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

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Reports from the Society
President’s Report 2
Board of Directors 7
Minutes from 2016 AGM 11
Committee Members 23
Report on CAIMS 2016 24

Society Updates
CAIMS•SCMAI Awards 25
2017 Election – Call for Nominations 29
Math Biology Distinguished Lecture 29
2016 Nerenberg Lecture 31

News from the Math Institutes and General News
Fields Institute 33
CRM 35
PIMS 37
Workshop on Nonlinear Optimization 39
Blundon Seminar 42
Canadian Undergraduate Math Conference 44
Canadian High School Math Modelling Contest 48

Position Announcement
50

Back Cover
CAIMS•SCMAI 2017 Announcement
President’s Report
by Ray Spiteri, CAIMS • SCMAI President

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In June 2015, I had the privilege of becoming the 17th President of our society at our annual meeting at Wilfrid Laurier University in Waterloo. It has been an active year for CAIMS, with a number of new initiatives on top of the increasing number of activities that have now become "expected" or "normal" from our society. I think these are good things because they put CAIMS more and more on people’s everyday radar screen and hence bring us all that much closer as a society. I wish to thank the rest of the CAIMS Board (and in particular the Executive Committee) for their time, energy, and commitment to making CAIMS a society that we are all proud to be part of. It has been an honour and a privilege (and just generally fun!) to work with all of you this past year.

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Steven Ruuth and Huaxiong Huang will be stepping down from the Board of Directors this year. On behalf of CAIMS, I would like to thank them for their valuable service. Consequently, we will be holding elections for two more members at large next year. I urge everyone to consider taking a more active role in CAIMS and please encourage your colleagues to do so as well.

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We are also working on developing promotional material for the Society (including business cards) and trying to find an quick and pain-free way to sign up new members.

The CAIMS Annual Meeting this year was held in conjunction with the Canadian Symposium on Fluid Dynamics on June 25-30, 2016 at the University of Alberta in Edmonton. I would like to extend a special thank you to the local organizing committee led by Peter Minev, Thomas Hillen, Rouslan Krechetnikov, and Morris Flynn. The themes of the meeting were Applied Analysis and Dynamical Systems, Mathematical Biology, Financial Mathematics, Scientific and High-Performance Computing, the Mathematics of the Oil Industry.

One of the highlights of the meeting is the awarding of the Society’s prizes recognizing various contributions of Canadian applied and industrial mathematics. The awards are usually made at the conference banquet. Besides the awards, the banquet featured musical entertainment by the somewhat mathematically named band "Random Collection" and some general party antics (which shall remain unspecified) by members of the Executive (who shall remain nameless).
In 2016, CAIMS awarded five prizes.

The Arthur Beaumont Distinguished Service Award honours members of CAIMS *SCMAI for outstanding service to the society or to Applied Mathematics in Canada. The award is named after its first recipient, and was initiated as a means to honour Arthur for his years of unselfish service to the society. Arthur was a founding member of CAIMS/SCMAI and acted as its Secretary/Treasurer for eight years. The 2016 Arthur Beaumont Distinguished Service Award was awarded to Prof. Sharene Bungay from the Department of Computer Science at the Memorial University of Newfoundland in recognition of her outstanding service to CAIMS as a Board Member, CAIMS Secretary, and Co-Chair of the CAIMS Annual Meeting in St. John’s, Newfoundland in 2010.

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recognition of exceptional research in any branch of industrial mathematics, interpreted broadly, and conducted primarily in Canada. The 2016 CAIMS-Fields Industrial Mathematics Prize was awarded to Prof. Huaxiong Huang from the Department of Mathematics and Statistics at York University and soon to be Deputy Director of the Fields Institute. Prof. Huang has been cited for his contributions to a broad cross-section of applied mathematics including partial differential equations, asymptotics, fluid mechanics, probability, stochastic processes, and scientific computing, as well as his key role in organizing and promoting unique training opportunities in industrial mathematics.

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The 2017 Meeting will be held in conjunction with the third Canadian Symposium on Numerical Analysis and Scientific Computing from July 17-21 at Dalhousie University in Halifax. The local organizers are David Iron, Theodore Kolokolnikov, and Paul Muir.

Believe it or not, this is already my last report as President.

But for better or worse, you are not rid of me yet! I look forward to 2016-2017 being another great year full of satisfying accomplishments.

And I look forward to getting together with everyone in Halifax next July!

Raymond Spiteri,
President CAIMS*SCMAI
Board of Directors

President

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Minutes of the CAIMS•SCMAI Annual General Meeting  
Tuesday, June 28, 2016  
Centennial Centre for Interdisciplinary Science (Room L2-200)  
University of Alberta, Edmonton

1. CAIMS•SCMAI President Ray Spiteri called the meeting to order at 12:09pm.

2. Quorum was established.

3. The meeting was constituted.
   Amendment to the agenda: add the following two agenda items
   - 7(e) President-Elect report
   - 7(f) Membership report
   Motion (Ray Spiteri/Lucy Campbell): Approve the amended agenda. **Carried.**

4. **Approval of the Minutes of the AGM of June 9, 2015:**
   The minutes were circulated electronically to members with the Notice of Meeting on June 7th, 2016 (Schedule A) and are also available in the Fall newsletter posted on the CAIMS•SCMAI website.
   Motion (Ray Spiteri/Lucy Campbell): Approve the Minutes of the Annual General Meeting of June 9, 2015. (1 abstention) **Carried.**

5. **Business Arising From the Minutes:**
   None.

6. **Confirmation of enactment of the amended General Operating By-law No. 2, under the Canada Not-for-profit Corporations Act**
   Ray explained that the terms of Treasurer and Communications Officer were changed to three years in 2015. The plan is to change the term of Secretary to three years as well so that one of the three Executive Officers will be elected every year. The amended General Operating By-law No. 2 revised the term of Secretary from two years to three years.
   Motion (Pietro-Luciano Buono/Ron Haynes): Confirm enactment of General Operating By-law No. 2, under the Canada Not-for-profit Corporations Act. **Carried.**

7. **Annual report of:**
   (a) **President**
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Canada’s national organization dedicated to the promotion of applied mathematics and computational science for solving real-world problems. Since its inception in 1979, CAIMS has worked towards increasing public awareness and support for applied and industrial mathematics both nationally and internationally through education and scholarship. More information about CAIMS can be found at http://www.caims.ca.

In June 2015, I had the privilege of becoming the 17th president of our society at our annual meeting at Wilfrid Laurier University in Waterloo. It has been a full year on the job now, and what a whirlwind of activity and excitement it has been! I am very pleased to report on a number of new initiatives on top of the increasing number of activities that have now become "expected" or "normal" from our society. I think these are good things because they put CAIMS more and more on people’s everyday radar screen and hence bring us all that much closer as a society. I wish to thank the rest of the CAIMS Board (and in particular the Executive Committee) for their time, energy, and commitment to making CAIMS a society in which we are all proud to be part of. It has been an honour and a privilege (and let’s not forget fun!) to work with all of you this past year. I will now get into more of the details of our accomplishments and challenges.

After this coming year, I will step into the role of Past-President, now occupied by Ian Frigaard of UBC. When called upon, Ian has been very generous sharing his institutional knowledge. Matt Davison of Western University will be our new President starting at the AGM in 2017. I’m sure Matt will view the job of leading CAIMS to be a pleasurable distraction from being the head of two departments at the same time!

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All told, we will be holding four elections next year, one for President-Elect, one for Secretary, and two more for directors-at-large. I urge everyone to consider taking a more active role in CAIMS and please encourage your colleagues to do so as well. It goes without saying that the roles of President-Elect and Secretary are significant in their importance to the Society, and so we would like to have a slate of strong candidates from which the members can choose.

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We are soliciting bids to host the 2018 meeting.

I look forward to 2016-2017 being another great year full of satisfying accomplishments.

Believe it or not, this is already my last report as President.

