the mathematics institutes would be funded independently of Discovery Grants and placed with other institutes in the new MRS Program that was created by NSERC to facilitate access to major experimental and thematic research resources based in Canada. I supported the MRS option and it was this option that NSERC ultimately chose. The three institutes prepared funding proposals for the 2007 competition. CAIMS·SCMAI

sent letters to NSERC in support of all three institutes. Site visits were held in January 2007, with CAIMS•SCMAI represented by Bob Russell at PIMS, Bill Langford at Fields and Jacques Bélair at CRM. The final outcome in March 2007 was very good news for the institutes: an increase of approximately 25% in the annual funding of each institute, for a five year term. At the suggestion of Bob Russell, each of the three institute directors submitted letters for publication in the CAIMS•SCMAI eNews (Vol. 7 No. 3), describing their institute's plans in light of this funding success.

On the other hand, the February 2007 Discovery Grants Competition at NSERC was a particularly difficult one for mathematics research. There were widespread cuts to renewal applications and the success rate for new applicants was unusually low. Personally, I see the root cause of these difficulties as an absence of new funding for the mathematics GSC's at a time when the Canadian mathematics research community is growing in both size and international stature. At the same time, NSERC is undertaking an "International Review of the Discovery Grants Program", according to NSERC, "to determine whether its current awards/applicants funding ratio of 75% in discovery research is consistent with international standards of excellence and whether this funding approach is appropriate." There is a danger that this will shift dramatically the funding of mathematics research in Canada, for which NSERC is the primary source, to a pattern of fewer but larger grants. In response to this situation, a new Mathematics-NSERC Liaison Committee has been formed, to evaluate the impact of the proposed changes in Discovery Grants on mathematics research and to provide a channel for communication between the mathematics research community and NSERC. Once again, I am serving as the CAIMS•SCMAI representative on this Mathematics-NSERC Liaison Committee.

CAIMS•SCMAI is the Canadian member society of the International Council for Industrial and Applied Mathematics (ICIAM) and is one of approximately 25 such national applied mathematics societies throughout the world. Elsewhere in this Newsletter, Ken Jackson has reported on CAIMS•SCMAI involvement in ICIAM. A major activity of ICIAM is to organize every four years the International Congress on Industrial and Applied Mathematics, the most important conference in industrial and applied mathematics in the world. The 2011 Congress will be held in Vancouver, Canada, cohosted by CAIMS•SCMAI, MITACS and SIAM. This is a great coup for Canadian applied mathematics, that will enhance the reputation of CAIMS•SCMAI both nationally and internationally. The Scientific Co-Chairs of ICIAM 2011 are Jerrold Marsden and Ivar Ekeland and the President of ICIAM 2011 is Arvind Gupta of MITACS. An outstanding Scientific Advisory Committee (SAC) has been formed. I wish to thank all those who are already at work to make ICIAM 2011 in Vancouver a resounding success, especially Ken Jackson and Bob Russell.

From July 16 to 20, the ICIAM 2007 Congress was held in Zurich, Switzerland. There was an unprecedented level of Canadian participation in ICIAM 2007 at all levels, as described by Ken Jackson in this Newsletter. In addition to a record number of Canadian plenary lectures, the ICIAM call for proposals for Minisymposia received a very strong response from Canadian researchers.

For the future I have great confidence in the continued growth of CAIMS in both size and stature. CAIMS•SCMAI will increase its membership, including new faculty, students, industrial and institutional memberships as we work for greater cooperation with other organizations, national and international, such as NSERC, CMS, SSC, MITACS, SIAM and ICIAM. The new Reciprocity Agreement with SIAM is an important step in this direction, as is our work with NSERC that resulted in increased funding of the mathematics institutes. The growing role of CAIMS•SCMAI in ICIAM, including the hosting of ICIAM 2011, dramatically raises the CAIMS•SCMAI profile on the world stage. Our 30th Anniversary Meeting, to be hosted by the University of Western Ontario in 2009, will be an opportunity to celebrate the maturation of CAIMS•SCMAI as a leading force representing applied and industrial mathematics in Canada and worldwide.

In closing, there are many people that I would like to thank, starting with the organizers of our highly successful 2007 Annual Meeting in Banff. Peter Lancaster and his Scientific Program Committee put together a spectacular program for this meeting, in my view one of the strongest we have ever had. The Organizing Committee, especially Jack Macki and Michael Li, worked tirelessly to make the meeting the huge success that it was. I thank the Applied Mathematics Institute of the University of Alberta for its generous support of this Annual Meeting. Paul Muir, our Treasurer, is doing an excellent job and can take much credit for the sound financial position that our Society now enjoys. Rod Edwards, our multitalented Secretary, served as Editor of our E-News and Newsletter, maintained the CAIMS•SCMAI website (now in both official languages), handled membership renewals and elections and so much more. Rod has completed his term as Secretary and has earned our heartfelt thanks for his outstanding contributions to CAIMS•SCMAI. I also thank Abba Gumel for taking on the challenging post of Secretary this year. I want to thank all the members of our CAIMS•SCMAI Committees, who gave generously of their time, for example to select the winners of our CAIMS•SCMAI Prizes. Special thanks must go to the Committee Chairs whose terms ended this year: Matt Davison (Cecil Graham Doctoral Dissertation Award), Jianhong Wu (Research Prize), Leah Keshet (Membership), Rod Edwards (Publications), Bob Russell (Nominating) and Sam Shen (Fund Raising). I have to say that I would have been lost without the sage advice of Past-President Ken Jackson and the astute input from President-Elect Bob Russell, on many occasions. CAIMS•SCMAI is an entirely volunteer-run organization and could not survive without the generosity and commitment of talented people such as these. Thank you all!

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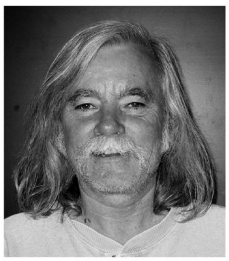

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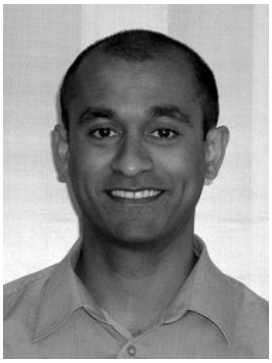

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Minutes of the CAIMS•SCMAI General Meeting

Held Wednesday May 23, 2007
Donald Cameron Hall
Banff Centre, Alberta

1. The President, Professor Bob Russell, took the chair and called the meeting to order at 12:45PM. Approximately one hundred members of the society were present.

   Bob Russell welcomed everyone to the Annual Meeting.
2. It was moved by Bill Langford and seconded by Rob Corless that the agenda be approved as written. **Carried.**
3. It was moved by Jack Macki and seconded by Rod Edwards that the minutes of the General Meeting of June 18, 2006 be approved as written. **Carried.**
4. There were no matters arising out of the minutes.
5. The President, Bob Russell, presented his report. Highlights are reported below.

   Thanks:
   Bob introduced President-elect (Jacques Bélair), Secretary-elect (Abba Gumel) and other new Board Members (Dhavide Aruliah and Ian Frigaard). He thanked outgoing President, Bill Langford, and Past President, Ken Jackson, for their invaluable contributions to CAIMS•SCMAI. He also thanked other outgoing Board members namely, Rod Edwards (Secretary), Leah Edelstein-Keshet and John Stockie (Members at Large). Bob thanked the Organizers of CAIMS•SCMAI 2007, Jack Macki, Michael Li and Peter Lancaster.

   Liaison activities:
   The President presented some fund raising initiatives and invited members to help in these efforts.

   Bill Langford reported on the Mathematics-NSERC Liaison Committee, announcing the major increase the three mathematics institutes received at this year's funding competition. A new Mathematics-NSERC Committee on Discovery Grants is formed. Bill Langford is to serve as CAIMS•SCMAI representative on this Committee. He invites comments from the CAIMS•SCMAI membership.

   The reciprocal membership with SIAM, where CAIMS•SCMAI members receive 20discount on SIAM membership, was highlighted.

   Meeting Organizers Handbook to be compiled soon. Langford heads the Committee.

   Prizes

   - **Cecil Graham Doctoral Dissertation Award:** The 2007 Cecil Graham Doctoral Dissertation Award was awarded to Dr. Richard Pancer

(Toronto) for outstanding thesis. Bob thanked the DDA Committee for an excellent work. He reminded everyone that the award is for a thesis defended in the calendar year, and nominations have to be submitted by January 31 of the following year.

- **Research Prize:** The 2007 Research Prize was awarded to Professor Gordon E. Swaters (Alberta). Gordon gave an excellent plenary talk on his work. The President thanked the Research Prize Committee for an outstanding job.
- **Arthur Beaumont Distinguished Service Award:** The 2007 Arthur Beaumont Distinguished Service Award was given to Jack Macki (Alberta). Jack received a richly-deserved standing ovation from the CAIMS•SCMAI membership during the award presentation.

6. The out-going Secretary, Rod Edwards, presented his report. He announced the result of the election for two members-at-large on the board of directors. Dhavide Aruliah and Ian Frigaard were the successful candidates. Jacques Bélair and Abba Gumel were elected President-elect and Secretary by acclamation. This year's election received increased responses from members. Rod described the publications of the society: the E-News has been coming out about once every two months on average; and the annual printed Newsletter was distributed last Fall. He called members to continue contributing to these publications. He also urged members to visit the CAIMS•SCMAI website periodically and give some input.
7. The treasurer, Paul Muir, presented his report. He highlighted the following summary figures for the year May 1, 2006–April 30, 2007

Revenues:	\$17,837.60
Expenditures:	\$10,036.29
Revenues-Expenditures:	\$7,801.31
Bank balance (Apr. 30, 2007):	\$43,229.68
GIC total:	\$53,772.53
Deposit to Banff Centre for CAIMS•SCMAI 2007:	\$8,000.00
Total asset:	\$105,002.21

Paul also presented membership statistics, pointing out that memberships are down because AIM memberships are down. He encouraged members to help make their institutions to renew their memberships.

8. Ken Jackson presented a report on ICIAM 2007. The meeting, scheduled July 16–20, 2007 in Zurich, should attract 3,000 participants, including a significant number from Canada. Michel Fortin (Québec) and Barbara Keyfitz (Fields Institute) will give invited talks, whilst Ivar Ekeland (PIMS) and Pauline van den Driessche (Victoria) will give public lectures. Pauline will receive the Olga Taussky Todd Prize. Ken noted the large number of min-

isymposia and contributed talks organized by CAIMS•SCMAI members.

9. Ken Jackson also presented his report on ICIAM 2011. A Steering Committee, consisting of Arvind Gupta (President), Ivar Ekeland, Jerry Marsden (Scientific Co-Chairs), Bob Russell, Bill Langford, Ken Jackson (CAIMS•SCMAI), Barbara Keyfitz, Francois Lalonde (Canadian Math Inst.), Rachel Kuske (UBC), John Stockie (SFU, MITACS), Marty Golubitsky, Jim Crowley (SIAM) and Randy LeVeque (Washington), has been formed.

   Further, a Scientific Advisory Committee, responsible for nominating members of the Scientific Program Committee, has been formed. All nominees of the Scientific Programs Committee will be reviewed by the Steering Committee. The Scientific Advisory Committee consists of the following:

   - John Ball (Oxford)
   - Rafael Correa (Chile)
   - Weinan E. (Princeton and Peking University)
   - Ivar Ekeland (PIMS, Congress Scientific Co-Chair)
   - Martin Grötschel (Berlin)
   - Arvind Gupta (MITACS, Congress President)
   - Jerrold Marsden (Congress Scientific Co-Chair)
   - William Pulleyblank (IBM), Ian Sloan (ICIAM)
   - Margaret Wright (Courant).

   Once the Scientific Program Committee is ratified, the themes of the meeting will be chosen, selected the invited speakers and organize some invited minisymposia. Some CAIMS•SCMAI members will serve on ICIAM Committees as follows:

   - Finance Committee (CAIMS•SCMAI representative: Paul Muir)
   - Fundraising Committee (CAIMS•SCMAI representative: Sam Shen)
   - Publications and Promotions Committee (CAIMS•SCMAI representatives: Rob Corless, Ken Jackson).

   The organization for the meeting is progressing on schedule as outlined in the bid document. A webpage for ICIAM 2011 would be constructed soon.

10. Future Meetings: Victor LeBlanc (Ottawa) announced that the next CAIMS•SCMAI meeting will be part of the 2nd Congress Canada-France meeting scheduled at UQAM, Montréal, June 2–6, 2008. The meeting, which is expected to attract 7800 participants, will feature 26 special sessions (2 sessions by CAIMS•SCMAI members). CAIMS•SCMAI's DDA and Research Prizes will be awarded.

    Rob Corless presented preliminary plans for CAIMS•SCMAI 2009, scheduled June 2009 at University of Western Ontario. The local Committee consists of the "whole department".

    It was agreed that the CAIMS•SCMAI 2010 meeting should be held in one of the Atlantic provinces.

11. CAMQ: Herb Freedman (Alberta) presented a report on the current status of CAMQ. In addition to giving an excellent historical account of CAMQ, Herb stated that CAMQ will be up-to-date by the end of 2007. CAMQ will be included in the Citation Index. He encourages members to submit quality articles to CAMQ. The journal now has three Managing Editors, namely Bryan Moody (Alberta), Michael Li (Alberta) and Michael Ward (UBC). A key highlight of Herb's presentation is the acknowledgement of Jack Macki's outstanding job to get CAMQ back on track. His motion for the Board of CAIMS•SCMAI to formally recognize Jack's contribution was seconded by everyone present at the AGM!
12. Other business: there was no other business.
13. The meeting was adjourned at 1:20PM.
14. **Banquet:**
    The banquet was held on Wednesday, May 23, 2007. At this time, the CAIMS•SCMAI Research Prize, the Cecil Graham Doctoral Dissertation Award and the Arthur Beaumont Distinguished Service Award were presented. Poster prizes were also awarded.

Committee Membership

1. Cecil Graham Doctoral Dissertation Award Committee: Ray Spiteri (Saskatchewan, Chair) Thomas Hillen (Alberta), Henry Wolkowicz (Waterloo)
2. Arthur Beaumont Distinguished Service Award Committee: Serpil Kocabiyik (Memorial, Chair) Bryant Moodie (Alberta), Sue Ann Campbell (Waterloo)
3. CAIMS Research Prize Committee: Mike Mackey (McGill, Chair) Anthony Pierce (UBC), Michel Fortin (Laval), Gordon Swaters (Alberta)
4. Nominating Committee: Jacques Bélair (Montréal, Chair) Serpil Kocabiyik (Memorial), Rob Corless (UWO)
5. Annual Meeting Handbook Committee: Bill Langford (Guelph, Chair) Abba Gumel (Manitoba), Paul Muir (St. Mary's), Huaxiong Huang (York), Jack Macki (Alberta)
6. Scientific Program Committee: Bill Langford (Guelph, Chair) Raymond Spiteri (Saskatchewan), Abba Gumel (Manitoba), Huaxiong Huang (York), Jack Macki (Alberta)
7. ICIAM Liaison Committee: Ken Jackson (Toronto), Bob Russell (SFU), Bill Langford (Guelph)
8. Publications Committee: Abba Gumel (Manitoba, Chair) Rod Edwards (Victoria), Ken Jackson (Toronto), Michel Delfour (Montréal), Jack Macki (Alberta), Xingfu Zou (Western Ontario), Dhavide Aruliah (UOIT)

9. Fund Raising Committee: Serpil Kocabiyik (Memorial), Bill Langford (Guelph), Paul Muir (St. Mary's)
10. Membership Committee: Ian Frigaard (UBC, Chair) Anne Bourlioux (Montréal), Paul Muir (St. Mary's), Michel Delfour (Montréal), Patrick Montgomery (Northern BC), Bob Russell (SFU), John Bowman (Alberta), Richard Pancer (Toronto), Justin Wan (Waterloo), Serpil Kocabiyik (MUN)
11. Human Rights Committee: Ken Jackson (Toronto, Chair) Gail Wolkowicz (McMaster), Sue Ann Campbell (Waterloo)
12. CAIMS•SCMAI Representatives to Other Organizations for 2007–8:

    - Representative to ICIAM 2011 Congress: Ken Jackson (Toronto)
    - Representative to the CMS: Victor LeBlanc (Ottawa)
    - Representative to the Fields Institute: Ken Jackson (Toronto)
    - Representative to PIMS: Ian Frigaard (UBC
    - Representative to CRM: Jacques Bélair (Montréal)
    - Representative to MITACS: John Stockie (SFU)
    - Representative to the Canadian Forum on Education in Mathematics: Jacques Bélair (Montréal)
    - Representative to ICIAM (Council): Bob Russell (SFU)
    - Representative to new Mathematics—NSERC Liaison Committee: Bill Langford (Guelph)

Membership Committee Report
by Ian Frigaard

2007–8 has seen the start of some changes to CAIMS memberships. First of all the membership reciprocity agreement with SIAM has come into effect. Under this agreement SIAM and CAIMS members will benefit from reduced membership of the other society. How this works is that a regular CAIMS member based outside of the US may have a 20% discount on SIAM membership fees. Similarly a regular SIAM member based outside of Canada may have a 30% discount on CAIMS membership fees (suddenly looking a great deal with the soaring loonie!). Please see http://www.caims.ca/Society/reciprocity.html for the full agreement.

Secondly, we have upgraded our institutional memberships (now renamed "academic" memberships). Whilst the cost remains the same, two additional benefits are: (i) Any graduate student in a department holding an academic membership of CAIMS is eligible for free membership of the society. (ii) Any regular CAIMS member in a department holding an academic membership of CAIMS may nominate any postdoctoral researcher for free membership of the society. The free

graduate student membership is in line with that offered by other scholarly societies and we are of course eager to increase membership amongst new faces in Canadian applied mathematics. As before, academic memberships also include a small number of associated memberships that the departments can allocate to new faculty and other junior members. Please consider if your department should take advantage of a CAIMS academic membership.

The membership committee is always pleased to hear of new suggestions and ways to improve CAIMS offerings to its members. Please send e-mail to Ian Frigaard <frigaard@math.ubc.ca>.

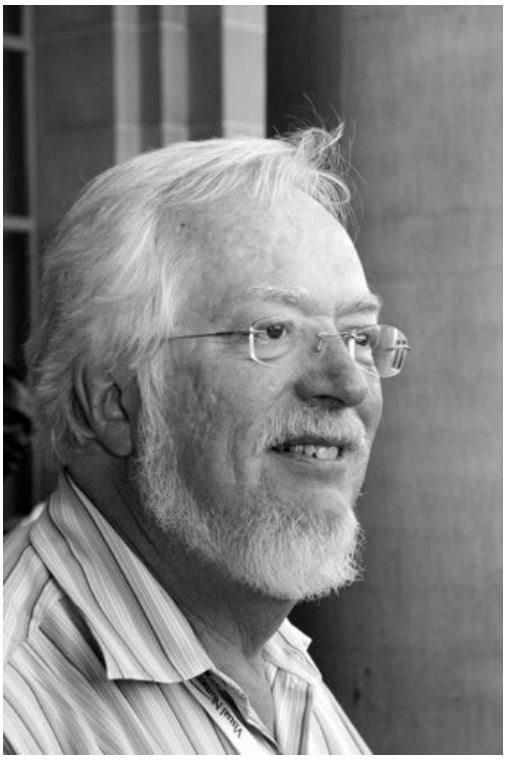
ICIAM 2007 Report

by Ken Jackson

The 6th International Congress on Industrial and Applied Mathematics — ICIAM 2007 — was held in Zurich 16-20 July 2007. It was a very exciting meeting with over 3,000 registered delegates and a wide array of talks covering a vast range of topics in Applied and Industrial Mathematics.

CAIMS members figured prominently in the meeting:

- Pauline van den Driessche (University of Victoria) gave the Olga Taussky Todd lecture entitled "Matrices in Action for Epidemic Models",
- Michel Fortin (Université Laval) gave an Invited Plenary Talk entitled "Contact Problems in Solid Mechanics",
- Barbara Keyfitz (Fields Institute, Toronto) gave an Invited Plenary Talk entitled "Hyperbolic Conservation Laws: Past and Future",
- Ivar Ekeland (PIMS Institute, Vancouver) gave the Public Lecture entitled "The best of all possible worlds: the idea of optimization".



Bill Langford at the ICIAM Reception

In addition, Canadians were active in many minisynosia and contributed sessions.

The consensus of most people I talked to was that ICIAM 2007 was a great success, lifting ICIAM to a new level. We're looking forward to carrying on the tradition with an even better Congress in Vancouver, 18–22 July 2011.

Pauline van den Driessche Giving the Olga Taussky Todd Lecture

Plans for ICIAM 2011 are progressing well. The President of the meeting is Arvind Gupta (MITACS) and the Scientific Co-Chairs are Ivar Ekeland (PIMS) and Jerry Marsden (California Institute of Technology). The Steering Committee consists of

- Arvind Gupta, Chair
- Jim Crowley and Ken Jackson, Vice-Chairs
- Ivar Ekeland and Jerry Marsden, Scientific Co-Chairs of the Meeting
- Bob Russell and Bill Langford (CAIMS)
- Barbara Keyfitz, Francois Lalonde (Canadian Math Institutes)
- Rachel Kuske and John Stockie
- Marty Golubitsky (SIAM)
- Randy LeVeque

One of the main steps that the Steering Committee took last year was to appoint a Scientific Advisory Committee. This committee is responsible for nominating members of the Scientific Program Committee. All nominees will be reviewed by the Steering Committee, who will then make official nominations to the ICIAM Council. After the Scientific Program Committee has been appointed, the Scientific Advisory Committee will disband.

The members of the Scientific Advisory Committee are:

- John Ball, Oxford
- Rafael Correa, Chile
- Weinan E, Princeton and Peking University
- Ivar Ekeland, PIMS, Congress Scientific Co-Chair
- Martin Grötschel, Berlin
- Arvind Gupta, Congress President
- Jerry Marsden, Congress Scientific Co-Chair
- William Pulleyblank, IBM
- Ian Sloan, ICIAM
- Margaret Wright, Courant

There is now a long list of nominees for the Scientific Program Committee. The Scientific Advisory Committee and the Steering Committee is now working on selecting a subset of these nominees for the Scientific Program Committee. The members of the Committee should be announced soon.

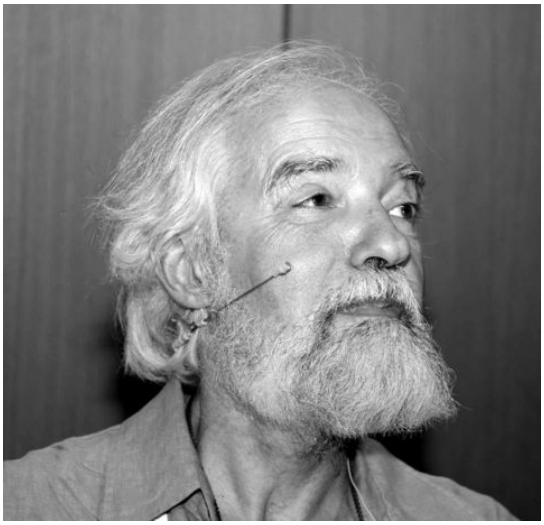
Once the Scientific Program Committee is ratified by the ICIAM Board, it will begin the very important task of choosing the themes of the meeting, selecting the invited speakers and organizing some invited minisymposia.

The ICIAM Steering Committee has also established three subcommittees:

- Finance Committee (CAIMS rep: Paul Muir)
- Fund raising Committee (CAIMS rep: Sam Shen)
- Publications and Promotions Committee (CAIMS reps: Rob Corless and Ken Jackson)

The organization ICIAM 2011 is progressing on schedule as outlined in our original bid document. We are looking forward to a great meeting in Vancouver. I hope to see you there.

Barbara Keyfitz Giving an Invited Plenary Lecture



Michel Fortin Giving an Invited Plenary Lecture

Report on CAIMS·SCMAI 2007

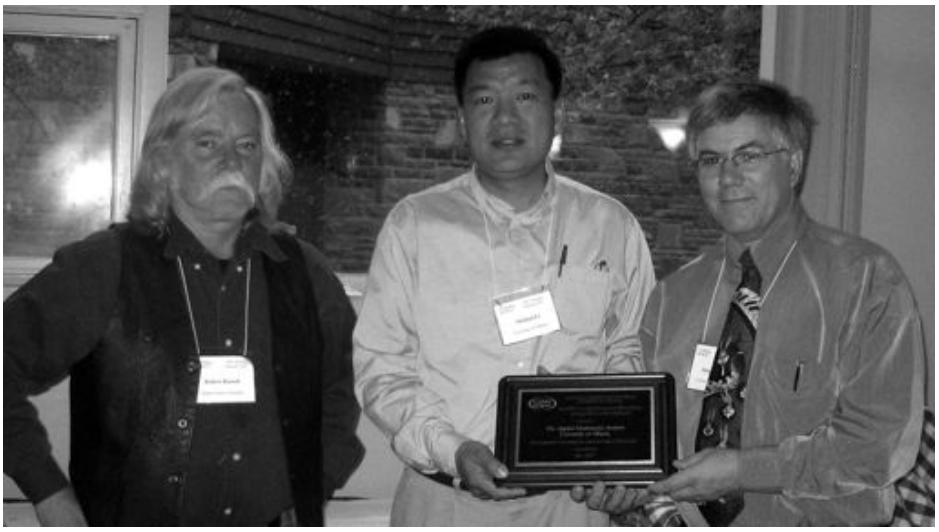
by Jack Macki

The 2007 Annual Meeting of the CAIMS•SCMAI took place at the Banff Centre, Alberta, from May 20 to 24. The organizers, Peter Lancaster (U of Calgary), Michael Li (U of Alberta), Ben Agarwaal (U of Calgary) and Jack Macki (U of Alberta), succeeded in bringing together a rich, packed, program with plenary speakers and minisymposia on a great variety of hot topics in applied mathematics. They included subjects from math biology, computational math, applied linear

algebra, cryptography, geophysics, math of finance, dynamical systems and fluid dynamics. Beginning with eight selected topics, the program was further enriched by the organizers of eleven contributed minisymposia. There were also sessions for contributed papers, poster displays and presentations by the society's prize winners. The plenary speakers with titles of their talks were:

- John Bush, MIT, USA. "Surface tension and biology".
- Shui-Nee Chow, Georgia Tech., USA. "Mathematical issues related to a non-linear circuit".
- Philip Colella, Lawrence Berkeley Lab., USA. "Computational science as a mathematical science".
- Karl Hadeler, Universität Tübingen, Germany and Arizona State U. "Matrix problems from mathematical biology".
- N.J.Higham, U. of Manchester, UK. "Numerical analysis of the matrix logarithm".
- Ehud Ronn, U of Texas at Austin, USA. "The crude-oil/nat-gas markets:'The message from markets' ".
- W. Symes, Rice University, USA. "Optimal scaling of seismic migration".
- S. Vanstone, U of Waterloo. "Another look at digital signatures".

The program included the society's AGM (conveniently organized during lunch), and a banquet - combined with awards of a number of prizes. See page 22 for the prizes and their winners.



Michael Li accepting a thank you plaque for the Universities of Alberta and Calgary from Bob Russell (left) and Jacques Bélair (right)

An afternoon was set aside for enjoyment of the location in the Rocky Mountains. Banff lived up to its impressive reputation for sheer beauty, and excitement was added with a spring snow-shower. The Banff Centre provided spacious facilities which suited the needs of the society admirably. Most participants also enjoyed what have become the customary excellent food-services and accommodations. (Fully justifying the rather complex registration procedures.) The society gratefully acknowledges financial support from MITACS, Pearson Education, the Canadian Applied Math Quarterly, and the institutes: PIMS, CRM and Fields.

NERENBERG LECTURE

THE 10th NERENBERG LECTURE

Against The Tide: The Fusion Establishment and a Heretic's Challenge

Leslie Woods Gives the 2007 Nerenberg Lecture

By Christopher Essex

Freeman Dyson believes that there are too few scientific heretics these days and that science needs more of them. Heresy is what leavens the bread of science. Science cannot grow and improve without it. Yet how often does one encounter a bona fide scientific heretic?

The 2007 Nerenberg Lecture was given by the real thing. What better way to commemorate forty years of applied mathematics at Western, and the tenth Nerenberg Lecture?

Leslie Woods, the former head of the Oxford University Mathematics Institute, has ruffled feathers over the years with his controversial ideas. In particular, for the last twenty years he has been suggesting a plasma physics version of water flowing uphill, that he calls "backwards heat". Radical as that sounds, he would laugh and point out that it only seems that way because part of the story is left out.

Leslie Woods with his 2006 book on tokamak transport

In the lecture he pointed out that such strange things actually are observed in nature. For example, the Sun's corona is at a temperature of about 2,000,000 K and the only source apparent for this temperature is the photosphere at about 6,000 K. Also magnetic fields looping up from beneath the photosphere into the corona tend to be spiked, rather than flattened out as predicted by normal science. Sunspots would persist for millions of years rather than the few days or weeks that are observed if conventional thinking were true. He argued that his ideas neatly solve these problems.

There is more. He told the audience that his ideas also explain why plasma confinement for nuclear fusion using tokamaks, as currently constructed, have not

worked and cannot work. With that claim, unorthodox thinking became heresy, and charming eccentricity became a provocation, because it put him smack into the middle of contentious global energy politics. Longstanding international consortiums are running billion dollar projects, funded by tax dollars, attempting to do precisely what Les Woods was arguing is a waste of time in principle.

This is where this story shifts from plasma physics to the iconic story of the scientific maverick standing his ground alone against the tide of the times. Many scientists would be intimidated to play such a role, against such a powerful, well-funded scientific establishment, but not Les. He was not easily intimidated.

After all, he was the independent minded son of a poor New Zealand fisherman, who won a Rhodes scholarship on the way to eventually becoming an Oxford Don. That story is remarkable enough, but add to it the iron nerve of flying over seventy missions as a fighter pilot in World War II. Oh, and let's not forget his days flying cloth and wire biplanes. He even crashed one. He regaled me with a hair-raising tale of piloting a hulking biplane called a "Wildebeest," wherein he was supposed to tow a target, but unexpectedly became the target himself.

No. He was not easily intimidated. But he could be persuaded with a rational argument. He was very much anti-authoritarian and keen for people to think for themselves. He had a soul for science. That made him a natural maverick, but he was surely a successful maverick.

It may not have escaped notice that I write of Les in the past tense. That is because this story has one more twist in it. Les died peacefully in his sleep, just over one month after giving the Nerenberg Lecture in March. Pictures of him taken at his Nerenberg Lecture were displayed at his funeral in Balliol College at Oxford.

Here I must step out of my role as Nerenberg Lecture chronicler and write personally. Plasma physics was not Les's only research interest. He started by studying aerodynamics before starting over in mathematics. He also was interested in thermodynamics. I met Les through thermodynamics, some years ago, at a Gordon Conference.

He and I were sitting together one evening at a table in a bar. He began to instruct me on how to publish and make known controversial work. I was not so controversial in those days, so I am still not sure why he volunteered this advice. It was my first, but not last, maverick lesson. This year he told me not to expect recognition for such work, but to remember that it is important for science to do such things nonetheless, and it can be especially fun.

His challenge to the fusion community has largely been ignored, and his ideas after more than twenty years have not yet been put to the test. He said that is often what happens. An establishment becomes so secure, that conventions endure because challenges are met by not taking them up at all.

I asked him whether his theory could be used to *fix* the problems that tokamaks

have. He thought about it and concluded eagerly that it might be worth thinking more about. That is what was on his mind when we parted. Science always has new roads to go down, and he was eager to travel them.

But there is only so much time. Eventually even mavericks have to leave it to others. One day he may be proven right. But till then, his life reminds us that in science personal vindication is not so important as standing up for what you believe is right. We need the heretics.

Organized by Western's Department of Applied Mathematics, the Nerenberg Lecture is named after the late professor Paddy Nerenberg and is intended to honour his appreciation for the democracy of ideas. He was Professor at Western for more than a quarter century, and a founding member of its Department of Applied Mathematics. The annual series is meant to challenge the public with ideas connected to mathematics that they may not see in any other forum.

Prizes Awarded at the 2007 CAIMS·SCMAI Meeting

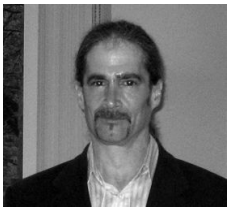
2007 CAIMS·SCMAI Research Prize

The 2007 CAIMS·SCMAI Research Prize was awarded to Professor Gordon E. Swaters, University of Alberta, for his original applications of mathematics to physical oceanography and his fundamental research on geophysical fluid dynamics.

2007 CAIMS·SCMAI Arthur Beaumont Distinguished Service Award

The 2007 CAIMS·SCMAI Arthur Beaumont Distinguished Service Award was presented to Professor Jack Macki, University of Alberta, in recognition of his tireless devotion to the well-being of Applied Mathematics in Canada, his long-time commitment to the Canadian Applied and Industrial Mathematics Society, and his flawless stewardship of the Canadian Applied Mathematics Quarterly.

2006 CAIMS·SCMAI Cecil Graham Doctoral Dissertation Award



The 2006 CAIMS·SCMAI Cecil Graham Doctoral Dissertation Award was presented to Richard Norman Pancer of the Department of Computer Science, University of Toronto, for his thesis "The Parallel Solution of ABD Systems Arising in Numerical Methods for BVPs for ODEs". This thesis was supervised by Ken Jackson with input from Paul Muir.

CAIMS·SCMAI Student Travel Bursary

The CAIMS·SCMAI Student Travel Bursary, to attend ICIAM 2007 in Zurich, Switzerland, was awarded to Malcolm Roberts, a Ph.D. student in the Department of Mathematical and Statistical Sciences, Geophysical Fluid Dynamics Research Group, University of Alberta, supervised by John Bowman. This award enabled Malcolm to present a contributed talk on "The multi-spectral decimation scheme for turbulence simulations" at the ICIAM Congress, 16 July 2007.

CAIMS·SCMAI 2008 Election: Call for Nominations

by Jacques Bélair

CAIMS·SCMAI will be holding an election next year (March 2008) for:

- Treasurer
- Two Members at Large on the Board of Directors

All members of CAIMS·SCMAI are encouraged to suggest names of candidates for these offices. Nominations should reach the Chair of the Nominations Committee, Jacques Bélair <belair@crm.umontreal.ca> by **31st December, 2007**.

CAMQ Update

by Herb Freedman

As approved both by the council of the Applied Math Institute and the CAIMS Board, the Canadian Applied Math Quarterly (CAMQ) announces its new managing editors, listed in alphabetical order:

- Michael Li, University of Alberta
- Bryant Moodie, University of Alberta
- Michael Ward, UBC

On behalf of the CAMQ, the Applied Mathematics Institute would like to thank the outgoing managing editor, Jack Macki, for his outstanding service to the CAMQ, especially for his tremendous energy and efforts in bringing CAMQ back to current.

2008 CAIMS·SCMAI Annual Meeting

by Bill Langford

The year 2008 will mark the 400th anniversary of the founding of Québec by Samuel de Champlain and his brave group of settlers from France. It will also be the occasion of an influx of pure and applied mathematicians from France, for the Second Canada-France Mathematical Congress, to be held June 2–6, 2008, in Montréal. This meeting is co-organized by CMS/SMC, CAIMS•SCMAI and MITACS of Canada, and by Société Mathématique de France (SMF) and Société de Mathématiques Appliquées et Industrielles (SMAI) of France; together with CRM, Fields, PIMS and Institut des Hautes Études Scientifiques. There will be 12 plenary lectures and about 25 special sessions. Over 1000 participants are anticipated. The host university is l'Université du Québec à Montréal.

The normal CAIMS•SCMAI Annual Meeting for 2008 will be embedded in this international congress. Thus, it will be similar to previous joint meetings that CAIMS•SCMAI has shared with SIAM (in 2003), CMS (in 2000 and 2004) and MITACS (in 2006). All of the usual activities of the CAIMS•SCMAI Annual Meeting will take place; for example, our prize lectures, student posters, contributed Minisymposia and business meetings. In addition, CAIMS•SCMAI members will have access to a rich variety of mathematical activities organized by our sister societies. It is anticipated that the Canadian Symposium on Fluid Dynamics also will join this meeting. This Canada-France Congress provides a unique opportunity for international collaboration between CAIMS•SCMAI and SMAI (Société de Mathématiques Appliquées et Industrielles), which sets a good precedent in anticipation of ICIAM 2011 in Vancouver.

The joint poster session will take place on June 1 and the CAIMS•SCMAI Board of Directors Meeting will be on May 31. The Awards Banquet is scheduled for June 5. Registration for members of all participating societies will be handled by the CMS. A preliminary website and program of the Canada-France Congress is available at http://www.cms.math.ca/Events/summer08/

This Canada-France Congress contrasts with the intimacy of our delightful stand-alone 2007 Banff Meeting and offers a very different type of meeting experience. Here you may feast on a cornucopia of mathematical activities in the vibrant heart of downtown Montréal. Please consider submitting a proposal for a CAIMS•SCMAI Minisymposium that will make this Congress even more exciting. This is a CAIMS•SCMAI Annual Meeting that you will not want to miss!