I look forward to re-uniting with as many of our members as I can, both new and old, in Halifax next July!

Motion (Ray Spiteri/Victor Leblanc): Accept the President’s report. Carried.

(b) Treasurer:

Lucy Campbell presented the following report as CAIMS•SCMAI Treasurer.

Since June 2015, I have worked on the following items:

(i) **CAIMS Incorporation with Corporations Canada:** After returning from the 2015 AGM where the continuance of CAIMS as a not-for-profit corporation was passed, I submitted the By-Laws and Articles of Continuance to Corporations via the lawyer Kimberley Cunnington-Taylor. Un-
Under the Canadian Not-for-Profit Corporations Act, there are documents that have to be submitted to Corporations Canada annually or whenever a change is made in the status of the corporation. This year we have made a change in the by-laws and we have elected some new directors, so the updated by-laws and other documentation need to submitted. I will do this after the meeting once the changes have been approved and the documents have been signed by the secretary and president.

(ii) **Voluntary Disclosure of the past 5 years of finances of CAIMS to the Canada Revenue Agency:** Up until last year CAIMS had not been submitting returns or paying taxes. Last year I started the process of voluntary disclosure to the CRA with accountant Nicholas Ralph. The initial disclosure letter was submitted on May 22, 2015. After the 2015 AGM I continued to work on this issue. Ultimately, the CRA allowed CAIMS to submit returns for the previous 5 financial years only and CAIMS had to pay HST (and interest) on revenue generated from CAIMS meeting registration fees for the past 5 years. Going forward, it is important CAIMS follows all the requirements and processes for financial reporting annually, including tax returns and HST returns.

(iii) **Preparing a financial statement for the 2015-16 year:** This was done with accountant Nicholas Ralph. Based on the revenue acquired by CAIMS in the 3 financial years, we determined that CAIMS remains a non-soliciting corporation this year and hence only a compilation report was required. The information compiled in this report was used as input for the returns to be submitted to the CRA. The report, which I am about to present was sent to the members along with the notices and agenda 21 days before this AGM, as required.

(iv) **Submitting the 2015-16 Tax Return, HST Return and other documentation to the CRA.** The HST return is due 6 months after the end of the financial year. The amount of HST owing this year is only $195.47. There is no income tax owing. I will submit the payment and all required returns when I return to Ottawa.

(v) **Setting up registration forms on regonline** for online payment of membership fees for the 2016 calendar year, liaison with registrants and compiling membership information for the chair of the membership committee. I also helped the 2016 conference organizers with the initial set-up of the conference registration forms.

(vi) Some additional work on tidying up the database.

(vii) Other day to day Treasurer duties: issuing and depositing cheques, processing credit card payments for membership fees and ad revenue, preparing and sending out invoices, etc.

Motion (Lucy Campbell/Rebecca Tyson): Accept the Treasurer’s report. Car-
(c) Communications Officer:
Pietro-Luciano presented the following report as CAIMS•SCMAI Communications Officer.
Here is a list of the main projects I have been conducting during the 2015-2016 period since the 2015 AGM.

(i) Continued Maintenance of the CAIMS/SCMAI website.
(ii) Setting up the CAIMS email addresses on the CAIMS website cPanel.
(iii) Housing the mailing lists on the CAIMS website cPanel
(iv) Setting up a CAIMS repository in Bitbucket.
(v) Continuing the harmonization of the French and English versions of the website.
(vi) Continue populating the Facebook page. Created the Youtube channel.
(vii) Meeting with Activity Group leaders at the CAIMS conference.

In the short term, here is a list of projects I would like to complete.

(i) Setting up webforms to register members in Activity Groups directly. Working with Ian Allison to implement this.
(ii) Create and Instructions Manual for all the technical issues related to CAIMS website, Mailing Lists, Bitbucket, etc.
(iii) Getting promotional material, business cards, etc.

Motion (Luciano/Sean Bohun): Accept the Communications Officer’s report. **Carried.**

(d) Secretary:
Justin Wan presented the following report as CAIMS•SCMAI Secretary.
I have completed the first year as CAIMS•SCMAI Secretary. Many thanks to Sharene and other Exec Members. I was able to pick up and continue the main jobs of Secretary.

E-News & Annual Newsletter
There were 8 issues of E-News sent out this past year. The main contents were announcements of CAIMS activities as well as events from other institutions. The Annual Newsletter was sent out in December, 2015. Following the practice of previous years, the Newsletter was sent out in electronic form only. It included reports from the Society, memberships of various Committees, recent award recipients, and general news from other institutes and societies.

CAIMS Member Database & Mailing List
Thanks to Lucy and Luciano, a member database and a new mailing list were created earlier this year. All electronic communication, e.g. E-News,
is now through the new mailing list, which is derived from the new CAIMS member database. Anyone who wants to be on the CAIMS mailing list is now required to be a current member of CAIMS.

E-Voting
In the past, paper ballots were sent out for CAIMS Election. The mailing process costed money and time for both the Society and members. Moreover, the voting rate tended to be low. This year, we tried to use E-Voting for the first time. The online election was set up through an online voting service, votenet.com. The voting process was simple and quick, and there was no cost to the members. However, it did cost US$495 to set up an account on votenet.com. This year, we had 196 eligible voters and 73 member voted. The voting rate was approximately 37%, which appeared to be higher than previous years.

Election
CAIMS Elections were held in April 2016 for five positions on the Board of Directors: three members-at-large, Treasurer, and Communications Officer. The terms of Ron Haynes, Greg Lewis, and Thomas Hillen as member-at-large come to an end this year. There were five nominees for member-at-large (Jane Heffernan, David Iron, Lilia Krivodonova, Tony Ware, Francoise Watier), and we are grateful to the candidates who put their names forward. The votes were collected and tallied by the online system. The three candidates with highest votes were Jane Heffernan, Lilia Krivodonova, and Tony Ware, and they will join the Board of Directors as members-at-large for a three-year term. Lucy Campbell was elected Treasurer for the second term (three years) by acclamation. Luciano Buono was also elected Communications Officer for the second term (three years) by acclamation.

Motion (Justin Wan/Lucy Campbell): Accept the Secretary’s report. Carried.

(e) President-Elect:
Matt Davison presented the following report as CAIMS•SCMAI President-Elect.
Matt acknowledged that CAIMS and the Exec in particular are run on a volunteering basis, with no full time staff support. He thanked the work by the Treasurer, Communications Officer and Secretary to keep the Society running.

The other job of the President-Elect is to chair nominating committees. CAIMS has five awards to be presented each year. Each award is administered by an award committee which solicits nominations, reviews supporting documents, and makes a decision. It is important for the Society to highlight the great work of our members.
Finally, Matt reported the event of the International Mathematical Modeling Challenge for high school students. He acknowledged the exceptional effort by Hongmei Zhu to make the event successful.

Motion (Matt Davison/Pietro-Luciano Buono): Accept the President-Elect’s report. Carried.

(f) Membership report:
Lucy Campbell presented the following membership report on behalf of Troy Day.

The Membership Committee consists of five members, in which Troy Day is the Chair. There is also a Liaison Committee which consists of members from universities across Canada. Member Liaisons were contacted in early 2016 to encourage their colleagues to renew/join CAIMS. Liaisons were also asked to remind their departments about institutional renewals. Liaisons were asked to put forward all students, postdocs, new faculty for a free associate membership.

Lucy then reported membership data compiled by Troy. A few observations about the data were made:

- The total regular (including lifetime) membership has been roughly the same over the last 10 years.
- The Associate Institutional Membership fluctuates quite a bit but that is to be expected.
- Institutional memberships have, overall, undergone a substantial decline.

A number of suggestions were given to increase membership; for instance, to encourage Associate Institutional members to become regular members, and to encourage more departments to sign up for Institutional members.

Motion (Lucy Campbell/Colin Macdonald): Accept the Membership report. Carried.

8. Future CAIMS Meetings:
David Iron gave a brief report on the next CAIMS meeting. It will be held on July 17–21, Dalhousie, Halifax. Four theme areas have been decided and they are Numerical Analysis, Mathematical Biology, Data Analysis, and Applied Differential Equations. The fifth area will be determined soon. David noted that the online conference webpage will be up in a couple of weeks. Finally he encouraged members to come visit Halifax and attend the meeting.

9. Receipt of financial statements for the financial year ended April 30th, 2016:
Lucy Campbell gave a report on the financial statement, prepared by the accountant Nicholas Ralph. She explained what needed to be reported in the financial
statement, under the Canadian generally accepted accounting principles. She commented and gave brief explanation on items on the report, including the 2015 CAIMS conference expenditure, 2016 registration fees, HST payments, and other expenses.

Motion (Lucy Campbell/Christina Charistara): Accept the financial statement for 2015–2016. Carried.

10. Resolution to waive the appointment of a public accountant for 2016–2017

A not-for-profit corporation is required to appoint a public accountant every year at its AGM to prepare a financial statement at the end of the upcoming financial year. If the appointment of a public accountant is waived, this allows CAIMS the possibility of preparing a simpler, less costly type of financial statement at the end of the financial year.

Motion (Lucy Campbell/Ray Spiteri): Waive the appointment of a public accountant for 2016–2017. Carried.

11. Confirmation and Ratification of Election of Directors

We need to ratify the results of the election.

There was one nomination for the position of Treasurer, and Lucy Campbell was elected by acclamation.

Motion (Nilima Nigam/Greg Lewis): Ratify the result of the election for a Director of the Corporation and appoint Lucy Campbell as a Director of the Corporation. Carried.

Motion (Nilima Nigam/Matt Davison): Ratify the result of the election for Treasurer of the Corporation and appoint Lucy Campbell as Treasurer of the Corporation. Carried.

There was one nomination for the position of Communications Officer, and Pietro-Luciano Buono was elected by acclamation.

Motion (Nilima Nigam/Brian Wetton): Ratify the result of the election for a Director of the Corporation and appoint Pietro-Luciano Buono as a Director of the Corporation. Carried.

Motion (Victor Leblanc/Rebecca Tyson): Ratify the result of the election for Communications Officer of the Corporation and appoint Pietro-Luciano Buono as Communications Officer of the Corporation. Carried.

There were five nominations for Member-at-Large (Jane Heffernan, David Iron, Lilia Krivodonova, Tony Ware, Francois Watier). The three candidates with the most votes were Jane Heffernan, Lilia Krivodonova, and Tony Ware. We thank David and Francois for standing.
Motion (Pietro-Luciano Buono/Sean Bohun): Ratify the result of the election for Directors of the Corporation and appoint Jane Heffernan, Lilia Krivodonova, and Tony Ware as Directors of the Corporation.  

Carried.

12. **Other Business and Termination of Meeting:**

No other business.

Motion (Ray Spiteri/Lucy Campbell): Adjournment (1:29pm).  

Carried.
Committee Membership

1. **Cecil Graham Doctoral Dissertation Award Committee:**
   Greg Lewis (Chair, UOIT), Colin Denniston (Western), Bartosz Protas (Mc-Master), Tony Ware (Calgary), Silvana Ilie (Ryerson).

2. **Arthur Beaumont Distinguished Service Award Committee:**
   Sue-Ann Campbell (Chair, Waterloo), Ken Jackson (Toronto), Sharene Bun-gay (Memorial).

3. **CAIMS Research Prize Committee:**
   Tony Humphries (Chair, McGill), Jianhong Wu (York), André Fortin (Laval), Chris Budd (Bath, UK), Thomas Hillen (Alberta).

4. **CAIMS-PIMS Early Career Award Committee:**
   Geoff Wild (Chair, Western), Rebecca Tyson (UBC) (PIMS), Tom Hou (Cal-tech) (PIMS), Theodore Kolokolnikov (Dalhousie) (CAIMS), Catherine Sulem (Toronto) (CAIMS).

5. **CAIMS-Fields Industrial Mathematics Prize:**
   Huaxiong Huang (Chair, York) (Fields), Dan Rosen (SP Capital IQ) (Fields), Tom Salisbury (York) (Fields), John Stockie (SFU) (CAIMS), Sean Bohun (UOIT) (CAIMS).

6. **Nominating Committee:**
   Matt Davison (Chair, President-Elect), Justin Wan (Secretary), Lucy Camp-bell (Treasurer), Pietro-Luciano Buono (Communications Officer).

7. **Membership Committee:**
   Troy Day (Chair, Queen’s), Lucy Campbell (Carleton), Justin Wan (Water-loo), Lilia Krivodonova (Waterloo), Adam Metzler (Laurier).

8. **CAIMS 2017 General Chairs:**
   David Iron (Dalhousie), Theodore Kolokolnikov (Dalhousie), Paul Muir (St. Mary’s).

9. **Liaison Committee:**
   Troy Day (Chair, Queen’s), Jacques Bélair (Montreal), Lucy Campbell (Carleton), Shaohua Chen (CBU), Matt Davison (Western), Rod Edwards (UVic),
   Bin Han (Alberta), Tony Humphries (McGill), Cody Hyndman (Concordia),
   Silvana Ilie (Ryerson), Ken Jackson (Toronto), Serpil Kocabiyk (Memorial),
   Theo Kolokolnikov (Dalhousie), Shaun Lui (Manitoba), Roderick Melnik (WLU), Paul Muir (St. Mary’s), Isreal Ncube (Memorial), Bartek Protas (McMaster), Steve Ruuth (SFU), Ray Spiteri (Saskatchewan), Ken Sulston
Reports from the Society

(UPEI), José Urquiza (Laval), Justin Wan (Waterloo), Tony Ware (Calgary), James Watmough (UNB), Brian Wetton (UBC), Hongmei Zhu (York).

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**Report on CAIMS·SCMAI 2016**

by Peter Minev

CAIMS 2016 Annual Meeting took place at the University of Alberta Campus on June 26-30, 2016. For the first time in the history of the annual meetings, it was organized in conjunction with the Summer Meeting of CMS, and the first two days of the meeting included some common events like the reception on June 26, three plenary talks, Industry Panel Discussion, Jupyter Workshop, and other events. In the opinion of the organizers, the idea of partially overlapping meetings has a potential and should be explored further.

The main themes of the conference were: Canadian Symposium on Fluid Dynamics, Applied Analysis and Dynamical Systems, Mathematical Biology, Financial Mathematics, Scientific and High-Performance Computing, Mathematics of oil industry. They were divided into 22 minisymposia, four sessions of contributed talks, and a poster session. There were six plenary talks, one for each theme, given by world leaders in the area: Stephen Morris (U of T, Fluid Mechanics), Junchen Wei (UBC, Dynamical Systems), Hans Othmer (University of Minnesota, Mathematical Biology), Marek Rutkowski (University of Sidney, Mathematical Biology), Mary Wheeler (UT Austin, Scientific Computing), and John Chen (University of Calgary, Math of the Oil Industry). In addition, the CAIMS participants had the chance to attend a CMS plenary talk by Andrea Bertozzi. On June 27, the participants and the general enjoyed a very interesting public lecture by Michael Bowling on Artificial Intelligence and Games. The total number of oral presentations was 128, while the poster session included 15 poster presentations.