CAIMS-SIAM Reciprocity Agreement

by Bill Langford

The Society for Industrial and Applied Mathematics (SIAM) and the Canadian Applied and Industrial Mathematics Society / Société Canadienne de Mathématiques Appliquées et Industrielles (CAIMS) agree to enter into a reciprocal membership agreement, whereby individual members in one society are eligible for a discounted membership in the other. Under this agreement:

1. Any regular member in good standing of CAIMS whose primary place of employment is outside the U.S. will be accepted as a SIAM reciprocity member upon receipt of the SIAM application form and dues payment. Any regular member in good standing of SIAM whose primary place of employment is outside of Canada will be accepted as a reciprocity member of CAIMS upon receipt of the CAIMS application form and dues payment. Regular members of both societies who live outside both the USA and Canada may choose to become reciprocity members of either society, but not both.
2. The special dues rate for CAIMS members joining SIAM under the reciprocal agreement will be 80% of the current annual rate for regular members of SIAM. The special dues rate for SIAM members joining CAIMS under the reciprocal agreement will be 70% of the current annual rate for regular members of CAIMS.
3. Reciprocity members receive all regular member services and benefits.
4. Each society shall help promote reciprocity membership. Societies may exchange mailing labels or provide a brief notice in paper or electronic mail to members. Each society should announce the availability of the reciprocal membership in their flagship publication(s), news online, web site or other appropriate media. Each society should provide to the other a name of a contact person within their society responsible for promoting memberships.
5. This agreement is in effect until terminated by one of the societies. Termination notice must be provided six months before the start of the year when it takes effect in order to provide an orderly transition.

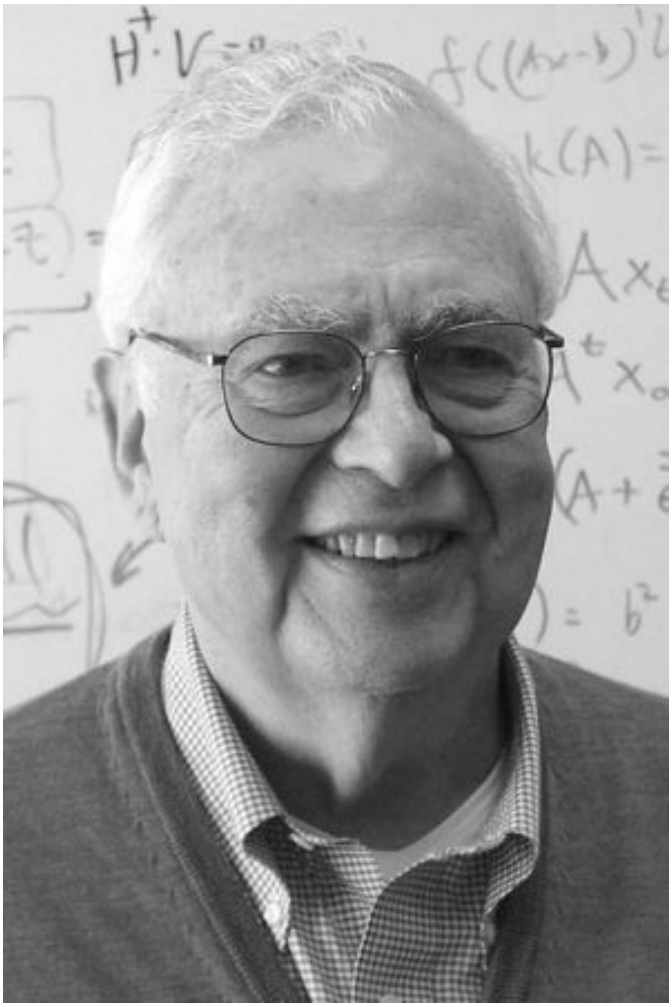
Signed:
Cleve Moler, President of SIAM
William F. Langford, Past President, CAIMS

Gene H. Golub, 1932-2007

by Chen Greif

Professor Gene Golub, one of the most influential numerical analysts of our time, died on November 16th, 2007 at Stanford Hospital in California, after being diagnosed just a few days earlier with leukemia. His sudden death sent shock waves throughout the scientific community. Within a week of his death, nearly 200 touching farewell postings of friends and collaborators were recorded in a special memorial Webpage: http://genehgolub.blogspot.com/.

Born in Chicago to Eastern European immigrants on February 29, 1932 (a leap day that made him quite special even when he was born), he received his PhD in 1959 from the University of Illinois, an institution he always cherished. His academic career spanned over four and a half decades of active research as a professor at Stanford University. His contributions were primarily in the field of numerical linear algebra, or "Matrix Computations" as he preferred to call the field. But the algorithms he developed were applicable in numerous important applications in science and engineering.



Among Golub's major contributions, most notable was his joint work with Kahan in the mid 1960s (and other papers that followed, with other collaborators) which showed how to compute the ubiquitous singular value decomposition (SVD) in a numerically stable fashion. Following that work, the SVD has become a major computational resource not only in mathematical areas but also in psychology, Internet search engine technology and document analysis, biology, and many other disciplines; entering "singular value decomposition" on Google Scholar at the time of preparing this piece has resulted in approximately 70,000 hits. Golub was so identified with the SVD that he proudly and famously featured the license plate 'PROF SVD' on his car.

Another area where Golub made an enormous impact is the field of fast solvers for sparse large linear systems. Such systems are known to form the computational

bottleneck in many numerical (linear as well as nonlinear) processes. Here we note semi-iterative methods (joint with Varga, 1961), the Fast Poisson Solver (joint with Buzbee, Dorr and Nielson, 1970), and Golub's prominent role in developing and popularizing variants of the preconditioned conjugate gradient method (joint papers with Concus, 1975, and with Concus and O'Leary, 1976).

The solution of least squares problems, which are widely used in statistics and many other disciplines, is another area where Golub's impact was significant. His early papers paved the way to a numerically stable computation of their solution, based on the celebrated QR factorization. The total least squares problem was also introduced by Golub and his collaborators - a model based on the assumption that the discrete operator that represents the quantity to be minimized might be inaccurately represented, that is, data measurements are often not the only source of errors. This approach has practical importance in a variety of fields of applications such as medical imaging. (The catchy name and the paper that popularized this approach was joint with Van Loan, 1980.)

One of Golub's trademarks was to connect several areas of research by unifying themes, and at the same time to keep looking for new directions. His work on moments and quadrature rules in the mid 1980s, which is of great mathematical beauty, goes beyond the computation of integrals and actually makes a strong connection between quadrature and eigenvalue and eigenvector computations. Another example here is a well known paper in 2002 which proposed an accelerated scheme for computing Google's PageRank, and triggered a great interest of the numerical linear algebra community in the PageRank problem. And of course, "Matrix Computations" by Golub and Van Loan, now in its third edition, has sold tens of thousands of copies and can be found in the library of almost any numerical analyst and many other scientists.

But beyond Golub's contributions to the wide field of scientific computing by way of writing papers and books, what made him so dominant was his personal style and his commitment to his community. He spent an enormous amount of energy in popularizing numerical algorithms, continually travelling to all corners of the world, disseminating research results in his lectures, and connecting people with each other. He served as President of SIAM and was one of the founders of the International Council for Industrial and Applied Mathematics (ICIAM). He was the founding editor of two important journals—SIAM Journal on Scientific Computing and SIAM Journal on Matrix Analysis and Applications. And he was the founder of NA-Digest.

Golub was widely recognized and honored for his pioneering work. He was a member of the National Academy of Sciences and the National Academy of Engineering, and recently was nominated for the most prestigious honour in the field of computer science: the Turing Award. He also received ten honorary doctorates. Sadly, his death came just before he was scheduled to receive another honorary

degree which was particularly precious to him, at ETH Zurich.

Gene the person was complex and multidimensional. He could be friendly and entertaining, but also very demanding. He will be fondly remembered for being generous and helpful to generations of young scientists, for creating numerous collaborations, for the constant stream of visitors, his hospitality and the many parties he held in his house, and for making Stanford the 'Headquarters'. All this has made him a household name in the numerical analysis community. The Canadian scientific community has also benefited from his activities, thanks to his involvement in founding ICIAM which is now of much importance to CAIMS (the next ICIAM meeting will be held in Vancouver in 2011). We also note his lifelong collaboration and connection with a few of Canada's finest numerical analysts, such as Alan George, Chris Paige, and Jim Varah.

On the day of Gene's death a few of us got together, to digest the shocking news and exchange memories. Our conversation quickly revealed that Gene had a direct impact on the career paths of most of us. This encapsulates the essence of his role in our community. His presence and impact were unparalleled, and many of us are indebted to him for his support and generosity. The numerical analysis community has lost a prominent leader and ambassador.

Mathematical Diversion

A man walks into a bar, orders a drink, and starts chatting with the bartender. After a while, he learns that the bartender has three children. "How old are your children?" he asks. "Well," replies the bartender, "the product of their ages is 72." The man thinks for a moment and then says, "that's not enough information." "All right," continues the bartender, "if you go outside and look at the building number posted over the door to the bar, you'll see the sum of the ages." The man steps outside, and after a few moments he reenters and declares, "Still not enough!" The bartender smiles and says, "My youngest just loves strawberry ice cream."

How old are the children?

For the solution visit http://faqs.org/faqs/puzzles/archive/logic/part1/

Report from the Centre de recherche mathématique

by Chantal David

The 2006–7 CRM thematic year was dedicated to various aspect of combinatorics, with a theme semester on "Combinatorial Optimization" in the Fall, and a theme semester on "Recent advances in Combinatorics" in the Winter. The topics of the year are as varied as approximation algorithms, network design, data mining, graph theory, algebraic combinatorics, combinatorics on words, Macdonald polynomials and Hopf algebras, enumerative questions in statistical mechanics, etc. The year ended with four intensive weeks on links between geometry and combinatorics, with concentration periods on "Algebraic Geometry and Algebraic Combinatorics" and "Real, Tropical, and Complex Enumerative Geometry". The André-Aisenstadt chairs of that year were Noga Alon (Tel Aviv), Paul Seymour (Princeton) ans Richard Stanley (MIT).

The 2006-7 academic year will also be remembered as the year of the NSERC MRS application, culminating in the Site Visit which took place at the end of January: those were hectic weeks indeed!

A series of blue boards with the names and photographs of the André-Aisenstadt Chair holders has now been installed at the entrance of the CRM, giving a glimpse of its activities almost going back to its founding years.

In the series of "Grandes Conférences du CRM," which started in 2005–06, scientists with a gift for communication are invited to present exciting recent developments in mathematics to a general public. Bart de Smit (Universiteit Leiden) presented a now famous conference on Escher and the Droste Effect, Jean-Paul Delahaye (Laboratoire d'informatique fondamentale, Université de Lille) presented Les limites logiques et mathématiques, Francis Clarke (Université Cllaude Bernard, Lyon) presented Euler: la vie, l'univers et l'optimisation and Étienne Ghyss (École Normale Supérieure de Lyon) talked about The Butterfly Effect.

The Fall Semester of 2007 at the CRM, devoted to Applied Dynamical Systems, consisted of 6 main workshops, with 5 taking place at the CRM, and a joint AARMS-CRM workshop in Halifax. Two of the Montréal workshops were preceded by graduate level minicourses. The semester focused on two themes. Firstly, the use of dynamical systems in applications, principally in physiology, and secondly the development of new numerical and dynamical systems tools needed in the study of such problems. However, in reality applications, analysis and numerical methods are all interconnected and some aspects of all three were found in each of the workshops.

The Spring Semester of 2008 will be devoted to Dynamical Systems and Evolution Equations. The central focus of the will be dynamical systems interpreted in a broad sense so as to include applications to fundamental problems in differential geometry as well as in mathematical physics. The academic year 2008–9,

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dedicated to "Probabilistic Methods in Mathematical Physics" and "Perspectives and Challenges in Probability".

For more information on the programme and the support available see *http://www.crm.math.ca*

News from the Fields Institute

by Carl Riehm

Some of the upcoming events which might be of interest to CAIMS members are: November 17, 12:30pm: **Graduate School Information Day**. This is an information session for universities to display information on their graduate programs in mathematics, statistics and computer science. As part of the day's activities there will be one or two keynote lectures aimed at undergraduate students in the mathematical sciences. This year's speaker is Jeffrey S. Rosenthal (Statistics, University of Toronto), speaking on *What is MCMC?*

Fields Institute Colloquium/Seminar in Applied Mathematics
November 13, 2:10pm: Isom Herron (Rensselaer Polytechnic Institute) A new look at the principle of exchange of stabilities
November 13, 3:10pm: Laurette Tuckerman, (PMMH-ESPCI, University of Pierre and Marie Curie) Patterns in Turbulence
February 29, 2008, 1:10pm: Ivar Ekeland (UBC and PIMS)

Fields Industrial Optimization Seminar
This seminar meets on the first Tuesday of each month. Each meeting comprises two related lectures on a topic in optimization; typically, one speaker will be a university-based research and the other from the private or government sector.

Centre for Mathematical Medicine Seminar Series
January 25, 2008 - 3:30 p.m. David Earn, McMaster University and David Fisman, Hospital for Sick Children
March 28, 2008, 3:30pm: Lindi Wahl (U. Western Ontario) and Beni Sahai (Cadham Provincial Lab, Manitoba)
April 18, 2008, 3:30pm: Leon Glass (McGill)

Actuarial Science and Mathematical Finance Group Meetings January 30, 2pm: Matheus Grasselli (Dept. of Mathematics and Statistics, McMaster)

Seminar Series on Quantitative Finance January 30, 2008: Rama Cont (Columbia University) and Jim Gatheral (Merrill Lynch and Courant Institute)

Conference on Error-control Codes, Information Theory and Applied Cryptography
December 5–6. See *www.fields.utoronto.ca/programs/scientific/07-08/error-control/*

for more information.

Conference on Imaging and Lie Groups
February, 2008, organized by J. Patera (Montréal) and Hongmei Zhu (Calgary). See the Fields website *www.fields.utoronto.ca/* for more information.

Workshop on Taylor Model Methods
May 20-23, 2008: The focus will be the use of Taylor models in validated numerical methods. See *www.fields.utoronto.ca/programs/scientific/07-08/taylor-model/*

Symposium on Dependent Data Structures
May 21-23, 2008: This workshop will take place at Carleton University in Ottawa. It will feature the analysis and simulation of dependent responses, focusing on the areas of longitudinal data analysis, mixed models, missing data analysis, spatial data analysis, ordinal categorical data analysis, the simulation of dependent random variates, along with various biostatistical and health applications. See *www.fields.utoronto.ca/programs/scientific/07-08/dependent/* .

Winter/Spring 2008 Thematic Program
The Winter/Spring, 2008 thematic program is New Trends in Harmonic Analysis, organized by Alex Iosevich (Missouri-Columbia), Izabella Laba (UBC, lead organizer), Michael Lacey (Georgia Tech), and Eric Sawyer (McMaster). There will be 3 workshops:

- January 7-11 : Recent Advances in Operator Theory and Function Theory
- February 18-22: Harmonic Analysis
- April 5-13: Clay-Fields Conference on Additive Combinatorics, Number Theory, and Harmonic Analysis, co-organized with the Clay Mathematics Institute.

There will also be 2 graduate courses: *Function and Operator Theory*, Eric Sawyer (McMaster) and *Analytic Number Theory*, John Friedlander (Toronto)

The Coxeter Lecture Series will be delivered by Jill Pipher (Brown U.) on February 25-27, and the Distinguished Lecture Series by Tim Gowers, (U. Cambridge) on March 17-20, 2008 (to be confirmed).

Future thematic programs:

2008 (Fall)	Arithmetic Geometry, Hyperbolic Geometry And Related Topics
2009 (Winter/Spring)	O-Minimal Structures and Real Analytic Geometry
2010 (Winter/Spring)	Financial Mathematics

See *www.fields.utoronto.ca/programs/scientific/* for links to these programs (and to other activities).

News from the Pacific Institute for the Mathematical Sciences

By Breeonne Baxter, PIMS Communications Manager
http://www.pims.math.ca/

The Pacific Institute for the Mathematical Sciences (PIMS) is pleased to have inaugurated the first of our International Graduate Training Centres (IGTC), in Mathematical Biology, in September, 2007 *<http://www.pims.math.ca/International_Graduate_Training_Centre/>*. We will also continue our successful postdoctoral fellowships program and we have new collaborative research groups (CRGs) and industrial initiatives in strategic areas, such as the mathematics of the environment, in close cooperation with our international partners in Latin American and around the Pacific Rim.

International Collaborations

PIMS has become an Unité Mixte Internationale of the French Centre National de la Recherche Scientifique (CNRS), effective September, 2007. We will host CNRS researchers on a regular basis, and we can apply to European research programs. CNRS recognition is a label of quality. There are only four UMIs in mathematics around the world: in Moscow, Rio, Santiago, and now PIMS.

New PIMS Director

Alejandro Adem will commence his five-year term as the new Director of PIMS on July 1, 2008. Presently the PIMS Deputy Director, Professor Adem is a Professor of Mathematics and CRC at the University of British Columbia.

PIMS Board of Directors

PIMS has appointed three distinguished scientists and industry representatives to its board of directors. The new members are Charmaine Dean (Simon Fraser), Fernando Aguilar (CGG Veritas), Darrell Duffie (Stanford) (effective July 1, 2008).

PIMS also welcomes three new members to the Scientific Review Panel: Gunnar Carlsson (Stanford), Walter Craig (McMaster) and Bruce Reed (McGill).

Conferences and Activities

PIMS organizes and hosts a growing number of workshops and conferences each year through its member universities and Collaborative Research Groups:

The 10th PIMS Graduate Industrial Mathematics Modelling Camp (June 6–10, 2007) and the 11th PIMS Industrial Problem Solving Workshop (June 11–15, 2007) were held at the University of Alberta. The next GIMMC and IPSW will be held at the University of Regina in June, 2008.

PIMS' 10th Anniversary was held in 2006–07. As part of the 10th Anniversary events, the University of Victoria hosted the Symposium on Kinetic Equations and Methods on April 27–28, 2007. PIMS hosted a Scientific Symposium and Banquet on Sept. 27, 2007.

The Synchronous Rhythms in the Brain Workshop was held at the University of British Columbia (June 18-20, 2007) as part of the activities of the CRG in

Mathematical Modeling and Computation in Biology.

Conference on Applied Inverse Problems 2007: Theoretical and Computational Aspects. The University of British Columbia hosted the latest in a series of AIP Conferences aimed at providing a primary international forum for academic and industrial researchers working on all aspects of inverse problems (June 25-29, 2007).

The Summer School on Tropical Multiscale Convective Systems: Theory, Modeling, and Observations at the University of Victoria (July 30 to August 3, 2007) brought university researchers in applied math, physics, and meteorology departments working in the area of tropical meteorology together with government lab scientists working on operational weather and climate forecast models.

International Conference of Theoretical and Numerical Fluid Mechanics III was held in Vancouver (August 13-17, 2007) as an interdisciplinary meeting within the general field of mathematical and computational fluid dynamics, devoted mainly to Newtonian and non-Newtonian viscous flow.

International Graduate Training Centre (IGTC) in Mathematical Biology—First Graduate Research Summit. The Math Biology IGTC is a new PIMS initiative to develop and enhance graduate training opportunities in the Pacific Northwest. The Graduate Research Summit at the University of British Columbia (September 28-30, 2007) was attended by more than 50 graduate students, postdocs and researchers from U.Alberta, UBC, U.Victoria, U.Utah and Simon Fraser University.

PIMS-CINVESTAV Mathematics of Oil Exploration Workshop, part of the annual meeting of the Mexican Mathematical Society, hosted lectures by distinguished mathematical scientists and researchers from academia and industry in the U.S., Canada and Mexico about oil exploration as well as discussions of problems and future collaborations (October 18-19, 2007, Monterrey, Mexico).

A comprehensive list of all PIMS activities, conferences and workshops can be viewed in the Activities section of the PIMS website: http://www.pims.math.ca/wrapper/Activities/

Funding

Natural Sciences and Engineering Research Council of Canada (NSERC) has renewed and increased PIMS' grant to $5.5-million for the period 2008-2013.

The Province of British Columbia is providing $130,000 to the Pacific Institute for the Mathematical Sciences to help teachers increase math participation of Aboriginal students in First Nations schools.

MITACS Update

by Megan Airton

The past year has been a time of continued growth for MITACS. MITACS now funds 38 different research projects in five research themes: Biomedical & Health, Communication, Networks & Security, Risk & Finance, Information Processing and Environment & Natural Resources.

A new addition to the MITACS research portfolio is a project headed by Dr. Irene Abi-Zeid of Université Laval entitled Multi-criteria Mission Route Planning for Search, Surveillance and Rescue in Hazardous Environments. The research team will study the near optimal, multi-criteria, multi-stage search path problem for air vehicles searching for objects at unknown locations. Re-planning based on negative information and updating of the distributions of the whereabouts of search objects is an important element of this problem. Once the search object is located, another path planning problem of interest is the multi-criteria evaluation of land rescue routes using visibility-based terrain analysis in a hazardous environment. The team will work with project partner Defence R&D Canada – Valcartier to identify R&D needs and the directions for mission planning tools.

In May 2007, MITACS was awarded $1.1 million by Industry Canada via the federal Network of Centres of Excellence (NCE) program and the International Research Development Centre. This funding launched the I2M2CS, the International Initiative in Mathematical Modeling of Complex Systems, which will enable MITACS researchers to collaborate closely with their mathematical science counterparts around the world on such topics as the spread of avian flu and SARS, the development of new drugs for Alzheimer's and other diseases, terrorist threats and managing financial risk. To date, workshops and conferences have taken place with partners from Germany, Australia, China and the US on such topics as rock mechanics and logistics in mining, complex networks in the life sciences, the pricing and supply of electricity, environmental uncertainty and its impact on public policy and computational neuroscience. For more information about I2M2CS, visit <http://www.mitacs.ca/main.php?mid=10000354&pid=271>.

MITACS also funded a first-of-its-kind meeting from November 11–13 in Kampala, Uganda. Drawing attendees from Canada, Botswana, Zimbabwe, South Africa and Uganda, the goal of the meeting was to identify the most pressing issues surrounding the transmission of infectious diseases such as HIV/AIDS and tuberculosis and establish joint Africa-Canada teams of mathematical scientists. The result of the meeting was the formation of the Canada-Africa Biomath Network, which will undertake collaborative research aimed at developing mathematical models to address issues surrounding infectious disease.

On the training front, the MITACS Internship Program, <http://www.mitacsinternships.ca>, continued to expand across Canada. The Program connects

mathematical sciences graduate students and post-doctoral fellows, under the supervision of a faculty member, with a company or other organization. In collaboration with the partner company, the intern undertakes research on a business challenge of interest to all parties. In 2006–2007, the MITACS Internship Program funded over 150 internships from coast to coast.

In June 2007, because of the success of the internship program, the Government of British Columbia announced $10 million to expand the program to all academic disciplines in the province, including those outside of the mathematical sciences. This expanded program, dubbed ACCELERATE BC, BC's Graduate Research Internship Program, has funded over 100 internships in the province alone so far this year. MITACS is planning to similarly expand the internship program across Canada in the near future.

For more information about MITACS, visit <http://www.mitacs.ca>. For more information about ACCELERATE BC or the MITACS Internship Program, visit <http://www.mitacsinternships.ca>.

Upcoming Conferences

Conference:	SIAM Conference on Parallel Processing for Scientific Computing
Location:	Atlanta, Georgia
Dates:	March 12–14, 2008
Web Site:	http://www.siam.org/meetings/pp08
Program:	http://www.siam.org/meetings/pp08/program.php
Contact:	meetings@siam.org

Conference:	5th International Workshop on Parallel Matrix Algorithms and Applications (PMAA'08)
Location:	Neuchatel, Switzerland
Dates:	June 20–22, 2008
Web Site:	http://www.dcs.bbk.ac.uk/pmaa08/
Contact:	matrix@dcs.bbk.ac.uk

Conference:	Conference in Numerical Analysis (NumAn 2008) Recent Approaches to Numerical Analysis: Theory, Methods and Applications Honoring Richard S. Varga on his 80th birthday
Location:	Kalamata, Greece
Dates:	September 1–5, 2008
Web Site:	http://www.math.upatras.gr/numan2008/
Contact:	numan2008@math.upatras.gr

Second Canada-France Conference
Université du Québec à Montréal
June 1–6, 2008

The Canadian and French mathematical communities are invited to the Second Congress Canada-France 2008. The Congress will include the annual conferences of CAIMS and MITACS as well as the CMS Summer Meeting.
The scientific sessions are scheduled from June 2-6, with the poster session taking place on June 1. Business Meetings will be scheduled starting May 31. We invite you to attend a variety of social events including a welcome reception on June 1, the student social on June 3 and the awards banquet on June 5.
Please note that la Société Fran caise de Statistique (SFdS) and the Statistical Society of Canada (SSC) are holding a joint congress in Ottawa just prior to this meeting thus guests may choose to attend both events.

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

Prizes and Awards
CAIMS Cecil Graham Doctoral Dissertation Award
CAIMS Research Prize
CMS Excellence in Teaching Award
CMS Krieger-Nelson Prize - Izabella Laba (UBC)
CMS Jeffery-Williams Prize - Martin Barlow (UBC)
MITACS Student Awards
MITACS Poster Competition Prizes

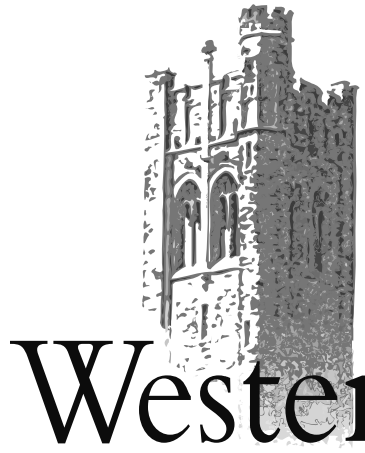
Public Lecture
Yvan Saint-Aubin (Montréal)

The conference is sponsored by

MITACS CRM CMS SMC FIELDS PIMS

ISM Institut des sciences mathématiques

CAIMS SCMAI



Chair of the Department of Applied Mathematics

Applications are invited for the position of Chair, Department of Applied Mathematics in the Faculty of Science at the University of Western Ontario. This is a multidisciplinary department with a unique blend of research strengths including Biological & Materials Physics, Dynamical Systems, Financial Mathematics, Mathematical Biology, Symbolic Computation and Theoretical Physics. A record of commitment to quality undergraduate and graduate teaching, a strong research record and some administrative experience are essential. The new Chair is expected to provide strong leadership in teaching, research, and administration. The application package should include a cover letter, a curriculum vitae and names of three references. References would not be consulted without the applicant's permission. The successful applicant will be appointed at the rank of Associate Professor or Professor, with tenure. The appointment as Department Chair will be for a five-year term. The preferred start date is between January 1, 2008 and July 1, 2008. More information can be found on the Applied Mathematics website at <http://www.apmaths.uwo.ca>.

Application packages should be sent to:

Dr. David M. Wardlaw, Dean
Faculty of Science, Western Science Centre
The University of Western
Ontario, London, Ontario, N6A 5B7

by November 1, 2007, although applications received after that date will be considered until the position is filled. Further questions can be directed to Stacey Bastien, Assistant to the Dean at 519-661-3041 or by email to <mailto:sbastie@uwo.ca>.

Positions are subject to budget approval. Applicants should have fluent written and oral communication skills in English. All qualified external and internal candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. The University of Western Ontario is committed to employment equity and welcomes applications from all qualified women and men, including visible minorities, aboriginal people and persons with disabilities.

Department of Applied Mathematics Tenure Track Position in Mathematical Finance

Applications are invited for a probationary (tenure-track) faculty position at the rank of Assistant Professor in the research field of Financial Mathematics in the Department of Applied Mathematics at the University of Western Ontario (www.apmaths.uwo.ca). A researcher in any area of financial mathematics with demonstrated or potential excellence in research and teaching is sought to complement the existing strengths of the research group in financial mathematics, both within the Department and within our sister Department of Statistical & Actuarial Sciences. Industrial experience or contacts are an asset. The starting date will be July 1 2008 or thereafter.

The position will entail active participation in the activities and service of the Department of Applied Mathematics, including the supervision of graduate students and teaching at the graduate and undergraduate levels. To ensure full consideration, applications should be received prior to January 15 2008. Applications should include a curriculum vita or resume, a short research proposal, and names of three references. Address applications to:

Dr. David Jeffrey, Acting Chair
Department of Applied Mathematics
The University of Western Ontario
London, Ontario N6A 5B7, Canada
email: *pmalone@uwo.ca*

This position is subject to budgetary approval. Applicants should have fluent writing and oral communication skills in English. All qualified candidates are encouraged to apply. However, Canadians and permanent residents will be given priority. The University of Western Ontario is committed to employment equity and welcomes applications from all qualified women and men including visible minorities, aboriginal people, and persons with disabilities.

UNIVERSITÉ
YORK
UNIVERSITY

Faculty of Pure and Applied Science
Applied Mathematics
Position in Category Theory and Its Applications

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

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

Pure Mathematics Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3
Email: puremath.recruit@mathstat.yorku.ca
www.math.yorku.ca/Hiring

All positions at York are subject to budgetary approval.

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

UNIVERSITÉ
YORK
UNIVERSITY

Faculty of Pure and Applied Science
Applied Mathematics
Position in Mathematical Finance

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

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

Mathematical Finance Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3
Email: finance.recruit@mathstat.yorku.ca
www.math.yorku.ca/Hiring

All positions at York are subject to budgetary approval.

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

UNIVERSITÉ
YORK
UNIVERSITY

Faculty of Pure and Applied Science
Applied Mathematics
Position in Operations Research

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

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

Operations Research Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3
Email: or.recruit.recruit@mathstat.yorku.ca
www.math.yorku.ca/Hiring

All positions at York are subject to budgetary approval.

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

The annual doctoral Dissertation Award

OBJECTIVE The award has been established by the Canadian Applied and Industrial Mathematics Society (CAIMS) to recognize and to publicize an outstanding PhD thesis in Applied Mathematics defended at a Canadian University during the calendar year prior to the year of the award.

THE AWARD The award consists of a certificate, a monetary prize, and a free one-year membership in the Society. The winner will be invited to present a communication based on the thesis at the Annual Meeting of the Society. Assistance with expenses to attend the meeting will be provided.

COMPETITION Normally, the Award Coordinator must receive by January 31 of a given calendar year four (4) copies of the thesis, an electronic version, along with a covering letter from the thesis supervisor indicating why the thesis is suitable as an entry in the Competition (including a description of the problem, techniques and results, potential impact, ...). The candidate must also submit a separate letter identifying the possible applications of the work, proof of the official date of acceptance of the thesis, and a current CV.

JUDGING The submitted theses will be evaluated by a panel of judges appointed by the President of the Society. Their decision will be final. Judging will be on the basis of the level of originality in the ideas and techniques, the possible applications and their treatment, and the potential impact on science and engineering. The panel of judges may seek advice from other experts. The panel may arrive at the conclusion that more than one or none of the submissions merits the award or an honourable mention.

CAIMS SCMAI

The Award Coordinator
Dr. Matt Davison , Department of Applied Mathematics
University of Western Ontario
London, ON, Canada N6A 5B7
email: mdavison@uwo.ca
phone: (519) 661-2111 x.88784, fax: (519) 661-3523
http://www.caims.ca

SOCIÉTÉ CANADIENNE DE MATHÉMATIQES APPLIQUÉES ET INDUSTRIELLES

Prix annuel pour
Thèse de doctorat

L'OBJECTIF Le prix a été créé par la Société Canadienne de Mathématiques Appliquées et Industrielles (SCMAI) pour récompenser et faire connatre une thèse de doctorat exceptionnelle en mathématiques appliquées. Cette thèse devra avoir été soutenue par une université canadienne au cours de l'année civile qui précède celle de l'attribution du prix.

LE PRIX Il comporte, outre une certificat et une somme d'argent, la participation gratuite pour un an dans la Société. Le gagnant sera invité à présenter une communication portant sur sa thése à la réunion annuelle de la Société, cette invitation allant de pair avec de l'aide financière pour assister à la réunion.

LE CONCOURS Habituellement, le coordinateur du prix doit recevoir, dès le 31 janvier, quatre (4) exemplaires de la thèse soutenue durant l'année civile précédente ainsi qu'une lettre du directeur de thèse expliquant pourquoi la thèse en question soit acceptable pour le concours (description du problème, techniques, résultats, impact possible, ...). Le candidat doit également soumettre une lettre décrivant les applications possibles de ses travaux, et un CV récent. Enfin, une attestation officielle de la date d'approbation de la thèse doit accompagner l'envoi.

LE JURY Les thèses soumises seront évaluées par un jury de juges nommés par leprésident de la Société. Leur décision sera sans appel. Les critères d'appréciation seront le niveau d'originalité des idées et des techniques, les possibilités d'application et leur traitement, l'impact possible sur le développement des sciences et de génie. Le jury pourrait consulter d'autres experts. Celui-ci pourrait décider d'attribuer le prix à une ou plusieurs personnes ou de ne pas l'attribuer du tout, il en serait de même pour les mentions honorables.

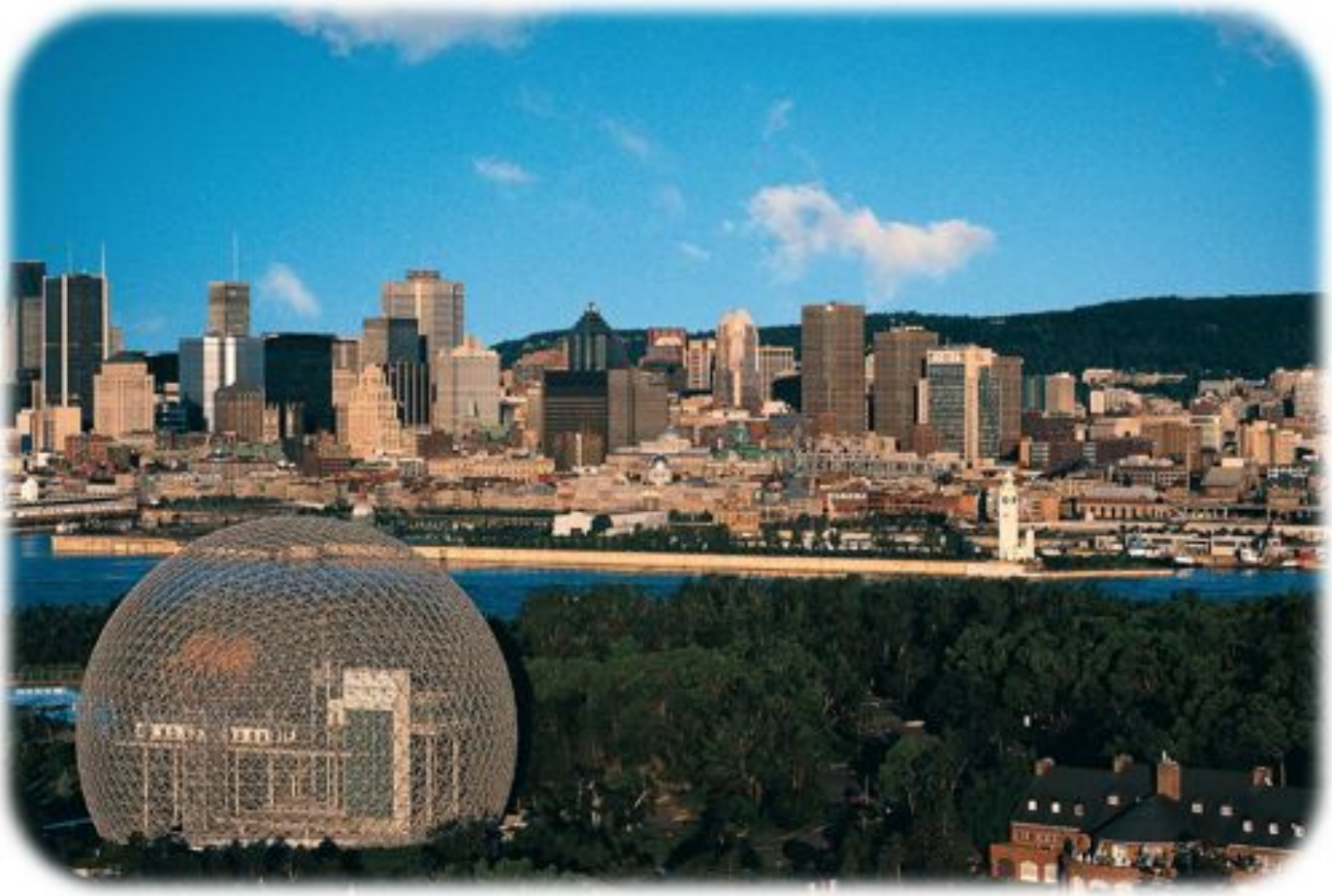
CAIMS SCMAI

Le Coordinatteur du Prix
Dr. Matt Davison , Department of Applied Mathematics
University of Western Ontario
London, ON, Canada N6A 5B7
email: mdavison@uwo.ca
phone: (519) 661-2111 x.88784, fax: (519) 661-3523
http://www.caims.ca

Bulletin

CAIMS SCMAI

Newsletter



Fall 2007 Number 62

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CAIMS SCMAI

Le Coordinatteur du Prix
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email: mdavison@uwo.ca
phone: (519) 661-2111 x.88784, fax: (519) 661-3523
http://www.caims.ca

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Submissions

Submissions and ideas for publication are appreciated. They should be sent to the editor:

Email: gumelab@cc.umanitoba.ca
Tele: 204-474-7486
Fax: 204-474-7602
Mail: Abba Gumel
CAIMS•SCMAI Secretary
Dept. of Mathematics
University of Manitoba
Winnipeg, MB R3T 2N2

Advertising Rates

Inserts and non-advertising submissions (including letters to the editor) should be negotiated with the Secretary. Information about deadlines, payment and acceptable formats should be directed to the Secretary.