Overall, in the opinion of the organizing committee consisting of Morris Flynn, Thomas Hillen, Rouslan Krechetnikov, and Peter Minev, the meeting was successful, judging through the numerous comments that we received. On the financial side, the final budget had a healthy positive balance, thanks in part to the financial support of the three mathematics institutes, Faculty of Science, and the Applied Math Institute at at the University of Alberta.
2016 CAIMS · SCMAI Research Prize

Professor Leah Edelstein-Keshet of the Mathematics Department at the University of British Columbia is the recipient of the 2016 CAIMS Research Prize. Professor Edelstein-Keshet is a world leader in the application of mathematical methods and analyses to biological problems. She has written highly original and impactful papers on the characterization of collective spatial organization of biological organisms and of cytoskeletal dynamics and cell motility. One key feature of her work is the development of novel mathematical models and sophisticated mathematical and computational analyses of biological phenomena on all scales, ranging from molecular to cellular to populations. Her modeling and analysis makes insightful predictions, and she collaborates with experimentalists to test these predictions in order to refine the models. She has been one of the globally recognized pioneers of this highly interdisciplinary and relevant approach to the modeling and study of biological processes. She has also developed novel mathematical models for important human diseases such as diabetes, Alzheimer’s disease, and cancer.

2016 CAIMS-Fields Industrial Mathematics Prize

Professor Huaxiong Huang from the Department of Mathematics and Statistics at York University is the 2016 winner of the CAIMS-Fields Industrial Mathematics Prize. Huang was the inaugural Industrial Coordinator at the Pacific Institute of Mathematical Sciences, he played a critical role in the early years of the Industrial Problem-Solving Workshops, and he was also involved in the Graduate Industrial Mathematical Modelling Camps.

Professor Huang has an impressive research record, with over 75 journal publications that involve a surprisingly broad cross-section of applied mathematics
including partial differential equations, asymptotics, fluid mechanics, probability, stochastic processes, and scientific computing. His work impacts a broad sphere of influence to the study of applications ranging from industrial sectors such as banking, insurance, biomedicine, energy, and material science.

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### 2016 CAIMS·SCMAI Arthur-Beaumont Distinguished Service Award

The recipient of the CAIMS Arthur Beaumont Distinguished Service Award for 2016 is Professor Sharene Bungay from the Department of Computer Science at Memorial University of Newfoundland, for her outstanding service to CAIMS as a Board Member from July 2009 to June 2011, CAIMS Secretary from July 2011 to June 2015 and Co-Chair of the CAIMS Annual Meeting in St. John’s, Newfoundland, in 2010.

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### 2016 CAIMS-PIMS Early Career Award in Applied Mathematics

Professor Jean-Philippe Lessard of Université Laval is the winner of the 2016 CAIMS/PIMS Early Career Award in Applied Mathematics. Professor Lessard obtained his PhD in 2007 from the Georgia Institute of Technology. He held post-doctoral positions at the Free University of Amsterdam, Rutgers and Princeton, and is now associate professor at Université Laval. He is also a member of the Groupe Interdisciplinaire de Recherche en Éléments Finis (GIREF), which brings together researchers and research groups from a number of universities to promote
Professor Lessard’s research interests are in dynamical systems. In particular, he uses and develops rigorous computational methods, topological methods and analytic estimates for the study of solutions of partial differential equations, delay differential equations and ordinary differential equations. Professor Lessard has made substantial contributions to the theory of rigorous computing, and was cited for being “one of the world leading experts in [rigorous computing]" and “at the forefront of applied mathematics in Canada, blending traditional analysis with traditional computation to build something entirely new."

2015 CAIMS•SCMAI Cecil Graham Doctoral Dissertation Award

The Cecil Graham Doctoral Dissertation Award recognizes the most outstanding PhD thesis in Applied Mathematics defended at a Canadian University during the calendar year prior to the year of the award. This year, we have two recipients for the CAIMS Doctoral Dissertation Award, and they are Eric Foxall, University of Victoria, and Wilten Nicola, University of Waterloo.

Eric Foxall’s thesis is an exceptionally well-written piece of work on stochastic growth models and represents numerous significant advances at the intersection of probability theory and mathematical biology. It contains a number of deep results that have already earned Foxall recognition as an emerging leader in the field.

In his thesis work, Wilten Nicola uses a creative integration of tools from different areas of applied mathematics to obtain a wide range of contributions to the study of the dynamics of large scale neural models. The work combines rigorous
mathematical analysis with careful computations to provide insights into challenging applications in neuroscience.
CAIMS•SCMAI 2017 Election: Call for Nominations
by Justin Wan

CAIMS•SCMAI will be holding an election in March 2017 for:

- Two Member-at-Large positions on the Board of Directors
- President-Elect
- Secretary

The two member-at-large positions will fill the positions to be vacated by Huaxiong Huang and Steve Ruuth whose terms will come to an end in 2017. The member-at-large positions will be for a three-year term. The President-Elect position will be vacated by Matt Davison, who will become President at the 2017 Annual Meeting. At that time, Ray Spiteri will become the Past-President, in the position vacated by Ian Frigaard. The President-Elect appointment will be for two years. The Secretary appointment will be for a three-year term, and current Secretary, Justin Wan, is willing to continue in this role.

All members of CAIMS•SCMAI are invited to put forward names of candidates for these offices. Nominations should reach the CAIMS Secretary, Justin Wan (secretary@caims.ca) by January 31, 2017.

CAIMS•SCMAI Distinguished Mathematical Biology Lecture
by Rebecca Tyson

Michael Bonsall, Professor of Mathematical Biology and Head of the Mathematical Ecology Research Group at Oxford University, will be delivering the CAIMS Annual Lecture in Mathematical Biology this year. The talk is also being sponsored by the hosting departments (Irving K Barber School of Arts and Sciences Unit 5, and the institute for Biodiversity Resilience and Ecosystem Services, both at the University of British Columbia Okanagan Campus).
Professor Bonsall is particularly interested in population biology (population dynamics, community ecology, evolutionary ecology). Research in his group focuses on a wide range of questions such as the population and evolutionary dynamics of life history strategies (e.g. the evolution of longevity), the role of spatial structure on shared enemy and competing enemy interactions, the effects of enrichment on the diversity of ecological communities, the interplay between noise and dynamics in multispecies interactions and the evolution of resistance to microbes. Many of these projects involve the development of theoretical models in conjunction with experiments or observations in the field or laboratory. To this end, Professor Bonsall aims to test different ecological and evolutionary ecology theories by fitting relevant mathematical models to appropriate ecological experimental (or observational) data.

Professor Bonsall completed his undergraduate and doctoral training at Imperial College London (ICL). After two postdoctoral positions, also at ICL, he was awarded a prestigious Royal Society University Research Fellowship. He is now Professor of Mathematical Biology at Oxford University, and fellow of St Peter’s College, Oxford. Professor Bonsal is currently a member of the DEFRA Advisory Committee on Releases to the Environment (ACRE) and involved in science policy work with the European Food Safety Authority (EFSA). As part of science policy work with WHO (TDR) and FNIH, Professor Bonsall was involved in producing a report on the efficacy, biosafety and regulations of GM Mosquitoes, and through July to December 2015, he served as science advisor to the House of Lords Science and Technology committee. The latter committee published a report on GM insects.

Over his career Professor Bonsall has published over 100 papers, including publications in Science, the Proceedings of the National Academy of Science, and Ecology Letters. He is an excellent speaker, and we are delighted to offer the CAIMS community this opportunity to hear him speak. His talk will be delivered on Nov 30th, 2016, at noon, PST at the University of British Columbia Okanagan Campus.

The title and abstract of his talk:

**Spatial ecology: the role of Allee effects and stochasticity on species persistence**

It is now well established that species persistence is enhanced by considering broader spatial phenomena. In this talk I will explore some recent work we have done on Allee effects and stochastic dynamics. I will begin by introducing recent theoretical work, using integro-difference approaches, to determine patch size dynamics for persistence before discussing work on Allee effects in British butterfly populations. I will then highlight, with some theoretical and empirical developments, recent developments to understand stochastic dynamics using our bruchid
beetle metapopulation system. Throughout the talk I will aim to emphasize the
generality of our findings beyond the specific theoretical or empirical system.
The lecture was part of a 4 month visit by Jonathan Borwein to the Western campus as Distinguished scholar in residence. In addition to the Nerenberg lecture, he was a central figure for conferences on computational discovery and Lambert W.