Publication Information

The Canadian Applied and Industrial Mathematics Society / Société Canadienne de Mathématiques Appliquées et Industrielles (CAIMS•SCMAI) is a member society of the International Council for Industrial and Applied Mathematics (ICIAM). The newsletter is published at least once a year.

Editors: Abba Gumel and Dhavide Aruliah
Design and Production: James Treacy
Photographs: Ken Jackson, Jack Macki and Hongbin Guo

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ICIAM 2011 Announcement

Introductory Remarks

by Bob Russell

There are a number of interesting developments reported upon in this year's CAIMS•SCMAI Newsletter. In the August 2007 E-News I reported upon the changeover in the Board and expressed my deep gratitude for the work of those on the Board, particularly our Past President Bill Langford, who has a comprehensive article in this issue. As he mentions, there are a number of exciting events in the planning for our organization, including our upcoming meeting in Montréal being held in conjunction with the other mathematics organizations in Canada and France. Since it will also serve as our annual meeting, every effort will be made to see that we have a broad collection of contributed minisymposia, ensuring a continuation of what has become a key grassroots component of our meetings. I hope that many of you will be willing to submit proposals for minisymposia for this meeting before the December 15 deadline. For details of what is involved, review the September 2007 E-News at http://www.caims.ca/Society/E-News/09_07. Anne Bourlioux has graciously agreed to handle proposals (email her at anne.bourlioux@umontreal.ca).

There are a number of actions being taken by the various CAIMS•SCMAI committees, including the Membership Committee, now headed by Ian Frigaard from UBC. Among these are efforts to get our young members more involved in the the activities, and some of you will be contacted soon about these plans. Clearly, the future of CAIMS•SCMAI depends upon your ongoing support, and that of course depends upon your also renewing your CAIMS•SCMAI membership! Please keep in mind that you can now use your NSERC Discovery Grant to pay for a regular membership, and those with Professional Development allowances in their universities should find the CAIMS•SCMAI Lifetime Membership an ideal use of the funds.

Thank you for helping to make CAIMS•SCMAI a stronger society for the promotion of applied and industrial mathematics in Canada.

Bob Russell
CAIMS•SCMAI President

Remarques préliminaires
par Bob Russell

Il y a toute une liste de développements intéressants rapportés dans ce bulletin de la CAIMS•SCMAI. Dans les nouvelles électroniques datant du mois d'août 2007, j'ai mentionné les changements dans la composition du bureau de direction et j'ai exprimé ma profonde gratitude pour le travail des membres de ce bureau, en particulier, de notre ancien président Bill Langford, qui est par ailleurs l'auteur d'un article approfondi dans ce numéro. Comme il le mentionne, il y a toute une série d'événements passionnants en préparation par notre organ isation, y compris la réunion de Montréal qui se tiendra conjointement avec les autres organisations mathématiques du Canada et de France. Comme cette réunion jouera le rôle de notre réunion annuelle, tous les efforts ont été mis en place pour présenter un vaste choix de minisymposia, afin d'assurer la continuité de ce qui est maintenant une composante populaire incontournable de nos conférences annuelles. J'espère que vous allez être nombreux à soumettre des propositions avant la date limite du 15 décembre. Tous les détails à ce sujet peuvent être trouvés dans l'édition électronique de nos nouvelles à l'adresse http://www.caims.ca/Society/E-News/09_07. Anne Bourlioux est en charge de ce volet de la conférence (son courriel est anne.bourlioux@umontreal.ca).

Je voudrais aussi mentionner une série d'actions entreprises par les différents comités de la CAIMS•SCMAI, en particulier la campagne par le comité sur l'adhésion, qui est maintenant piloté par Ian Frigaard (UBC). Notons entre autres les efforts pour impliquer davantage nos membres juniors, un certain nombre d'entre vous allez être contactés à ce sujet. Notez également que vous pouvez maintenant utiliser votre subvention à la découverte du CRSNG pour payer les frais d'adhésion régulière, et que ceux qui ont des fonds de développement institutionnels devraient penser à une adhésion à vie comme une utilisation idéale de ces fonds.

Merci de nous aider à toujours améliorer la CAIMS•SCMAI comme société de promotion des mathématiques appliquées et industrielles au Canada.

Bob Russell
président de CAIMS•SCMAI

Past President's Report

by Bill Langford, CAIMS·SCMAI President, 2005–7

The very successful 2007 Annual Meeting in the beautiful setting of the Banff Conference Centre marked the end of my two-year term as President of CAIMS·SCMAI. As President, I gained admiration for the many outstanding people who work on behalf of CAIMS·SCMAI. This gives me great optimism for the future growth and success of our Society. In this Report, I would like to summarize some CAIMS·SCMAI activities that I have been involved with in the past two years.

Certainly one highlight of my term as President has been the signing of the Reciprocal Membership Agreement between CAIMS·SCMAI and SIAM. This comes into effect with the 2008 membership year. Under this agreement, a regular member of CAIMS·SCMAI who lives outside the USA is eligible for a 20% discount on annual SIAM membership fees. Similarly, a regular member of SIAM who lives outside of Canada is eligible for a 30% discount on annual CAIMS·SCMAI membership fees. (The differential in the discount percentages is more than offset by the large difference in fees of the two societies.) The full text of the agreement is shown on page 25 and is posted on our website. A SIAM membership form, for CAIMS·SCMAI members wishing to join SIAM at the reciprocal membership rate, is now available on the SIAM website. CAIMS·SCMAI has always enjoyed very good relations with SIAM. Many Canadian applied mathematicians are already members of both societies and this number surely will increase under the new reciprocal agreement. Such an agreement has been a goal of the CAIMS·SCMAI Board for many years. I want to express my heartfelt thanks to former Board Member Leah Keshet and SIAM President Marty Golubitsky for initiating the discussions last year that led to this agreement.

In the past two years I served as the CAIMS·SCMAI representative on the Mathematics-NSERC Liaison Committee that was created to discuss with NSERC officials the impact of proposed changes in the funding mechanisms for the three mathematical sciences institutes (CRM, Fields and PIMS). After much discussion, last year the various proposals crystalized into two options for the funding of the mathematics institutes: (1) the Envelope Option, in which the institute funding and GSC 336+337 Discovery Grant funding would be combined in a common envelope with the possibility to transfer money between them, and (2) the Major Resources Support (MRS) Option, in which the mathematics institutes would be funded independently of Discovery Grants and placed with other institutes in the new MRS Program that was created by NSERC to facilitate access to major experimental and thematic research resources based in Canada. I supported the MRS option and it was this option that NSERC ultimately chose. The three institutes prepared funding proposals for the 2007 competition. CAIMS·SCMAI

sent letters to NSERC in support of all three institutes. Site visits were held in January 2007, with CAIMS•SCMAI represented by Bob Russell at PIMS, Bill Langford at Fields and Jacques Bélair at CRM. The final outcome in March 2007 was very good news for the institutes: an increase of approximately 25% in the annual funding of each institute, for a five year term. At the suggestion of Bob Russell, each of the three institute directors submitted letters for publication in the CAIMS•SCMAI eNews (Vol. 7 No. 3), describing their institute's plans in light of this funding success.

On the other hand, the February 2007 Discovery Grants Competition at NSERC was a particularly difficult one for mathematics research. There were widespread cuts to renewal applications and the success rate for new applicants was unusually low. Personally, I see the root cause of these difficulties as an absence of new funding for the mathematics GSC's at a time when the Canadian mathematics research community is growing in both size and international stature. At the same time, NSERC is undertaking an "International Review of the Discovery Grants Program", according to NSERC, "to determine whether its current awards/applicants funding ratio of 75% in discovery research is consistent with international standards of excellence and whether this funding approach is appropriate." There is a danger that this will shift dramatically the funding of mathematics research in Canada, for which NSERC is the primary source, to a pattern of fewer but larger grants. In response to this situation, a new Mathematics-NSERC Liaison Committee has been formed, to evaluate the impact of the proposed changes in Discovery Grants on mathematics research and to provide a channel for communication between the mathematics research community and NSERC. Once again, I am serving as the CAIMS•SCMAI representative on this Mathematics-NSERC Liaison Committee.

CAIMS•SCMAI is the Canadian member society of the International Council for Industrial and Applied Mathematics (ICIAM) and is one of approximately 25 such national applied mathematics societies throughout the world. Elsewhere in this Newsletter, Ken Jackson has reported on CAIMS•SCMAI involvement in ICIAM. A major activity of ICIAM is to organize every four years the International Congress on Industrial and Applied Mathematics, the most important conference in industrial and applied mathematics in the world. The 2011 Congress will be held in Vancouver, Canada, cohosted by CAIMS•SCMAI, MITACS and SIAM. This is a great coup for Canadian applied mathematics, that will enhance the reputation of CAIMS•SCMAI both nationally and internationally. The Scientific Co-Chairs of ICIAM 2011 are Jerrold Marsden and Ivar Ekeland and the President of ICIAM 2011 is Arvind Gupta of MITACS. An outstanding Scientific Advisory Committee (SAC) has been formed. I wish to thank all those who are already at work to make ICIAM 2011 in Vancouver a resounding success, especially Ken Jackson and Bob Russell.

From July 16 to 20, the ICIAM 2007 Congress was held in Zurich, Switzerland. There was an unprecedented level of Canadian participation in ICIAM 2007 at all levels, as described by Ken Jackson in this Newsletter. In addition to a record number of Canadian plenary lectures, the ICIAM call for proposals for Minisymposia received a very strong response from Canadian researchers.

For the future I have great confidence in the continued growth of CAIMS in both size and stature. CAIMS•SCMAI will increase its membership, including new faculty, students, industrial and institutional memberships as we work for greater cooperation with other organizations, national and international, such as NSERC, CMS, SSC, MITACS, SIAM and ICIAM. The new Reciprocity Agreement with SIAM is an important step in this direction, as is our work with NSERC that resulted in increased funding of the mathematics institutes. The growing role of CAIMS•SCMAI in ICIAM, including the hosting of ICIAM 2011, dramatically raises the CAIMS•SCMAI profile on the world stage. Our 30th Anniversary Meeting, to be hosted by the University of Western Ontario in 2009, will be an opportunity to celebrate the maturation of CAIMS•SCMAI as a leading force representing applied and industrial mathematics in Canada and worldwide.

In closing, there are many people that I would like to thank, starting with the organizers of our highly successful 2007 Annual Meeting in Banff. Peter Lancaster and his Scientific Program Committee put together a spectacular program for this meeting, in my view one of the strongest we have ever had. The Organizing Committee, especially Jack Macki and Michael Li, worked tirelessly to make the meeting the huge success that it was. I thank the Applied Mathematics Institute of the University of Alberta for its generous support of this Annual Meeting. Paul Muir, our Treasurer, is doing an excellent job and can take much credit for the sound financial position that our Society now enjoys. Rod Edwards, our multitalented Secretary, served as Editor of our E-News and Newsletter, maintained the CAIMS•SCMAI website (now in both official languages), handled membership renewals and elections and so much more. Rod has completed his term as Secretary and has earned our heartfelt thanks for his outstanding contributions to CAIMS•SCMAI. I also thank Abba Gumel for taking on the challenging post of Secretary this year. I want to thank all the members of our CAIMS•SCMAI Committees, who gave generously of their time, for example to select the winners of our CAIMS•SCMAI Prizes. Special thanks must go to the Committee Chairs whose terms ended this year: Matt Davison (Cecil Graham Doctoral Dissertation Award), Jianhong Wu (Research Prize), Leah Keshet (Membership), Rod Edwards (Publications), Bob Russell (Nominating) and Sam Shen (Fund Raising). I have to say that I would have been lost without the sage advice of Past-President Ken Jackson and the astute input from President-Elect Bob Russell, on many occasions. CAIMS•SCMAI is an entirely volunteer-run organization and could not survive without the generosity and commitment of talented people such as these. Thank you all!

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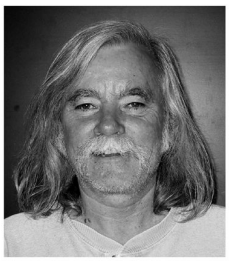

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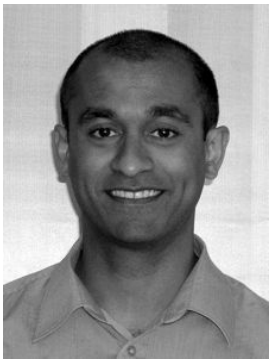

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Minutes of the CAIMS•SCMAI General Meeting

Held Wednesday May 23, 2007
Donald Cameron Hall
Banff Centre, Alberta

1. The President, Professor Bob Russell, took the chair and called the meeting to order at 12:45PM. Approximately one hundred members of the society were present.

   Bob Russell welcomed everyone to the Annual Meeting.
2. It was moved by Bill Langford and seconded by Rob Corless that the agenda be approved as written. **Carried.**
3. It was moved by Jack Macki and seconded by Rod Edwards that the minutes of the General Meeting of June 18, 2006 be approved as written. **Carried.**
4. There were no matters arising out of the minutes.
5. The President, Bob Russell, presented his report. Highlights are reported below.

   Thanks:
   Bob introduced President-elect (Jacques Bélair), Secretary-elect (Abba Gumel) and other new Board Members (Dhavide Aruliah and Ian Frigaard). He thanked outgoing President, Bill Langford, and Past President, Ken Jackson, for their invaluable contributions to CAIMS•SCMAI. He also thanked other outgoing Board members namely, Rod Edwards (Secretary), Leah Edelstein-Keshet and John Stockie (Members at Large). Bob thanked the Organizers of CAIMS•SCMAI 2007, Jack Macki, Michael Li and Peter Lancaster.

   Liaison activities:
   The President presented some fund raising initiatives and invited members to help in these efforts.

   Bill Langford reported on the Mathematics-NSERC Liaison Committee, announcing the major increase the three mathematics institutes received at this year's funding competition. A new Mathematics-NSERC Committee on Discovery Grants is formed. Bill Langford is to serve as CAIMS•SCMAI representative on this Committee. He invites comments from the CAIMS•SCMAI membership.

   The reciprocal membership with SIAM, where CAIMS•SCMAI members receive 20discount on SIAM membership, was highlighted.

   Meeting Organizers Handbook to be compiled soon. Langford heads the Committee.

   Prizes

   - **Cecil Graham Doctoral Dissertation Award:** The 2007 Cecil Graham Doctoral Dissertation Award was awarded to Dr. Richard Pancer

(Toronto) for outstanding thesis. Bob thanked the DDA Committee for an excellent work. He reminded everyone that the award is for a thesis defended in the calendar year, and nominations have to be submitted by January 31 of the following year.

- **Research Prize:** The 2007 Research Prize was awarded to Professor Gordon E. Swaters (Alberta). Gordon gave an excellent plenary talk on his work. The President thanked the Research Prize Committee for an outstanding job.
- **Arthur Beaumont Distinguished Service Award:** The 2007 Arthur Beaumont Distinguished Service Award was given to Jack Macki (Alberta). Jack received a richly-deserved standing ovation from the CAIMS•SCMAI membership during the award presentation.

6. The out-going Secretary, Rod Edwards, presented his report. He announced the result of the election for two members-at-large on the board of directors. Dhavide Aruliah and Ian Frigaard were the successful candidates. Jacques Bélair and Abba Gumel were elected President-elect and Secretary by acclamation. This year's election received increased responses from members. Rod described the publications of the society: the E-News has been coming out about once every two months on average; and the annual printed Newsletter was distributed last Fall. He called members to continue contributing to these publications. He also urged members to visit the CAIMS•SCMAI website periodically and give some input.
7. The treasurer, Paul Muir, presented his report. He highlighted the following summary figures for the year May 1, 2006–April 30, 2007

Revenues:	\$17,837.60
Expenditures:	\$10,036.29
Revenues-Expenditures:	\$7,801.31
Bank balance (Apr. 30, 2007):	\$43,229.68
GIC total:	\$53,772.53
Deposit to Banff Centre for CAIMS•SCMAI 2007:	\$8,000.00
Total asset:	\$105,002.21

Paul also presented membership statistics, pointing out that memberships are down because AIM memberships are down. He encouraged members to help make their institutions to renew their memberships.

8. Ken Jackson presented a report on ICIAM 2007. The meeting, scheduled July 16–20, 2007 in Zurich, should attract 3,000 participants, including a significant number from Canada. Michel Fortin (Québec) and Barbara Keyfitz (Fields Institute) will give invited talks, whilst Ivar Ekeland (PIMS) and Pauline van den Driessche (Victoria) will give public lectures. Pauline will receive the Olga Taussky Todd Prize. Ken noted the large number of min-

isymposia and contributed talks organized by CAIMS•SCMAI members.

9. Ken Jackson also presented his report on ICIAM 2011. A Steering Committee, consisting of Arvind Gupta (President), Ivar Ekeland, Jerry Marsden (Scientific Co-Chairs), Bob Russell, Bill Langford, Ken Jackson (CAIMS•SCMAI), Barbara Keyfitz, Francois Lalonde (Canadian Math Inst.), Rachel Kuske (UBC), John Stockie (SFU, MITACS), Marty Golubitsky, Jim Crowley (SIAM) and Randy LeVeque (Washington), has been formed.

   Further, a Scientific Advisory Committee, responsible for nominating members of the Scientific Program Committee, has been formed. All nominees of the Scientific Programs Committee will be reviewed by the Steering Committee. The Scientific Advisory Committee consists of the following:

   - John Ball (Oxford)
   - Rafael Correa (Chile)
   - Weinan E. (Princeton and Peking University)
   - Ivar Ekeland (PIMS, Congress Scientific Co-Chair)
   - Martin Grötschel (Berlin)
   - Arvind Gupta (MITACS, Congress President)
   - Jerrold Marsden (Congress Scientific Co-Chair)
   - William Pulleyblank (IBM), Ian Sloan (ICIAM)
   - Margaret Wright (Courant).

   Once the Scientific Program Committee is ratified, the themes of the meeting will be chosen, selected the invited speakers and organize some invited minisymposia. Some CAIMS•SCMAI members will serve on ICIAM Committees as follows:

   - Finance Committee (CAIMS•SCMAI representative: Paul Muir)
   - Fundraising Committee (CAIMS•SCMAI representative: Sam Shen)
   - Publications and Promotions Committee (CAIMS•SCMAI representatives: Rob Corless, Ken Jackson).

   The organization for the meeting is progressing on schedule as outlined in the bid document. A webpage for ICIAM 2011 would be constructed soon.

10. Future Meetings: Victor LeBlanc (Ottawa) announced that the next CAIMS•SCMAI meeting will be part of the 2nd Congress Canada-France meeting scheduled at UQAM, Montréal, June 2–6, 2008. The meeting, which is expected to attract 7800 participants, will feature 26 special sessions (2 sessions by CAIMS•SCMAI members). CAIMS•SCMAI's DDA and Research Prizes will be awarded.

    Rob Corless presented preliminary plans for CAIMS•SCMAI 2009, scheduled June 2009 at University of Western Ontario. The local Committee consists of the "whole department".

    It was agreed that the CAIMS•SCMAI 2010 meeting should be held in one of the Atlantic provinces.

11. CAMQ: Herb Freedman (Alberta) presented a report on the current status of CAMQ. In addition to giving an excellent historical account of CAMQ, Herb stated that CAMQ will be up-to-date by the end of 2007. CAMQ will be included in the Citation Index. He encourages members to submit quality articles to CAMQ. The journal now has three Managing Editors, namely Bryan Moody (Alberta), Michael Li (Alberta) and Michael Ward (UBC). A key highlight of Herb's presentation is the acknowledgement of Jack Macki's outstanding job to get CAMQ back on track. His motion for the Board of CAIMS•SCMAI to formally recognize Jack's contribution was seconded by everyone present at the AGM!
12. Other business: there was no other business.
13. The meeting was adjourned at 1:20PM.
14. **Banquet:**
    The banquet was held on Wednesday, May 23, 2007. At this time, the CAIMS•SCMAI Research Prize, the Cecil Graham Doctoral Dissertation Award and the Arthur Beaumont Distinguished Service Award were presented. Poster prizes were also awarded.

Committee Membership

1. Cecil Graham Doctoral Dissertation Award Committee: Ray Spiteri (Saskatchewan, Chair) Thomas Hillen (Alberta), Henry Wolkowicz (Waterloo)
2. Arthur Beaumont Distinguished Service Award Committee: Serpil Kocabiyik (Memorial, Chair) Bryant Moodie (Alberta), Sue Ann Campbell (Waterloo)
3. CAIMS Research Prize Committee: Mike Mackey (McGill, Chair) Anthony Pierce (UBC), Michel Fortin (Laval), Gordon Swaters (Alberta)
4. Nominating Committee: Jacques Bélair (Montréal, Chair) Serpil Kocabiyik (Memorial), Rob Corless (UWO)
5. Annual Meeting Handbook Committee: Bill Langford (Guelph, Chair) Abba Gumel (Manitoba), Paul Muir (St. Mary's), Huaxiong Huang (York), Jack Macki (Alberta)
6. Scientific Program Committee: Bill Langford (Guelph, Chair) Raymond Spiteri (Saskatchewan), Abba Gumel (Manitoba), Huaxiong Huang (York), Jack Macki (Alberta)
7. ICIAM Liaison Committee: Ken Jackson (Toronto), Bob Russell (SFU), Bill Langford (Guelph)
8. Publications Committee: Abba Gumel (Manitoba, Chair) Rod Edwards (Victoria), Ken Jackson (Toronto), Michel Delfour (Montréal), Jack Macki (Alberta), Xingfu Zou (Western Ontario), Dhavide Aruliah (UOIT)

9. Fund Raising Committee: Serpil Kocabiyik (Memorial), Bill Langford (Guelph), Paul Muir (St. Mary's)
10. Membership Committee: Ian Frigaard (UBC, Chair) Anne Bourlioux (Montréal), Paul Muir (St. Mary's), Michel Delfour (Montréal), Patrick Montgomery (Northern BC), Bob Russell (SFU), John Bowman (Alberta), Richard Pancer (Toronto), Justin Wan (Waterloo), Serpil Kocabiyik (MUN)
11. Human Rights Committee: Ken Jackson (Toronto, Chair) Gail Wolkowicz (McMaster), Sue Ann Campbell (Waterloo)
12. CAIMS•SCMAI Representatives to Other Organizations for 2007–8:

    - Representative to ICIAM 2011 Congress: Ken Jackson (Toronto)
    - Representative to the CMS: Victor LeBlanc (Ottawa)
    - Representative to the Fields Institute: Ken Jackson (Toronto)
    - Representative to PIMS: Ian Frigaard (UBC
    - Representative to CRM: Jacques Bélair (Montréal)
    - Representative to MITACS: John Stockie (SFU)
    - Representative to the Canadian Forum on Education in Mathematics: Jacques Bélair (Montréal)
    - Representative to ICIAM (Council): Bob Russell (SFU)
    - Representative to new Mathematics—NSERC Liaison Committee: Bill Langford (Guelph)

Membership Committee Report
by Ian Frigaard

2007–8 has seen the start of some changes to CAIMS memberships. First of all the membership reciprocity agreement with SIAM has come into effect. Under this agreement SIAM and CAIMS members will benefit from reduced membership of the other society. How this works is that a regular CAIMS member based outside of the US may have a 20% discount on SIAM membership fees. Similarly a regular SIAM member based outside of Canada may have a 30% discount on CAIMS membership fees (suddenly looking a great deal with the soaring loonie!). Please see http://www.caims.ca/Society/reciprocity.html for the full agreement.

Secondly, we have upgraded our institutional memberships (now renamed "academic" memberships). Whilst the cost remains the same, two additional benefits are: (i) Any graduate student in a department holding an academic membership of CAIMS is eligible for free membership of the society. (ii) Any regular CAIMS member in a department holding an academic membership of CAIMS may nominate any postdoctoral researcher for free membership of the society. The free

graduate student membership is in line with that offered by other scholarly societies and we are of course eager to increase membership amongst new faces in Canadian applied mathematics. As before, academic memberships also include a small number of associated memberships that the departments can allocate to new faculty and other junior members. Please consider if your department should take advantage of a CAIMS academic membership.

The membership committee is always pleased to hear of new suggestions and ways to improve CAIMS offerings to its members. Please send e-mail to Ian Frigaard <frigaard@math.ubc.ca>.

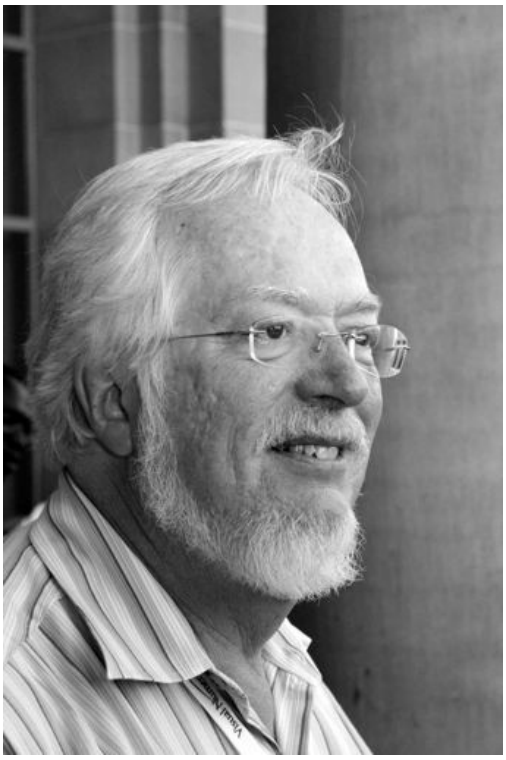
ICIAM 2007 Report

by Ken Jackson

The 6th International Congress on Industrial and Applied Mathematics — ICIAM 2007 — was held in Zurich 16-20 July 2007. It was a very exciting meeting with over 3,000 registered delegates and a wide array of talks covering a vast range of topics in Applied and Industrial Mathematics.

CAIMS members figured prominently in the meeting:

- Pauline van den Driessche (University of Victoria) gave the Olga Taussky Todd lecture entitled "Matrices in Action for Epidemic Models",
- Michel Fortin (Université Laval) gave an Invited Plenary Talk entitled "Contact Problems in Solid Mechanics",
- Barbara Keyfitz (Fields Institute, Toronto) gave an Invited Plenary Talk entitled "Hyperbolic Conservation Laws: Past and Future",
- Ivar Ekeland (PIMS Institute, Vancouver) gave the Public Lecture entitled "The best of all possible worlds: the idea of optimization".



Bill Langford at the ICIAM Reception

In addition, Canadians were active in many minisynosia and contributed sessions.

The consensus of most people I talked to was that ICIAM 2007 was a great success, lifting ICIAM to a new level. We're looking forward to carrying on the tradition with an even better Congress in Vancouver, 18–22 July 2011.

Pauline van den Driessche Giving the Olga Taussky Todd Lecture

Plans for ICIAM 2011 are progressing well. The President of the meeting is Arvind Gupta (MITACS) and the Scientific Co-Chairs are Ivar Ekeland (PIMS) and Jerry Marsden (California Institute of Technology). The Steering Committee consists of

- Arvind Gupta, Chair
- Jim Crowley and Ken Jackson, Vice-Chairs
- Ivar Ekeland and Jerry Marsden, Scientific Co-Chairs of the Meeting
- Bob Russell and Bill Langford (CAIMS)
- Barbara Keyfitz, Francois Lalonde (Canadian Math Institutes)
- Rachel Kuske and John Stockie
- Marty Golubitsky (SIAM)
- Randy LeVeque

One of the main steps that the Steering Committee took last year was to appoint a Scientific Advisory Committee. This committee is responsible for nominating members of the Scientific Program Committee. All nominees will be reviewed by the Steering Committee, who will then make official nominations to the ICIAM Council. After the Scientific Program Committee has been appointed, the Scientific Advisory Committee will disband.

The members of the Scientific Advisory Committee are:

- John Ball, Oxford
- Rafael Correa, Chile
- Weinan E, Princeton and Peking University
- Ivar Ekeland, PIMS, Congress Scientific Co-Chair
- Martin Grötschel, Berlin
- Arvind Gupta, Congress President
- Jerry Marsden, Congress Scientific Co-Chair
- William Pulleyblank, IBM
- Ian Sloan, ICIAM
- Margaret Wright, Courant

There is now a long list of nominees for the Scientific Program Committee. The Scientific Advisory Committee and the Steering Committee is now working on selecting a subset of these nominees for the Scientific Program Committee. The members of the Committee should be announced soon.

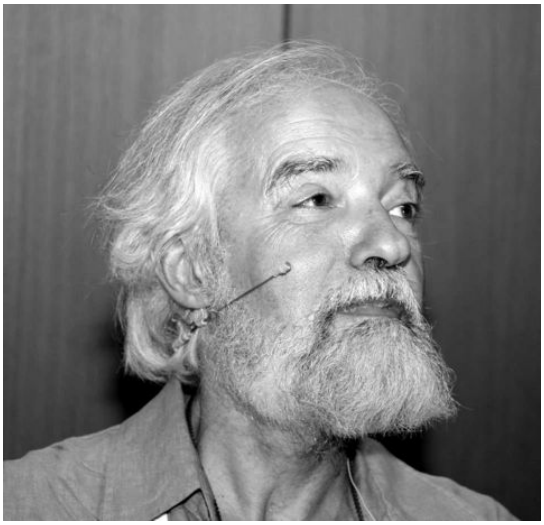
Once the Scientific Program Committee is ratified by the ICIAM Board, it will begin the very important task of choosing the themes of the meeting, selecting the invited speakers and organizing some invited minisymposia.

The ICIAM Steering Committee has also established three subcommittees:

- Finance Committee (CAIMS rep: Paul Muir)
- Fund raising Committee (CAIMS rep: Sam Shen)
- Publications and Promotions Committee (CAIMS reps: Rob Corless and Ken Jackson)

The organization ICIAM 2011 is progressing on schedule as outlined in our original bid document. We are looking forward to a great meeting in Vancouver. I hope to see you there.

Barbara Keyfitz Giving an Invited Plenary Lecture



Michel Fortin Giving an Invited Plenary Lecture

Report on CAIMS·SCMAI 2007

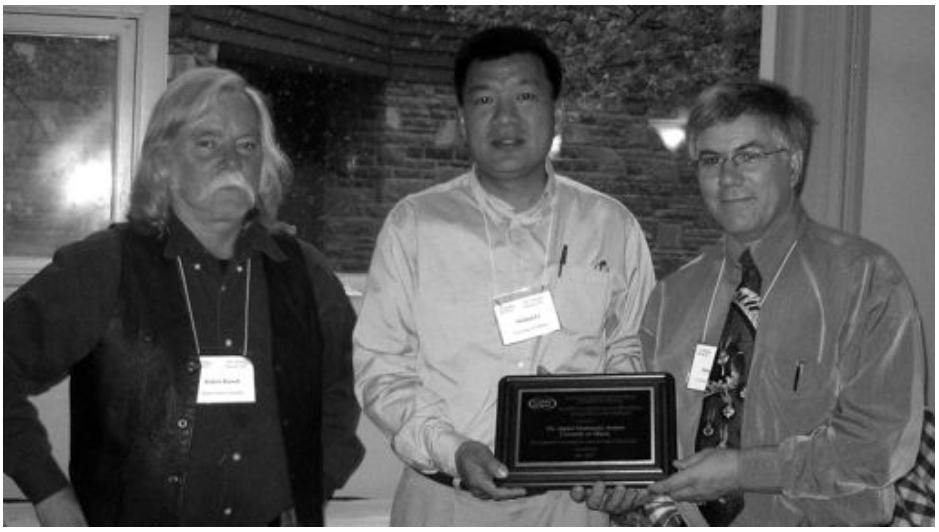
by Jack Macki

The 2007 Annual Meeting of the CAIMS•SCMAI took place at the Banff Centre, Alberta, from May 20 to 24. The organizers, Peter Lancaster (U of Calgary), Michael Li (U of Alberta), Ben Agarwaal (U of Calgary) and Jack Macki (U of Alberta), succeeded in bringing together a rich, packed, program with plenary speakers and minisymposia on a great variety of hot topics in applied mathematics. They included subjects from math biology, computational math, applied linear

algebra, cryptography, geophysics, math of finance, dynamical systems and fluid dynamics. Beginning with eight selected topics, the program was further enriched by the organizers of eleven contributed minisymposia. There were also sessions for contributed papers, poster displays and presentations by the society's prize winners. The plenary speakers with titles of their talks were:

- John Bush, MIT, USA. "Surface tension and biology".
- Shui-Nee Chow, Georgia Tech., USA. "Mathematical issues related to a non-linear circuit".
- Philip Colella, Lawrence Berkeley Lab., USA. "Computational science as a mathematical science".
- Karl Hadeler, Universität Tübingen, Germany and Arizona State U. "Matrix problems from mathematical biology".
- N.J.Higham, U. of Manchester, UK. "Numerical analysis of the matrix logarithm".
- Ehud Ronn, U of Texas at Austin, USA. "The crude-oil/nat-gas markets:'The message from markets' ".
- W. Symes, Rice University, USA. "Optimal scaling of seismic migration".
- S. Vanstone, U of Waterloo. "Another look at digital signatures".

The program included the society's AGM (conveniently organized during lunch), and a banquet - combined with awards of a number of prizes. See page 22 for the prizes and their winners.



Michael Li accepting a thank you plaque for the Universities of Alberta and Calgary from Bob Russell (left) and Jacques Bélair (right)

An afternoon was set aside for enjoyment of the location in the Rocky Mountains. Banff lived up to its impressive reputation for sheer beauty, and excitement was added with a spring snow-shower. The Banff Centre provided spacious facilities which suited the needs of the society admirably. Most participants also enjoyed what have become the customary excellent food-services and accommodations. (Fully justifying the rather complex registration procedures.) The society gratefully acknowledges financial support from MITACS, Pearson Education, the Canadian Applied Math Quarterly, and the institutes: PIMS, CRM and Fields.

Against The Tide: The Fusion Establishment and a Heretic's Challenge

Leslie Woods Gives the 2007 Nerenberg Lecture

By Christopher Essex

Freeman Dyson believes that there are too few scientific heretics these days and that science needs more of them. Heresy is what leavens the bread of science. Science cannot grow and improve without it. Yet how often does one encounter a bona fide scientific heretic?

The 2007 Nerenberg Lecture was given by the real thing. What better way to commemorate forty years of applied mathematics at Western, and the tenth Nerenberg Lecture?

Leslie Woods, the former head of the Oxford University Mathematics Institute, has ruffled feathers over the years with his controversial ideas. In particular, for the last twenty years he has been suggesting a plasma physics version of water flowing uphill, that he calls "backwards heat". Radical as that sounds, he would laugh and point out that it only seems that way because part of the story is left out.

Leslie Woods with his 2006 book on tokamak transport

In the lecture he pointed out that such strange things actually are observed in nature. For example, the Sun's corona is at a temperature of about 2,000,000 K and the only source apparent for this temperature is the photosphere at about 6,000 K. Also magnetic fields looping up from beneath the photosphere into the corona tend to be spiked, rather than flattened out as predicted by normal science. Sunspots would persist for millions of years rather than the few days or weeks that are observed if conventional thinking were true. He argued that his ideas neatly solve these problems.

There is more. He told the audience that his ideas also explain why plasma confinement for nuclear fusion using tokamaks, as currently constructed, have not

worked and cannot work. With that claim, unorthodox thinking became heresy, and charming eccentricity became a provocation, because it put him smack into the middle of contentious global energy politics. Longstanding international consortiums are running billion dollar projects, funded by tax dollars, attempting to do precisely what Les Woods was arguing is a waste of time in principle.

This is where this story shifts from plasma physics to the iconic story of the scientific maverick standing his ground alone against the tide of the times. Many scientists would be intimidated to play such a role, against such a powerful, well-funded scientific establishment, but not Les. He was not easily intimidated.

After all, he was the independent minded son of a poor New Zealand fisherman, who won a Rhodes scholarship on the way to eventually becoming an Oxford Don. That story is remarkable enough, but add to it the iron nerve of flying over seventy missions as a fighter pilot in World War II. Oh, and let's not forget his days flying cloth and wire biplanes. He even crashed one. He regaled me with a hair-raising tale of piloting a hulking biplane called a "Wildebeest," wherein he was supposed to tow a target, but unexpectedly became the target himself.

No. He was not easily intimidated. But he could be persuaded with a rational argument. He was very much anti-authoritarian and keen for people to think for themselves. He had a soul for science. That made him a natural maverick, but he was surely a successful maverick.

It may not have escaped notice that I write of Les in the past tense. That is because this story has one more twist in it. Les died peacefully in his sleep, just over one month after giving the Nerenberg Lecture in March. Pictures of him taken at his Nerenberg Lecture were displayed at his funeral in Balliol College at Oxford.

Here I must step out of my role as Nerenberg Lecture chronicler and write personally. Plasma physics was not Les's only research interest. He started by studying aerodynamics before starting over in mathematics. He also was interested in thermodynamics. I met Les through thermodynamics, some years ago, at a Gordon Conference.

He and I were sitting together one evening at a table in a bar. He began to instruct me on how to publish and make known controversial work. I was not so controversial in those days, so I am still not sure why he volunteered this advice. It was my first, but not last, maverick lesson. This year he told me not to expect recognition for such work, but to remember that it is important for science to do such things nonetheless, and it can be especially fun.