It was a great shock to all when, during the week in which he was scheduled to return to Newcastle, Jon died suddenly. Jon had grown up in London, and his family, including his parents, were close by. Obituaries can be found at the memorial website JonBorwein.org.
In 2016 the Fields Institute hosted a large number of events spanning a wide range of topics and formats. The thematic program on *Multiscale scientific computing: from quantum physics and chemistry to material science and fluid mechanics* was highly successful, as were focus programs on *Nonlocal partial differential equations*, and on *Topology, stratified spaces and particle physics*. The 2016 *Fields undergraduate summer research program* saw numbers of undergraduates working busily at Fields over the summer. A wide variety of conferences took place, including the large 2016 *World Congress in Probability and Statistics*.

The flagship event of this year’s *Commercial/Industrial Mathematics (CIM) Program* was the 2016 *Industrial Problem Solving Workshop* (IPSW) held over 5 days in August. Participants included a group of academic experts (including mathematicians and statisticians) as well as experts from industry such as Scotiabank, The TMX Group, 500px, Mainstreet Research, SoBI Hamilton, and Toronto General Hospital. On the first day, the industrial sponsors presented their problem statements. After the presentations the academic experts divided into small teams, with one team assigned to each problem. The teams spent the next 3 days collaborating on solutions to their problem, and presented their solution on the final day of the workshop.

Many of the industry problems came from our *Working Lunch Seminar Series*. This ongoing series provides a casual, discussion type atmosphere where companies can present the issues that they are facing to an assembled group of academics and other industry experts. Attendees enjoyed a catered lunch and stimulating conversation. In addition to some of those listed above, industry speakers for the working lunch seminars included Real Time Data Systems, Yellow Pages, and Fields’ own Mesh Consultants.

Some other CIM events of 2016 were the *Data Portability in Developmental Services: A Knowledge Sharing Workshop* held in March, and the *Workshop on Nonlinear Optimization and Industrial Applications* in June.

Various education and career training events were also hosted by Fields including a series of software training events for data science. During these events students and faculty were given hands-on training on software platforms such as SAS, IBM Watson Analytics, OpenCL, and SymetryML. The annual *Quant Career Day* was held in October 2015 following an *Innovation Day* during which graduated Fields incubated companies returned to talk about their thoughts on mathematical entrepreneurism.

This fall promises to be busy as well. The current thematic program on *Combi-
itorial Algebraic Geometry runs through December, and will include a Coxeter Lecture series by Fields Medalist Andrei Okounkov. We will shortly host the 2016 Fields Medal Symposium, focusing on the work of Manjul Bhargava, November 1-4. Daniel Wise will deliver a CRM-Fields-PIMS prize lecture on November 7, and Donald Rubin will give the Distinguished Lecture in Statistical Sciences November 23-24. Upcoming CIM activities include Quant career day (October 26, sponsored jointly with IAQF) and Innovation day (November 10, sponsored jointly with MaRS). Canada’s mathematical sciences institutes continue to collaborate on building an innovation platform (to launch soon) aimed at facilitating industrial-academic research projects.

The winter 2017 thematic program will run from January 1st until June 30th and will be on Unlikely Intersections, Heights, and Efficient Congruencing. From July to December the thematic program will be Geometric Analysis. There will also be focus programs in 2017 on Random Graphs and Applications to Complex Networks during May and June, and on Nonlinear Dispersive Partial Differential Equations and Inverse Scattering in July and August.

Members of CAIMS may be interested in our regular CIM seminars, which include the Centre for Mathematical Medicine Seminar, the Fields Industrial Optimization Seminar, the Toronto Quantum Information Seminar, and the Machine Learning Advances and Applications Seminar, as well as the following:

**Colloquium/Seminar in Applied Mathematics** This is a monthly colloquium series for mathematicians in the areas of applied mathematics and analysis. The series alternates between colloquium talks by internationally recognized experts in the field, and less formal, more specialized seminars. In recent years, the series has featured applications to diverse areas of science and technology; examples include super-conductivity, nonlinear wave propagation, optical fiber communications, and financial modeling. The intent of the series is to bring together the applied mathematics community on a regular basis, to present current results in the field, and to strengthen the potential for communication and collaboration between researchers with common interests. We meet for one session per month during the academic year. The organizers welcome suggestions for speakers and topics.

**Fields Seminar Series on Quantitative Finance** This series has been a centerpiece of CIM activity at the Fields Institute since 1995. Its mandate is to arrange talks on current research in quantitative finance that will be of interest to those who work on the border of industry and academia. Wide participation has been the norm with representation from mathematics, statistics, computer science, economics, econometrics, finance and operations research. Topics have included derivatives valuation, credit risk, insurance and portfolio optimization.

Talks occur on the last Wednesday of every month throughout the academic
year and start at 5 pm. Each seminar is organized around a single theme with two 45-minute talks and a half hour reception. There is no cost to attend these seminars and everyone is welcome.

**Fields Working Lunch Seminar Series**  The Working Lunch Seminar series brings together professionals from wide-ranging fields that utilize technical approaches to problem solving and innovation in industry. Past presentations have involved experts from IBM, Yellow Pages and 500px. The list of confirmed speakers for 2016-2017 include AMD, Yandex and Hannover-Re. Registration is required for attending each seminar. Registration is free and open to the general public.

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**News from the Centre de recherches mathématiques**

by Galia Dafni

It’s the time of year to look back upon the many exciting activities which took place at the CRM in 2016, and look forward to the upcoming activities in 2017. In the spring and summer of 2016, the thematic semester on Computational Mathematics in Emerging Applications, organized by Rustum Choksi, Jean-Christophe Nave and Adam Oberman (McGill University), featured workshops on level set methods, variational problems, materials, optimal transportation and finite element methods. Selim Esedoglu (University of Michigan) was the holder of the Aisenstadt Chair and delivered a series of lectures.

Soon afterwards, the thematic semester on Probabilistic Methods in Geometry, Topology and Spectral Theory brought an intense sequence of activities, including two conferences (one at the Fields and one at the CRM) celebrating the 70th birthday of Barry Simon, several workshops, and the Aisenstadt Chair lectures by Nalini Anantharaman (Université de Strasbourg), Yuval Peres (Microsoft Research) and Scott Sheffield (MIT).

The upcoming thematic semester on Algebra and Words in Combinatorics, March-July 2017, will explore the close interactions between algebra, the theory of formal languages and combinatorics. The semester features an innovative format consisting of four workshops, each preceded by an introductory week-long school aimed at junior mathematicians. A central aspect of the program will be a focus on scientific computation and experimental mathematics as prominent research tools. Boris Adamczewski (ICJ, CNRS, & Université de Lyon) and Vic Reiner (University of Minnesota) will be the holders of the Aisenstadt Chair.

In parallel with these thematic programs, the CRM hosts, organizes and sponsors a variety of conferences, workshops, schools, outreach and industrial partner-
ship activities. Among the latter, in 2016, were the Seventh Montreal Industrial Problem Solving Workshop, which took place in May, and the Networking Events on the topics of Medical Imaging (February) and Energy (October). In the Grandes conférences publiques du CRM, a series of lectures aimed at the general public, the past year saw outstanding talks in areas ranging from systems control (Enrique Zuazua, Universidad Autónoma de Madrid), to applications of mathematics to conservation biology (Stephanie Peacock, University of Alberta) to artificial intelligence (Alain Tapp, Université de Montréal).

Another series of lectures, the annual CRM Nirenberg Lectures in Geometric Analysis, brought Gunther Uhlmann (University of Washington) to Montréal in March to give three talks on inverse problems and applications, including one on “Harry Potter’s Cloak via Transformation Optics”. The next instalment in this series, in March 2017, will feature Camillo De Lellis (Universität Zürich). Among the summer schools, let us mention the first annual CRM Summer School in Quebec City, on the topic of Spectral Theory and Applications, which took place in July, and the Deep Learning summer school in August. Another summer activity, the Conference on Differential Geometry honouring Claude LeBrun’s mathematical contributions, drew many distinguished visitors to Montreal.

The year 2016 saw the awarding of the André Aisenstadt Prize in Mathematics to Anne Broadbent (University of Ottawa), who gave a lecture at the CRM in September, the CRM-SSC Prize to Radu Craiu (University of Toronto), who will give his prize talk in January 2017, the CAP-CRM Prize to Freddy Cachazo (Perimeter Institute), and the CRM-Fields-PIMS Prize to Dani Wise (McGill University), who will give a talk at the CRM in February 2017. Congratulations to them and to all the many members of the CRM community to receive prizes and awards in 2016, including Louigi Addario-Berry (CMS Coxeter-James Prize), Yoshua Bengio and Andrea Lodi (grant from the Canada First Research Excellence Fund), Henri Darmon (AMS Cole Prize), Jean-Marie De Koninck (Margaret Sinclair Memorial Award), Vincent Genest (CMS Doctoral Prize), Jean-Philippe Lessard (CAIMS/PIMS Early Career Award in Applied Mathematics), Maksym Radziwill (SASTRA Ramanujan Prize), and Dani Wise (CMS Jeffery-Williams Prize). Also in 2016, the CRM welcomed three new members to its Board of Directors: Hélène Desmarais, Luis Seco (Sigma Analysis & Management, University of Toronto), and Alina Stancu (ISM, Concordia University). The CRM is ready for a dynamic new year, and looking forward to celebrating its 50th year in 2018-19.
This year marks the 20th anniversary of the founding of the Pacific Institute. PIMS welcomes a new Director, Dr. James Colliander, a new Interim Deputy Director, Dr. Brian Marcus, and the first full year with our newest institutional partner, the University of Manitoba. PIMS notes with great pride that PIMS’ Founding Director, Dr. Nassif Ghoussoub, was awarded the Order of Canada this year for his contributions to mathematical sciences.

PIMS is celebrating its anniversary with a series of events across all ten sites during the 2016/17 academic year. One of the first was the November reception and distinguished lecture at Simon Fraser University with Dr. Nataša Pržulj speaking on Data Driven Medicine. Watch for announcements of upcoming celebrations.

Collaborative Research Groups are a key focus for PIMS, and two new groups were funded in 2016. First is the three year Geometric Analysis CRG, bringing together researchers from Canada, USA, Australia and China working on challenges from geometric variational problems to nonlinear PDEs. The second is the Geometric and Cohomological Methods CRG, covering infinite dimensional Lie algebras to Galois cohomology and motives. Three existing CRGs continue with their funding for another two years: Applied PDEs, Explicit Methods for Abelian Varieties, and Applied Algebraic & Geometric Topology. The Postdoctoral Training Centre in Stochastics also continues for two more years.

In the summer PIMS supported a large number of multi-day workshops and seminars, ranging from the International Biometrics Conference in the west (UVic), to the Western Canada Linear Algebra Meeting in the east (UManitoba), to the Pacific Northwest Number Theory Conference in the far south (Corvalis, Oregon). There were several one- to two- weeklong summer schools, including Mathematical Finance (UAlberta), Geometric and Topological Representations Theory (UBC), Algebraic Topology (UOregon), and a special Two Weeks in Vancouver for Women in Mathematics (UBC), among others.

The five institutes AARMS, CANSSI, CRM, Fields, and PIMS jointly supported the 2016 Graduate Math Modeling in Industry Workshop (Vancouver) and Industrial Problem Solving Workshop (Toronto) which brought together over 100 students, professors, and industrial researcher to collaborate on a range of mathematical and statistical problems that come out of industrial challenges. Problems ranged from manufacturing of nanoparticles, to dynamic valuation of financial securities, to EEG/brain imaging, to modeling heart failure. With CAIMS and the CMS, the institutes also organized industrial networking events at the Societies’
annual meetings, and will be launching a web service to draw in potential collaborators from industries across Canada. The Institutes Innovation Platform supports these efforts to increase industrial collaborations within the mathematical sciences.

PIMS has launched the Jupyter service, providing web-accessible computational tools to university researchers for advanced mathematics and data analytics. PIMS is introducing these tools site-by-site to member institutions. In collaboration with Compute Canada, PIMS aims to make these computational tools widely available to researchers across the country.

Education events include the monthly Math Mania events for K-12 students and teachers in BC, the ELMACON math contest for students in grades 5,6,7, the SFU/PIMS Academic Summer School for Aboriginal Students, the Math Academy and Sharing Mathematics Workshop at UManitoba, and similar events at all PIMS sites.

PIMS welcomes applications and expressions of interest for development new and exciting activities in the mathematics sciences, in scientific, industrial and educational spheres. Some of the major PIMS-sponsored events announced for 2017 are:

- March 22, UBC: PIMS Public Lecture: Barry Simon (TBC)
- May 25-26, Jasper AB: Graduate Summit in Math Biology and Applied PDEs
- May 29 - June 23, SFU: PIMS/SFU Undergraduate Summer School: Scientific Computing on Curved Surfaces
- June 5-30, UBC: PIMS-CRM Summer School in Probability
- July 24-28, Montreal: Mathematical Congress of the Americas
- July 24-28, UBC: CRG Conference in Geometric Analysis
- July 30 - Aug 4, UBC: Conference on Dynamical Systems, the Legacy of Rufus Bowen
- July 30 - Aug 5, UManitoba: Graduate Math Modelling in Industry Workshop (TBC)
- August 7-11, Montreal: CRM/Fields/PIMS Industrial Problem Solving Workshop
- August 14-18, Oaxaca: PRIMA Congress in Mexico

Further events in 2017 will be announced through the PIMS website and newsletters. At all sites, PIMS supports a regular schedule of distinguished lectures for the public, colloquia and seminars for academics, Lunchbox Lectures for the industrial audience, and local education activities for teachers and students in K-12. Check the PIMS website for details as they come up: www.pims.math.ca
Optimization is a rich and thriving discipline rooted in applied mathematics but with high impact applications across all the sciences, engineering, industry and business. Whether one wants to minimize the cost of energy, the weight of an airplane, the efficiency of a chip, the cost of manufacturing, maximize accuracy of engineering design, most efficiently mine massive data sets, or maximize profit, the mathematical way to express one’s goal amounts to an optimization problem. Optimization is where mathematics and computing meet to solve problems for high societal impact, including engineering design, optimizing industrial processes, mining huge data sets, optimizing investment portfolios, etc. Some classes of optimization problems are so well understood that problems in millions or even billions of variables are routinely solved on a daily basis; others are so difficult that even small instances can be challenging. This workshop brought together researchers and practitioners from all over the world with a wide variety of expertise from universities and from government and industrial laboratories. It also attracted more than 20 students, postdoctoral fellows and young researchers from all over Canada and the U.S. who presented posters in a well-attended poster session.

The workshop focused on algorithms for solving large-scale continuous optimization problems, both convex and nonconvex, sometimes peppered with integer decision variables, as well as their industrial applications in a variety of contexts. Some talks had a theoretical focus, such as convergence and complexity theory; others had their focus on computational practice, such as efficiency, accuracy, and robustness; finally a significant number of talks offered optimization solutions for problems arising in critical industries, such as smart electricity grids, electricity markets, chip design, optimal oil and gas reservoir management, optimal control of autonomous cars, and financial optimization.