His challenge to the fusion community has largely been ignored, and his ideas after more than twenty years have not yet been put to the test. He said that is often what happens. An establishment becomes so secure, that conventions endure because challenges are met by not taking them up at all.

I asked him whether his theory could be used to *fix* the problems that tokamaks

have. He thought about it and concluded eagerly that it might be worth thinking more about. That is what was on his mind when we parted. Science always has new roads to go down, and he was eager to travel them.

But there is only so much time. Eventually even mavericks have to leave it to others. One day he may be proven right. But till then, his life reminds us that in science personal vindication is not so important as standing up for what you believe is right. We need the heretics.

Organized by Western's Department of Applied Mathematics, the Nerenberg Lecture is named after the late professor Paddy Nerenberg and is intended to honour his appreciation for the democracy of ideas. He was Professor at Western for more than a quarter century, and a founding member of its Department of Applied Mathematics. The annual series is meant to challenge the public with ideas connected to mathematics that they may not see in any other forum.

Prizes Awarded at the 2007 CAIMS·SCMAI Meeting

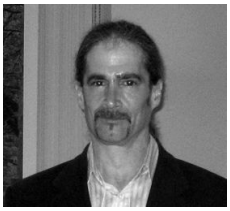
2007 CAIMS·SCMAI Research Prize

The 2007 CAIMS·SCMAI Research Prize was awarded to Professor Gordon E. Swaters, University of Alberta, for his original applications of mathematics to physical oceanography and his fundamental research on geophysical fluid dynamics.

2007 CAIMS·SCMAI Arthur Beaumont Distinguished Service Award

The 2007 CAIMS·SCMAI Arthur Beaumont Distinguished Service Award was presented to Professor Jack Macki, University of Alberta, in recognition of his tireless devotion to the well-being of Applied Mathematics in Canada, his long-time commitment to the Canadian Applied and Industrial Mathematics Society, and his flawless stewardship of the Canadian Applied Mathematics Quarterly.

2006 CAIMS·SCMAI Cecil Graham Doctoral Dissertation Award



The 2006 CAIMS·SCMAI Cecil Graham Doctoral Dissertation Award was presented to Richard Norman Pancer of the Department of Computer Science, University of Toronto, for his thesis "The Parallel Solution of ABD Systems Arising in Numerical Methods for BVPs for ODEs". This thesis was supervised by Ken Jackson with input from Paul Muir.

CAIMS·SCMAI Student Travel Bursary

The CAIMS·SCMAI Student Travel Bursary, to attend ICIAM 2007 in Zurich, Switzerland, was awarded to Malcolm Roberts, a Ph.D. student in the Department of Mathematical and Statistical Sciences, Geophysical Fluid Dynamics Research Group, University of Alberta, supervised by John Bowman. This award enabled Malcolm to present a contributed talk on "The multi-spectral decimation scheme for turbulence simulations" at the ICIAM Congress, 16 July 2007.

CAIMS·SCMAI 2008 Election: Call for Nominations

by Jacques Bélair

CAIMS·SCMAI will be holding an election next year (March 2008) for:

- Treasurer
- Two Members at Large on the Board of Directors

All members of CAIMS·SCMAI are encouraged to suggest names of candidates for these offices. Nominations should reach the Chair of the Nominations Committee, Jacques Bélair <belair@crm.umontreal.ca> by **31st December, 2007**.

CAMQ Update

by Herb Freedman

As approved both by the council of the Applied Math Institute and the CAIMS Board, the Canadian Applied Math Quarterly (CAMQ) announces its new managing editors, listed in alphabetical order:

- Michael Li, University of Alberta
- Bryant Moodie, University of Alberta
- Michael Ward, UBC

On behalf of the CAMQ, the Applied Mathematics Institute would like to thank the outgoing managing editor, Jack Macki, for his outstanding service to the CAMQ, especially for his tremendous energy and efforts in bringing CAMQ back to current.

2008 CAIMS·SCMAI Annual Meeting

by Bill Langford

The year 2008 will mark the 400th anniversary of the founding of Québec by Samuel de Champlain and his brave group of settlers from France. It will also be the occasion of an influx of pure and applied mathematicians from France, for the Second Canada-France Mathematical Congress, to be held June 2–6, 2008, in Montréal. This meeting is co-organized by CMS/SMC, CAIMS•SCMAI and MITACS of Canada, and by Société Mathématique de France (SMF) and Société de Mathématiques Appliquées et Industrielles (SMAI) of France; together with CRM, Fields, PIMS and Institut des Hautes Études Scientifiques. There will be 12 plenary lectures and about 25 special sessions. Over 1000 participants are anticipated. The host university is l'Université du Québec à Montréal.

The normal CAIMS•SCMAI Annual Meeting for 2008 will be embedded in this international congress. Thus, it will be similar to previous joint meetings that CAIMS•SCMAI has shared with SIAM (in 2003), CMS (in 2000 and 2004) and MITACS (in 2006). All of the usual activities of the CAIMS•SCMAI Annual Meeting will take place; for example, our prize lectures, student posters, contributed Minisymposia and business meetings. In addition, CAIMS•SCMAI members will have access to a rich variety of mathematical activities organized by our sister societies. It is anticipated that the Canadian Symposium on Fluid Dynamics also will join this meeting. This Canada-France Congress provides a unique opportunity for international collaboration between CAIMS•SCMAI and SMAI (Société de Mathématiques Appliquées et Industrielles), which sets a good precedent in anticipation of ICIAM 2011 in Vancouver.

The joint poster session will take place on June 1 and the CAIMS•SCMAI Board of Directors Meeting will be on May 31. The Awards Banquet is scheduled for June 5. Registration for members of all participating societies will be handled by the CMS. A preliminary website and program of the Canada-France Congress is available at http://www.cms.math.ca/Events/summer08/

This Canada-France Congress contrasts with the intimacy of our delightful stand-alone 2007 Banff Meeting and offers a very different type of meeting experience. Here you may feast on a cornucopia of mathematical activities in the vibrant heart of downtown Montréal. Please consider submitting a proposal for a CAIMS•SCMAI Minisymposium that will make this Congress even more exciting. This is a CAIMS•SCMAI Annual Meeting that you will not want to miss!

CAIMS-SIAM Reciprocity Agreement

by Bill Langford

The Society for Industrial and Applied Mathematics (SIAM) and the Canadian Applied and Industrial Mathematics Society / Société Canadienne de Mathématiques Appliquées et Industrielles (CAIMS) agree to enter into a reciprocal membership agreement, whereby individual members in one society are eligible for a discounted membership in the other. Under this agreement:

1. Any regular member in good standing of CAIMS whose primary place of employment is outside the U.S. will be accepted as a SIAM reciprocity member upon receipt of the SIAM application form and dues payment. Any regular member in good standing of SIAM whose primary place of employment is outside of Canada will be accepted as a reciprocity member of CAIMS upon receipt of the CAIMS application form and dues payment. Regular members of both societies who live outside both the USA and Canada may choose to become reciprocity members of either society, but not both.
2. The special dues rate for CAIMS members joining SIAM under the reciprocal agreement will be 80% of the current annual rate for regular members of SIAM. The special dues rate for SIAM members joining CAIMS under the reciprocal agreement will be 70% of the current annual rate for regular members of CAIMS.
3. Reciprocity members receive all regular member services and benefits.
4. Each society shall help promote reciprocity membership. Societies may exchange mailing labels or provide a brief notice in paper or electronic mail to members. Each society should announce the availability of the reciprocal membership in their flagship publication(s), news online, web site or other appropriate media. Each society should provide to the other a name of a contact person within their society responsible for promoting memberships.
5. This agreement is in effect until terminated by one of the societies. Termination notice must be provided six months before the start of the year when it takes effect in order to provide an orderly transition.

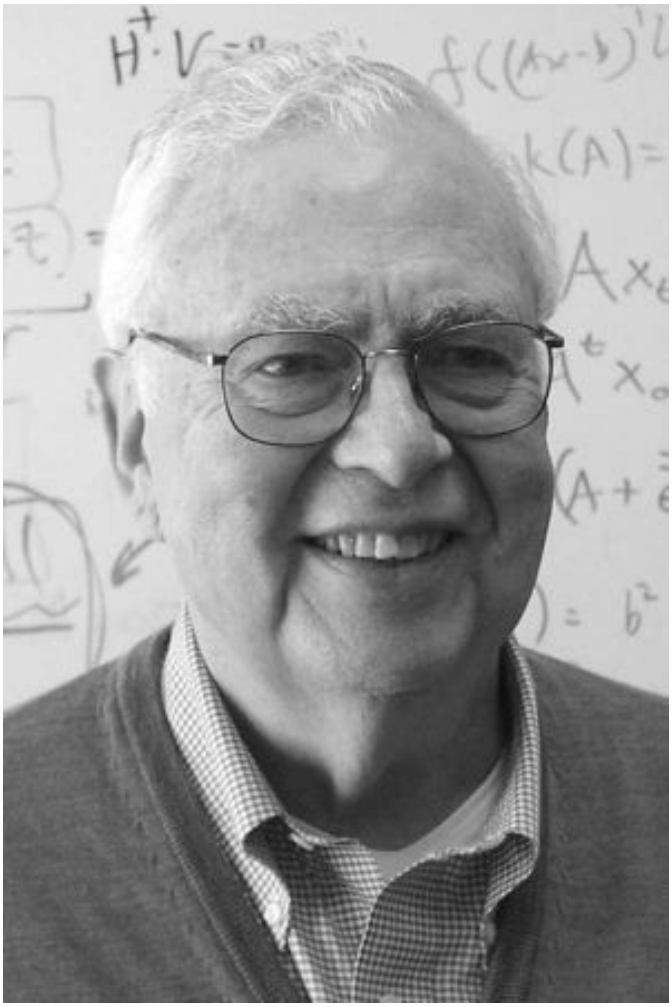
Signed:
Cleve Moler, President of SIAM
William F. Langford, Past President, CAIMS

Gene H. Golub, 1932-2007

by Chen Greif

Professor Gene Golub, one of the most influential numerical analysts of our time, died on November 16th, 2007 at Stanford Hospital in California, after being diagnosed just a few days earlier with leukemia. His sudden death sent shock waves throughout the scientific community. Within a week of his death, nearly 200 touching farewell postings of friends and collaborators were recorded in a special memorial Webpage: http://genehgolub.blogspot.com/.

Born in Chicago to Eastern European immigrants on February 29, 1932 (a leap day that made him quite special even when he was born), he received his PhD in 1959 from the University of Illinois, an institution he always cherished. His academic career spanned over four and a half decades of active research as a professor at Stanford University. His contributions were primarily in the field of numerical linear algebra, or "Matrix Computations" as he preferred to call the field. But the algorithms he developed were applicable in numerous important applications in science and engineering.



Among Golub's major contributions, most notable was his joint work with Kahan in the mid 1960s (and other papers that followed, with other collaborators) which showed how to compute the ubiquitous singular value decomposition (SVD) in a numerically stable fashion. Following that work, the SVD has become a major computational resource not only in mathematical areas but also in psychology, Internet search engine technology and document analysis, biology, and many other disciplines; entering "singular value decomposition" on Google Scholar at the time of preparing this piece has resulted in approximately 70,000 hits. Golub was so identified with the SVD that he proudly and famously featured the license plate 'PROF SVD' on his car.

Another area where Golub made an enormous impact is the field of fast solvers for sparse large linear systems. Such systems are known to form the computational

bottleneck in many numerical (linear as well as nonlinear) processes. Here we note semi-iterative methods (joint with Varga, 1961), the Fast Poisson Solver (joint with Buzbee, Dorr and Nielson, 1970), and Golub's prominent role in developing and popularizing variants of the preconditioned conjugate gradient method (joint papers with Concus, 1975, and with Concus and O'Leary, 1976).

The solution of least squares problems, which are widely used in statistics and many other disciplines, is another area where Golub's impact was significant. His early papers paved the way to a numerically stable computation of their solution, based on the celebrated QR factorization. The total least squares problem was also introduced by Golub and his collaborators - a model based on the assumption that the discrete operator that represents the quantity to be minimized might be inaccurately represented, that is, data measurements are often not the only source of errors. This approach has practical importance in a variety of fields of applications such as medical imaging. (The catchy name and the paper that popularized this approach was joint with Van Loan, 1980.)

One of Golub's trademarks was to connect several areas of research by unifying themes, and at the same time to keep looking for new directions. His work on moments and quadrature rules in the mid 1980s, which is of great mathematical beauty, goes beyond the computation of integrals and actually makes a strong connection between quadrature and eigenvalue and eigenvector computations. Another example here is a well known paper in 2002 which proposed an accelerated scheme for computing Google's PageRank, and triggered a great interest of the numerical linear algebra community in the PageRank problem. And of course, "Matrix Computations" by Golub and Van Loan, now in its third edition, has sold tens of thousands of copies and can be found in the library of almost any numerical analyst and many other scientists.

But beyond Golub's contributions to the wide field of scientific computing by way of writing papers and books, what made him so dominant was his personal style and his commitment to his community. He spent an enormous amount of energy in popularizing numerical algorithms, continually travelling to all corners of the world, disseminating research results in his lectures, and connecting people with each other. He served as President of SIAM and was one of the founders of the International Council for Industrial and Applied Mathematics (ICIAM). He was the founding editor of two important journals—SIAM Journal on Scientific Computing and SIAM Journal on Matrix Analysis and Applications. And he was the founder of NA-Digest.

Golub was widely recognized and honored for his pioneering work. He was a member of the National Academy of Sciences and the National Academy of Engineering, and recently was nominated for the most prestigious honour in the field of computer science: the Turing Award. He also received ten honorary doctorates. Sadly, his death came just before he was scheduled to receive another honorary

degree which was particularly precious to him, at ETH Zurich.

Gene the person was complex and multidimensional. He could be friendly and entertaining, but also very demanding. He will be fondly remembered for being generous and helpful to generations of young scientists, for creating numerous collaborations, for the constant stream of visitors, his hospitality and the many parties he held in his house, and for making Stanford the 'Headquarters'. All this has made him a household name in the numerical analysis community. The Canadian scientific community has also benefited from his activities, thanks to his involvement in founding ICIAM which is now of much importance to CAIMS (the next ICIAM meeting will be held in Vancouver in 2011). We also note his lifelong collaboration and connection with a few of Canada's finest numerical analysts, such as Alan George, Chris Paige, and Jim Varah.

On the day of Gene's death a few of us got together, to digest the shocking news and exchange memories. Our conversation quickly revealed that Gene had a direct impact on the career paths of most of us. This encapsulates the essence of his role in our community. His presence and impact were unparalleled, and many of us are indebted to him for his support and generosity. The numerical analysis community has lost a prominent leader and ambassador.

Mathematical Diversion

A man walks into a bar, orders a drink, and starts chatting with the bartender. After a while, he learns that the bartender has three children. "How old are your children?" he asks. "Well," replies the bartender, "the product of their ages is 72." The man thinks for a moment and then says, "that's not enough information." "All right," continues the bartender, "if you go outside and look at the building number posted over the door to the bar, you'll see the sum of the ages." The man steps outside, and after a few moments he reenters and declares, "Still not enough!" The bartender smiles and says, "My youngest just loves strawberry ice cream."

How old are the children?

For the solution visit http://faqs.org/faqs/puzzles/archive/logic/part1/

Report from the Centre de recherche mathématique

by Chantal David

The 2006–7 CRM thematic year was dedicated to various aspect of combinatorics, with a theme semester on "Combinatorial Optimization" in the Fall, and a theme semester on "Recent advances in Combinatorics" in the Winter. The topics of the year are as varied as approximation algorithms, network design, data mining, graph theory, algebraic combinatorics, combinatorics on words, Macdonald polynomials and Hopf algebras, enumerative questions in statistical mechanics, etc. The year ended with four intensive weeks on links between geometry and combinatorics, with concentration periods on "Algebraic Geometry and Algebraic Combinatorics" and "Real, Tropical, and Complex Enumerative Geometry". The André-Aisenstadt chairs of that year were Noga Alon (Tel Aviv), Paul Seymour (Princeton) ans Richard Stanley (MIT).

The 2006-7 academic year will also be remembered as the year of the NSERC MRS application, culminating in the Site Visit which took place at the end of January: those were hectic weeks indeed!

A series of blue boards with the names and photographs of the André-Aisenstadt Chair holders has now been installed at the entrance of the CRM, giving a glimpse of its activities almost going back to its founding years.

In the series of "Grandes Conférences du CRM," which started in 2005–06, scientists with a gift for communication are invited to present exciting recent developments in mathematics to a general public. Bart de Smit (Universiteit Leiden) presented a now famous conference on Escher and the Droste Effect, Jean-Paul Delahaye (Laboratoire d'informatique fondamentale, Université de Lille) presented Les limites logiques et mathématiques, Francis Clarke (Université Cllaude Bernard, Lyon) presented Euler: la vie, l'univers et l'optimisation and Étienne Ghyss (École Normale Supérieure de Lyon) talked about The Butterfly Effect.

The Fall Semester of 2007 at the CRM, devoted to Applied Dynamical Systems, consisted of 6 main workshops, with 5 taking place at the CRM, and a joint AARMS-CRM workshop in Halifax. Two of the Montréal workshops were preceded by graduate level minicourses. The semester focused on two themes. Firstly, the use of dynamical systems in applications, principally in physiology, and secondly the development of new numerical and dynamical systems tools needed in the study of such problems. However, in reality applications, analysis and numerical methods are all interconnected and some aspects of all three were found in each of the workshops.

The Spring Semester of 2008 will be devoted to Dynamical Systems and Evolution Equations. The central focus of the will be dynamical systems interpreted in a broad sense so as to include applications to fundamental problems in differential geometry as well as in mathematical physics. The academic year 2008–9,

dedicated to "Probabilistic Methods in Mathematical Physics" and "Perspectives and Challenges in Probability".

For more information on the programme and the support available see *http://www.crm.math.ca*

News from the Fields Institute

by Carl Riehm

Some of the upcoming events which might be of interest to CAIMS members are: November 17, 12:30pm: **Graduate School Information Day**. This is an information session for universities to display information on their graduate programs in mathematics, statistics and computer science. As part of the day's activities there will be one or two keynote lectures aimed at undergraduate students in the mathematical sciences. This year's speaker is Jeffrey S. Rosenthal (Statistics, University of Toronto), speaking on *What is MCMC?*

Fields Institute Colloquium/Seminar in Applied Mathematics
November 13, 2:10pm: Isom Herron (Rensselaer Polytechnic Institute) A new look at the principle of exchange of stabilities
November 13, 3:10pm: Laurette Tuckerman, (PMMH-ESPCI, University of Pierre and Marie Curie) Patterns in Turbulence
February 29, 2008, 1:10pm: Ivar Ekeland (UBC and PIMS)

Fields Industrial Optimization Seminar
This seminar meets on the first Tuesday of each month. Each meeting comprises two related lectures on a topic in optimization; typically, one speaker will be a university-based research and the other from the private or government sector.