The workshop included 29 plenary and 25 poster presentations covering a broad range of topics according to the scope of the workshop. The first day of the work-
shop was dedicated to industrial applications. The presentations included: Miguel Anjos (GERAD & Polytechnique Montreal) demonstrated the impact of, and the need for optimization for the emerging Smart Grids; Delphine Sinoquet (Institut Francais du Petrole et Energies Nouvelles, France) presented derivative-free trust region methods for design of mooring lines of floating offshore wind turbines; Bjarne Foss (Norwegian University of Science and Technology) discussed production optimization of offshore oil and gas operations, along with Ulisses Mello (IBM Research, Brazil) who explored optimization challenges in oil/gas reservoir management; Yuying Li (University of Waterloo) presented a novel data mining approach to financial modeling and risk management; Joaquim Martins (University of Michigan) presented the dramatic progress in the area of aircraft wing design via numerical optimization; Marcel Mongeau (ENAC, France) showed the power of continuous and mixed-integer nonlinear techniques for solving aircraft in-flight conflicts; and Chandu Visweswariah (IBM, USA) in an entertaining but enlightening presentation, through case studies from chip design and smarter energy, argued that real life is harder than mathematics. In the lunch break Maplesoft held a demo session, while the posters were presented at the evening reception, after a poster blitz where all poster presenters had 1 minute to present the most important contribution of their research and to entice participants to stop by their posters for more information.

The second and third day of the workshop covered a wide range of algorithmic and computational optimization topics by leading researchers in nonlinear optimization. Presenters came from the US, Canada, UK, France, Portugal, and Belgium. Optimization problems related to the power grid were repeatedly revisited; nonsmooth nonconvex first-order methods were used for sparse signal recovery; factorization-free, variational projection, stochastic Newton and quasi-Newton algorithms, automatic differentiation, and evaluation complexity of nonconvex problems were also presented. The speakers made significant effort to cover the breath of Andrew Conn’s contributions. So, trust region, active set and proximal point methods, derivative-free and space decomposition methods, numerical stabilization and regularization of nonlinear optimization software, and the rapidly growing area of mixed-integer PDE constrained optimization problems were discussed as well. All presentations through the workshop were followed by lively Q&A periods, and discussions continued in the coffee breaks, lunch time, and at the banquet, where Bill Pulleyblank (United States Military Academy) reflected on Andy Conn’s life and numerous contributions to research, to the fabric of the optimization community, and to the economy, both during the first half of his career at the University of Waterloo and the second half at IBM Thomas J. Watson Research Center. Several ad-hoc speakers recalled their interaction with Andy and his wife Barbara, pointed out Andy’s impact on their career and the development of modern nonlinear optimization and its numerous applications in science, engineering,
and countless areas of industry.

The workshop provided a fascinating framework to celebrate the 70th birthday of Andrew R. Conn, who, arguably more than anyone, has made major contributions both to the theory and computational practice of nonlinear optimization, as well as to their high impact applications to solve a broad range of industrial optimization problems, such as VLSI design, oil and gas reservoir optimization, and electricity networks. The far reaching influence of Andrew Conn’s contributions was felt throughout the workshop. Many speakers highlighted Andy’s impact on their career, and his path-breaking contributions to the field. Many peppered their talks with personal stories and emphasized the social aspects of optimization research, and Andy’s and his wife, Barbara’s role in building the optimization community over the past decades.

The organizers are grateful to the following for their financial support: the Fields Institute, for hosting the workshop and funding speakers and poster presenters from Canada, Europe and Brazil; NSERC, whose academic-industrial collaboration program supported the travel costs of four Canadian speakers as well as the costs of lunch and a reception on the first day of the workshop; NSF, whose funds supported the travel costs of speakers and young poster presenters from the U.S.; SIAM and CAIMS, who supported early-career poster presenters from the U.S. and Canada respectively, and both the University of Waterloo and IBM, whose unrestricted funds supported the travel expenses of Andrew Conn and also distinguished senior researcher John Dennis (Rice University), invited to chair the opening session, and a variety of other expenses, including subsidizing the excellent banquet at Le Select Bistro.

The Organizers:
Michael L. Overton, Courant Institute of Mathematical Sciences
Oleksandr Romanko, IBM Canada
Tamás Terlaky, Lehigh University
Henry Wolkowicz, University of Waterloo
Blundon Seminar: Three days at Memorial
A math camp for senior high school students

by Margo Kondratieva

In 2016 the Blundon Seminar was held May 18-20 at Memorial University (MUN). The seminar, essentially a math camp, is an annual event, which aims to empower and encourage mathematically-inclined students from grades 10-12 to pursue further study in the subject at the university level.

Participation in the seminar is by invitation only based on the results of the Blundon, Euclid (grade 12), Fermat (grade 11), and Cayley (grade 10) contests. This year there were 10 female and 19 male participants who demonstrated consistently good results in these competitions.

The camp has been held every year since May 1982. It is named after Professor W.J. Blundon, who was the first Head of the Department of Mathematics and Statistics at MUN, and an avid problem solver. The seminar traditionally combines intellectual and fun/sport components.

This year we had two excellent talks: “Is the Universe Infinite?” by Dr. Herbert Gaskill and “Topology and Everyday Life” by Dr. Peter Booth. The Paper Chase activity, a mathematical scavenger hunt, was conducted by Dr. Eduardo Martinez-Pedroza. Three problem solving sessions were organized by Dr. Danny Dyer and Mr. Collin Kennedy, while Mr. Nithum Thain presented selected solutions at the Concluding Session. One of the highlights of the camp was a banquet, during which the winner of the Blundon Contest was presented with the Blundon Shield, and the winners of other contests were also presented with money and book prizes.

According to students’ responses, collected after the camp, this event was enjoyable, informative, and memorable for many of them. On behalf of the Blundon Seminar team, I would like to thank our sponsors: the NL Department of Education, NL Power, CMS, AARMS, CAIMS, the NL Teachers’ Association,
Mathworks, McMillan Education, and Memorial University for their continuing support.
General News

Canadian Undergraduate Mathematics Conference (CUMC)
July 13–17, 2016, University of Victoria

Chloe Lampman, President, CUMC Organizing Committee

General Information

On July 13th, 2016, 143 excited undergraduate mathematics students arrived at the University of Victoria campus. It was the first day of what turned out to be an extremely successful event: the 2016 iteration of the Canadian Undergraduate Mathematics Conference. What followed were five jam-packed days of student talks, keynote speakers, and other activities. The tone throughout the conference was one of cooperation and enthusiasm.

Eighty-one of the CUMC student attendees opted in to give a presentation. The student presentations were twenty-five minutes long, with the last five minutes reserved for questions. Presentations were seen on a wide range of topics within the field of mathematics, as well as physics, computer science, biology, philosophy, music, and even comedy as they relate to mathematics. Furthermore, all participants had the privilege of attending seven keynote addresses. They were:

- Dr. Kristine Bauer - *The Chain Rules*
- Dr. Peter Dukes - *A Survey of Permutation Codes*
- Dr. Kseniya Garaschuk - *On Teaching, Studenting, and Researching*
- Dr. Boualem Khouider - *Mathematics of Clouds: An Outstanding Challenge in Climate Change Science*
- Dr. Mary Lesperance - *Assessing Conformance with Benford’s Law: Goodness-of-fit Tests and Simultaneous Confidence Intervals*
- Dr. Greg Martin - *Statistics of the Multiplicative Group*
- Dr. Audrey Yap - *Algebra and the Philosophy of Mathematics*

(Left: Dr. Greg Martin’s keynote address. Right: Volunteers waiting to greet registrants on Day 1.)
Beyond the academic portion of the conference, attendees got to enjoy an active social schedule. Including social activities was critical to promoting networking and, of course, fun! On the opening day, a barbeque was held, followed by receptions at Gyro beach and UVic’s campus pub Felicitas. Moreover, there was an evening walk up nearby Mount Tolmie, a showing of The Man Who Knew Infinity at the campus theatre, a trip downtown to explore and visit the Royal BC Museum, and a closing banquet at the beautiful University Club.

One event of particular importance to us was the Gender Diversity in Mathematics evening which took place on Friday, July 15th. This was a free, optional event, and about sixty conference attendees chose to participate. The evening began with tapas and mingling, followed by a panel discussion, and ending with dessert and coffee. The diverse group of panelists all had education related to the topic and/or experience promoting gender diversity in mathematics and related fields. They were: Dr. Jane Butterfield, Dr. Mary Lesperance, Dr. Greg Martin, and Dr. Audrey Yap.

(Many of the conference participants decided to join us on an evening walk up Mount Tolmie. They were met at the top with ice cream sandwiches, and afterwards had the opportunity to see The Man Who Knew Infinity at Cinecenta, UVic’s on-campus theatre.)

Demographic Information

Participants were asked to fill out a demographic survey upon registration at CUMC 2016. 117 people completed and submitted the survey. A summary of results can be found below.

• Gender: Male - 84, Female - 32, Other - 1
• Profession: Academic - 107, Industrial - 2, Education - 4, Other - 4
• if Academic: Professor - 4, Grad Student - 5, Undergrad - 100, Other - 3
General News

• Country of residence: Canada - 113, Mexico - 1, Norway - 1, Malawi - 1, China - 1
• if Canada: AB - 11, BC - 50, MB - 3, NS - 6, ON - 31, QC - 11, SK - 1

Finances

Funding for CUMC 2016 was gained in part from sponsorship, and in part from registration fees. Registration fees are kept low ($90 for early bird registration and $105 otherwise) to ensure that the conference is affordable for undergraduate students, many of whom are on a tight budget. This fee covers the five days of the conference, including three lunches, two dinners, one brunch, and coffee breaks. Accommodation was arranged through UVic Residence, providing an inexpensive option for students.

Acknowledgements

CUMC 2016 would not have been possible without the help of its many generous sponsors. They are:

• Canadian Applied and Industrial Mathematics Society
• Canadian Institute of Actuaries
• Canadian Mathematical Society Student Committee
• Centre de Recherches Mathématiques
• Communications Security Establishment Canada
• Fields Institute for Research in Mathematical Sciences
• Maplesoft
• Monk Office Supply
• Pacific Institute for the Mathematical Sciences
• Statistical Society of Canada
• University of Victoria Department of Mathematics and Statistics
• University of Victoria Faculty of Science
• University of Victoria Student Society
• Westcoast Women in Engineering, Science, and Technology & Engcite

We also owe a huge thank you to the University of Victoria, in particular the Department of Mathematics and Statistics, for supporting us throughout the entire year of planning for CUMC 2016. Further, the event was able to run smoothly thanks to the hard work of the organizing committee and volunteers.
(Group shot of CUMC participants at UVic)
Canadian High School Math Modelling Contest
by Hongmei Zhu and Margaret Mroziewicz, York University

The Department of Mathematics & Statistics in the Faculty of Science, York University, hosted an awards ceremony for Canada’s first International Mathematical Modeling Challenge (IM²C) for secondary students on June 17, 2016.

The evening event brought together students who participated in the 2016 Canadian IM²C, as well as their families and school teachers. It featured two keynote addresses by Matt Davison, professor at Western University and President of the Canadian Applied and Industrial Mathematics Society (CAIMS), and Eric Chuen Cheong, AVP Actuarial Policy at Manulife Financial. Davison provided an overview of how mathematical modelling can be used to replicate or simulate events in the real world—ultimately allowing the “what if” to be answered. Cheong commented on this year’s contest problem “Record Insurance” and the importance of mathematics in insurance industry. After the speeches, the award winners were announced.

The IM²C has been held in various countries annually, but until now Canada has not been a participant. With the joint effort and support from many individuals from CAIMS and York University as well as teachers from TCDSB and TDSB, finally the first IM²C in Canada was launched successfully in March-April 2016 with funding from CAIMS and EFiC Inc.

The purpose of promoting IM²C is to promote the teaching and learning of mathematics through contemporary applications and modelling at the high school level. The contest challenges students to apply mathematical tools and concepts to open-ended real world problems, inspiring participants to develop creative problem-solving skills, to engage in productive teamwork and to use effective communication. Teachers can register a team of up to 4 secondary students enrolled in the same school. The teams work for 5 consecutive days on a modelling problem and submit their solutions on-line for evaluation.

It is the belief of the CAIMS community and the Canadian IM²C committee that the earlier students can be exposed to the breadth and relevance of math in their lives, the more they will be interested in math when they arrive at colleges and universities. We very much hope that the inclusion of modeling as a mathematical practice will become a part of the common secondary math curriculum in Canada.

The 2016 competition was only available for students in the Greater Toronto Area, but the team is expanding the next IM²C to all of Ontario and even Canada in the future. The two best papers from the Canadian IM²C (from Senator O’Connor College School and William Lyon Mackenzie Collegiate Institute) were selected by the committee and represented Canada at the international competition. The team from Senator O’Connor College School provided the following testimonial:

“What we learned from completing the IM2C competition is that hard
work always pays off, no matter the outcome. Even before knowing how we placed, we were all very proud of what we had created. The difficulty of the problem enhanced our teamwork, as we struggled to collaborate efficiently. Overall, the IM2C competition offered the members of our group an enriching experience, and practice for the sort of problems that will arise in the workplace in the future!"

The next Canadian IM²C is open to all public, catholic and private high schools in Ontario from March 13 to April 26, 2017. If you are interested in promoting the IM²C to your local high schools, judging papers, or fundraising, please send us an email at im2cca@yorku.ca. For more information about the Canadian IM²C, please visit http://im2c-canada.math.yorku.ca/
The Department of Mathematics and Statistics at the University of Victoria invites applications for a tenure-track position in the area of Numerical Analysis and Scientific Computing, to commence July 1, 2017.

The University of Victoria provides an excellent environment to conduct an active research program in these areas, which have strength in the Pacific region. The University of Victoria is a member of the Pacific Institute for the Mathematical Sciences (PIMS), which provides opportunities for collaboration and postdoctoral support. The Department itself is highly active in research areas that relate to Numerical Analysis and Scientific Computing, and candidates whose research has the potential for synergy with existing research themes in the Department are particularly encouraged to apply. The successful candidate will find a supportive and intellectually challenging academic environment at the University of Victoria.

The successful candidate will be appointed to a tenure-track position at the Assistant Professor level at the University of Victoria. Applicants must have a Ph.D. in the Mathematical sciences. Successful applicants should have a demonstrated potential for conducting a strong research program and will be expected to supervise graduate students and post-doctoral fellows. Successful applicants will also demonstrate excellence or potential for excellence in graduate and undergraduate teaching.

Applications should be made through MathJobs.org. A complete application will include a cover letter detailing interest in, and experience pertaining to, the position; a research statement; a curriculum vitae; and a teaching dossier. These should be uploaded to the MathJobs site.

Applications should arrange for at least four letters of reference to be posted to MathJobs in support of their application. At least one letter should address teaching.

Please note: You are asked to upload your C.V. and other personal information to MathJobs.org, which is provided for the convenience of you and your referees. MathJobs.org stores its data on servers located outside of Canada; the data is therefore not in the custody or under the control of the University of Victoria. You may wish to review the privacy statement on https://mathjobs.org. If you do not wish to use this service, please email mathstat@uvic.ca for application instructions.

Questions about this position are welcomed and can be addressed to the Chair of Mathematics and Statistics, Dr. Roderick Edwards (mschair@uvic.ca).

Review of applications will begin January 15, 2017 and continue until the position is filled.

The University of Victoria is located in Victoria, the capital of British Columbia, at the southeastern tip of Vancouver Island. Founded in 1963, the University is...
ranked as one of the leading universities in Canada with a reputation for excellence in research and teaching. Victoria is one of the most scenic locales in Canada with a pleasant climate year round. Faculty and Librarians at the University of Victoria are governed by the provisions of the Collective Agreement. Members are represented by the University of Victoria Faculty Association (http://www.uvicfa.ca). The University of Victoria is an equity employer and encourages applications from women, persons with disabilities, visible minorities, Aboriginal Peoples, people of all sexual orientations and genders, and others who may contribute to the further diversification of the University. All qualified candidates are encouraged to apply; however, in accordance with Canadian Immigration requirements, Canadians and permanent residents will be given priority.