Centre for Mathematical Medicine Seminar Series
January 25, 2008 - 3:30 p.m. David Earn, McMaster University and David Fisman, Hospital for Sick Children
March 28, 2008, 3:30pm: Lindi Wahl (U. Western Ontario) and Beni Sahai (Cadham Provincial Lab, Manitoba)
April 18, 2008, 3:30pm: Leon Glass (McGill)

Actuarial Science and Mathematical Finance Group Meetings January 30, 2pm: Matheus Grasselli (Dept. of Mathematics and Statistics, McMaster)

Seminar Series on Quantitative Finance January 30, 2008: Rama Cont (Columbia University) and Jim Gatheral (Merrill Lynch and Courant Institute)

Conference on Error-control Codes, Information Theory and Applied Cryptography
December 5–6. See *www.fields.utoronto.ca/programs/scientific/07-08/error-control/*

for more information.

Conference on Imaging and Lie Groups
February, 2008, organized by J. Patera (Montréal) and Hongmei Zhu (Calgary). See the Fields website *www.fields.utoronto.ca/* for more information.

Workshop on Taylor Model Methods
May 20-23, 2008: The focus will be the use of Taylor models in validated numerical methods. See *www.fields.utoronto.ca/programs/scientific/07-08/taylor-model/*

Symposium on Dependent Data Structures
May 21-23, 2008: This workshop will take place at Carleton University in Ottawa. It will feature the analysis and simulation of dependent responses, focusing on the areas of longitudinal data analysis, mixed models, missing data analysis, spatial data analysis, ordinal categorical data analysis, the simulation of dependent random variates, along with various biostatistical and health applications. See *www.fields.utoronto.ca/programs/scientific/07-08/dependent/* .

Winter/Spring 2008 Thematic Program
The Winter/Spring, 2008 thematic program is New Trends in Harmonic Analysis, organized by Alex Iosevich (Missouri-Columbia), Izabella Laba (UBC, lead organizer), Michael Lacey (Georgia Tech), and Eric Sawyer (McMaster). There will be 3 workshops:

- January 7-11 : Recent Advances in Operator Theory and Function Theory
- February 18-22: Harmonic Analysis
- April 5-13: Clay-Fields Conference on Additive Combinatorics, Number Theory, and Harmonic Analysis, co-organized with the Clay Mathematics Institute.

There will also be 2 graduate courses: *Function and Operator Theory*, Eric Sawyer (McMaster) and *Analytic Number Theory*, John Friedlander (Toronto)

The Coxeter Lecture Series will be delivered by Jill Pipher (Brown U.) on February 25-27, and the Distinguished Lecture Series by Tim Gowers, (U. Cambridge) on March 17-20, 2008 (to be confirmed).

Future thematic programs:

2008 (Fall)	Arithmetic Geometry, Hyperbolic Geometry And Related Topics
2009 (Winter/Spring)	O-Minimal Structures and Real Analytic Geometry
2010 (Winter/Spring)	Financial Mathematics

See *www.fields.utoronto.ca/programs/scientific/* for links to these programs (and to other activities).

News from the Pacific Institute for the Mathematical Sciences

By Breeonne Baxter, PIMS Communications Manager
http://www.pims.math.ca/

The Pacific Institute for the Mathematical Sciences (PIMS) is pleased to have inaugurated the first of our International Graduate Training Centres (IGTC), in Mathematical Biology, in September, 2007 *<http://www.pims.math.ca/International_Graduate_Training_Centre/>*. We will also continue our successful postdoctoral fellowships program and we have new collaborative research groups (CRGs) and industrial initiatives in strategic areas, such as the mathematics of the environment, in close cooperation with our international partners in Latin American and around the Pacific Rim.

International Collaborations

PIMS has become an Unité Mixte Internationale of the French Centre National de la Recherche Scientifique (CNRS), effective September, 2007. We will host CNRS researchers on a regular basis, and we can apply to European research programs. CNRS recognition is a label of quality. There are only four UMIs in mathematics around the world: in Moscow, Rio, Santiago, and now PIMS.

New PIMS Director

Alejandro Adem will commence his five-year term as the new Director of PIMS on July 1, 2008. Presently the PIMS Deputy Director, Professor Adem is a Professor of Mathematics and CRC at the University of British Columbia.

PIMS Board of Directors

PIMS has appointed three distinguished scientists and industry representatives to its board of directors. The new members are Charmaine Dean (Simon Fraser), Fernando Aguilar (CGG Veritas), Darrell Duffie (Stanford) (effective July 1, 2008).

PIMS also welcomes three new members to the Scientific Review Panel: Gunnar Carlsson (Stanford), Walter Craig (McMaster) and Bruce Reed (McGill).

Conferences and Activities

PIMS organizes and hosts a growing number of workshops and conferences each year through its member universities and Collaborative Research Groups:

The 10th PIMS Graduate Industrial Mathematics Modelling Camp (June 6–10, 2007) and the 11th PIMS Industrial Problem Solving Workshop (June 11–15, 2007) were held at the University of Alberta. The next GIMMC and IPSW will be held at the University of Regina in June, 2008.

PIMS' 10th Anniversary was held in 2006–07. As part of the 10th Anniversary events, the University of Victoria hosted the Symposium on Kinetic Equations and Methods on April 27–28, 2007. PIMS hosted a Scientific Symposium and Banquet on Sept. 27, 2007.

The Synchronous Rhythms in the Brain Workshop was held at the University of British Columbia (June 18-20, 2007) as part of the activities of the CRG in

Mathematical Modeling and Computation in Biology.

Conference on Applied Inverse Problems 2007: Theoretical and Computational Aspects. The University of British Columbia hosted the latest in a series of AIP Conferences aimed at providing a primary international forum for academic and industrial researchers working on all aspects of inverse problems (June 25-29, 2007).

The Summer School on Tropical Multiscale Convective Systems: Theory, Modeling, and Observations at the University of Victoria (July 30 to August 3, 2007) brought university researchers in applied math, physics, and meteorology departments working in the area of tropical meteorology together with government lab scientists working on operational weather and climate forecast models.

International Conference of Theoretical and Numerical Fluid Mechanics III was held in Vancouver (August 13-17, 2007) as an interdisciplinary meeting within the general field of mathematical and computational fluid dynamics, devoted mainly to Newtonian and non-Newtonian viscous flow.

International Graduate Training Centre (IGTC) in Mathematical Biology—First Graduate Research Summit. The Math Biology IGTC is a new PIMS initiative to develop and enhance graduate training opportunities in the Pacific Northwest. The Graduate Research Summit at the University of British Columbia (September 28-30, 2007) was attended by more than 50 graduate students, postdocs and researchers from U.Alberta, UBC, U.Victoria, U.Utah and Simon Fraser University.

PIMS-CINVESTAV Mathematics of Oil Exploration Workshop, part of the annual meeting of the Mexican Mathematical Society, hosted lectures by distinguished mathematical scientists and researchers from academia and industry in the U.S., Canada and Mexico about oil exploration as well as discussions of problems and future collaborations (October 18-19, 2007, Monterrey, Mexico).

A comprehensive list of all PIMS activities, conferences and workshops can be viewed in the Activities section of the PIMS website: http://www.pims.math.ca/wrapper/Activities/

Funding

Natural Sciences and Engineering Research Council of Canada (NSERC) has renewed and increased PIMS' grant to $5.5-million for the period 2008-2013.

The Province of British Columbia is providing $130,000 to the Pacific Institute for the Mathematical Sciences to help teachers increase math participation of Aboriginal students in First Nations schools.

MITACS Update

by Megan Airton

The past year has been a time of continued growth for MITACS. MITACS now funds 38 different research projects in five research themes: Biomedical & Health, Communication, Networks & Security, Risk & Finance, Information Processing and Environment & Natural Resources.

A new addition to the MITACS research portfolio is a project headed by Dr. Irene Abi-Zeid of Université Laval entitled Multi-criteria Mission Route Planning for Search, Surveillance and Rescue in Hazardous Environments. The research team will study the near optimal, multi-criteria, multi-stage search path problem for air vehicles searching for objects at unknown locations. Re-planning based on negative information and updating of the distributions of the whereabouts of search objects is an important element of this problem. Once the search object is located, another path planning problem of interest is the multi-criteria evaluation of land rescue routes using visibility-based terrain analysis in a hazardous environment. The team will work with project partner Defence R&D Canada – Valcartier to identify R&D needs and the directions for mission planning tools.

In May 2007, MITACS was awarded $1.1 million by Industry Canada via the federal Network of Centres of Excellence (NCE) program and the International Research Development Centre. This funding launched the I2M2CS, the International Initiative in Mathematical Modeling of Complex Systems, which will enable MITACS researchers to collaborate closely with their mathematical science counterparts around the world on such topics as the spread of avian flu and SARS, the development of new drugs for Alzheimer's and other diseases, terrorist threats and managing financial risk. To date, workshops and conferences have taken place with partners from Germany, Australia, China and the US on such topics as rock mechanics and logistics in mining, complex networks in the life sciences, the pricing and supply of electricity, environmental uncertainty and its impact on public policy and computational neuroscience. For more information about I2M2CS, visit <http://www.mitacs.ca/main.php?mid=10000354&pid=271>.

MITACS also funded a first-of-its-kind meeting from November 11–13 in Kampala, Uganda. Drawing attendees from Canada, Botswana, Zimbabwe, South Africa and Uganda, the goal of the meeting was to identify the most pressing issues surrounding the transmission of infectious diseases such as HIV/AIDS and tuberculosis and establish joint Africa-Canada teams of mathematical scientists. The result of the meeting was the formation of the Canada-Africa Biomath Network, which will undertake collaborative research aimed at developing mathematical models to address issues surrounding infectious disease.

On the training front, the MITACS Internship Program, <http://www.mitacsinternships.ca>, continued to expand across Canada. The Program connects

mathematical sciences graduate students and post-doctoral fellows, under the supervision of a faculty member, with a company or other organization. In collaboration with the partner company, the intern undertakes research on a business challenge of interest to all parties. In 2006–2007, the MITACS Internship Program funded over 150 internships from coast to coast.

In June 2007, because of the success of the internship program, the Government of British Columbia announced $10 million to expand the program to all academic disciplines in the province, including those outside of the mathematical sciences. This expanded program, dubbed ACCELERATE BC, BC's Graduate Research Internship Program, has funded over 100 internships in the province alone so far this year. MITACS is planning to similarly expand the internship program across Canada in the near future.

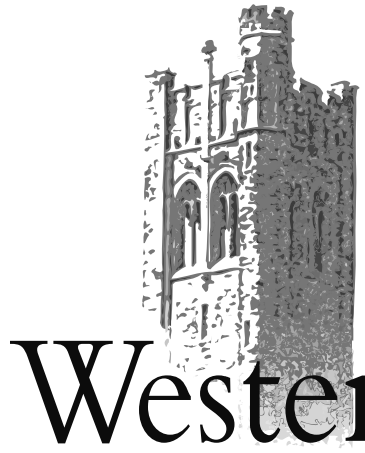
For more information about MITACS, visit <http://www.mitacs.ca>. For more information about ACCELERATE BC or the MITACS Internship Program, visit <http://www.mitacsinternships.ca>.

Upcoming Conferences

Conference:	SIAM Conference on Parallel Processing for Scientific Computing
Location:	Atlanta, Georgia
Dates:	March 12–14, 2008
Web Site:	http://www.siam.org/meetings/pp08
Program:	http://www.siam.org/meetings/pp08/program.php
Contact:	meetings@siam.org

Conference:	5th International Workshop on Parallel Matrix Algorithms and Applications (PMAA'08)
Location:	Neuchatel, Switzerland
Dates:	June 20–22, 2008
Web Site:	http://www.dcs.bbk.ac.uk/pmaa08/
Contact:	matrix@dcs.bbk.ac.uk

Conference:	Conference in Numerical Analysis (NumAn 2008) Recent Approaches to Numerical Analysis: Theory, Methods and Applications Honoring Richard S. Varga on his 80th birthday
Location:	Kalamata, Greece
Dates:	September 1–5, 2008
Web Site:	http://www.math.upatras.gr/numan2008/
Contact:	numan2008@math.upatras.gr



Chair of the Department of Applied Mathematics

Applications are invited for the position of Chair, Department of Applied Mathematics in the Faculty of Science at the University of Western Ontario. This is a multidisciplinary department with a unique blend of research strengths including Biological & Materials Physics, Dynamical Systems, Financial Mathematics, Mathematical Biology, Symbolic Computation and Theoretical Physics. A record of commitment to quality undergraduate and graduate teaching, a strong research record and some administrative experience are essential. The new Chair is expected to provide strong leadership in teaching, research, and administration. The application package should include a cover letter, a curriculum vitae and names of three references. References would not be consulted without the applicant's permission. The successful applicant will be appointed at the rank of Associate Professor or Professor, with tenure. The appointment as Department Chair will be for a five-year term. The preferred start date is between January 1, 2008 and July 1, 2008. More information can be found on the Applied Mathematics website at <http://www.apmaths.uwo.ca>.

Application packages should be sent to:

Dr. David M. Wardlaw, Dean
Faculty of Science, Western Science Centre
The University of Western
Ontario, London, Ontario, N6A 5B7

by November 1, 2007, although applications received after that date will be considered until the position is filled. Further questions can be directed to Stacey Bastien, Assistant to the Dean at 519-661-3041 or by email to <mailto:sbastie@uwo.ca>.

Positions are subject to budget approval. Applicants should have fluent written and oral communication skills in English. All qualified external and internal candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. The University of Western Ontario is committed to employment equity and welcomes applications from all qualified women and men, including visible minorities, aboriginal people and persons with disabilities.

Department of Applied Mathematics Tenure Track Position in Mathematical Finance

Applications are invited for a probationary (tenure-track) faculty position at the rank of Assistant Professor in the research field of Financial Mathematics in the Department of Applied Mathematics at the University of Western Ontario (www.apmaths.uwo.ca). A researcher in any area of financial mathematics with demonstrated or potential excellence in research and teaching is sought to complement the existing strengths of the research group in financial mathematics, both within the Department and within our sister Department of Statistical & Actuarial Sciences. Industrial experience or contacts are an asset. The starting date will be July 1 2008 or thereafter.

The position will entail active participation in the activities and service of the Department of Applied Mathematics, including the supervision of graduate students and teaching at the graduate and undergraduate levels. To ensure full consideration, applications should be received prior to January 15 2008. Applications should include a curriculum vita or resume, a short research proposal, and names of three references. Address applications to:

Dr. David Jeffrey, Acting Chair
Department of Applied Mathematics
The University of Western Ontario
London, Ontario N6A 5B7, Canada
email: *pmalone@uwo.ca*

This position is subject to budgetary approval. Applicants should have fluent writing and oral communication skills in English. All qualified candidates are encouraged to apply. However, Canadians and permanent residents will be given priority. The University of Western Ontario is committed to employment equity and welcomes applications from all qualified women and men including visible minorities, aboriginal people, and persons with disabilities.

UNIVERSITÉ
YORK
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Faculty of Pure and Applied Science
Applied Mathematics
Position in Category Theory and Its Applications

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

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

Pure Mathematics Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3
Email: puremath.recruit@mathstat.yorku.ca
www.math.yorku.ca/Hiring

All positions at York are subject to budgetary approval.

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

UNIVERSITÉ
YORK
UNIVERSITY

Faculty of Pure and Applied Science
Applied Mathematics
Position in Mathematical Finance

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

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

Mathematical Finance Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3
Email: finance.recruit@mathstat.yorku.ca
www.math.yorku.ca/Hiring

All positions at York are subject to budgetary approval.

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

UNIVERSITÉ
YORK
UNIVERSITY

Faculty of Pure and Applied Science
Applied Mathematics
Position in Operations Research

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

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

Operations Research Search Committee
Department of Mathematics and Statistics
N520 Ross, York University
4700 Keele Street
Toronto, Ontario
Canada M3J 1P3
Email: or.recruit.recruit@mathstat.yorku.ca
www.math.yorku.ca/Hiring

All positions at York are subject to budgetary approval.

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

The annual doctoral Dissertation Award

OBJECTIVE The award has been established by the Canadian Applied and Industrial Mathematics Society (CAIMS) to recognize and to publicize an outstanding PhD thesis in Applied Mathematics defended at a Canadian University during the calendar year prior to the year of the award.

THE AWARD The award consists of a certificate, a monetary prize, and a free one-year membership in the Society. The winner will be invited to present a communication based on the thesis at the Annual Meeting of the Society. Assistance with expenses to attend the meeting will be provided.

COMPETITION Normally, the Award Coordinator must receive by January 31 of a given calendar year four (4) copies of the thesis, an electronic version, along with a covering letter from the thesis supervisor indicating why the thesis is suitable as an entry in the Competition (including a description of the problem, techniques and results, potential impact, ...). The candidate must also submit a separate letter identifying the possible applications of the work, proof of the official date of acceptance of the thesis, and a current CV.

JUDGING The submitted theses will be evaluated by a panel of judges appointed by the President of the Society. Their decision will be final. Judging will be on the basis of the level of originality in the ideas and techniques, the possible applications and their treatment, and the potential impact on science and engineering. The panel of judges may seek advice from other experts. The panel may arrive at the conclusion that more than one or none of the submissions merits the award or an honourable mention.

CAIMS SCMAI

The Award Coordinator
Dr. Matt Davison , Department of Applied Mathematics
University of Western Ontario
London, ON, Canada N6A 5B7
email: mdavison@uwo.ca
phone: (519) 661-2111 x.88784, fax: (519) 661-3523
http://www.caims.ca

Second Canada-France Conference
Université du Québec à Montréal
June 1–6, 2008

The Canadian and French mathematical communities are invited to the Second Congress Canada-France 2008. The Congress will include the annual conferences of CAIMS and MITACS as well as the CMS Summer Meeting.
The scientific sessions are scheduled from June 2-6, with the poster session taking place on June 1. Business Meetings will be scheduled starting May 31. We invite you to attend a variety of social events including a welcome reception on June 1, the student social on June 3 and the awards banquet on June 5.
Please note that la Société Fran caise de Statistique (SFdS) and the Statistical Society of Canada (SSC) are holding a joint congress in Ottawa just prior to this meeting thus guests may choose to attend both events.

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

Prizes and Awards
CAIMS Cecil Graham Doctoral Dissertation Award
CAIMS Research Prize
CMS Excellence in Teaching Award
CMS Krieger-Nelson Prize - Izabella Laba (UBC)
CMS Jeffery-Williams Prize - Martin Barlow (UBC)
MITACS Student Awards
MITACS Poster Competition Prizes

Public Lecture
Yvan Saint-Aubin (Montréal)

The conference is sponsored by

MITACS CRM CMS SMC FIELDS PIMS

ISM Institut des sciences mathématiques

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