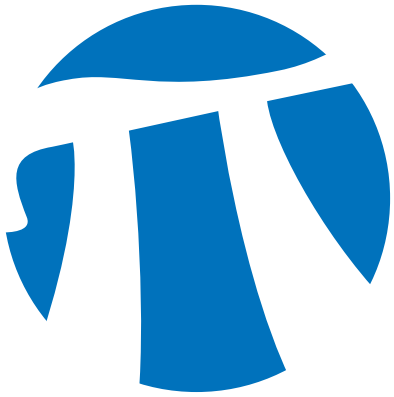

Pacific Institute *for the* Mathematical Sciences

2008 Annual Report

Table of Contents

I. PIMS OVERVIEW

1. Background
2. Unique Structure of PIMS
3. Scientific Highlights
4. National and International Collaborations
5. Administrative Structure and Funding for PIMS
6. PIMS Educational and Outreach Activities

II. PIMS' ACTIVITIES IN FISCAL YEARS 2008-2009 AND PLANNED ACTIVITIES IN 2009-2010

1. Scientific
   A. Numbers and Types of Activities
   B. Listing of Activities: April - December 2009
   C. Listing of Activities: January - March 2009
   D. Listing of Activities: April 2009 - March 2010
   E. Demographics: April 2009 - March 2010
2. PIMS Postdoctoral Fellowships
3. Educational
   A. K-12 Educational Activities
   B. Post-Secondary Educational Activities

III. MECHANISMS OF ACCESS TO PIMS

1. Website
2. Popular Publications
3. Advertising
4. Annual Reports
5. Conference Proceedings
6. Audio/Video Facilities

IV. ACTIVITIES TO KEEP ABREAST OF SCIENTIFIC ADVANCES

V. FINANCIAL REPORTS

Appendix: Glossary of Acronyms

I. PIMS OVERVIEW

1. Background

The Pacific Institute for the Mathematical Sciences (PIMS) was founded in 1996 by a consortium of five universities in Alberta and British Columbia (the University of Alberta, the University of Calgary, the University of British Columbia, Simon Fraser University and the University of Victoria). Later they were joined by the University of Washington in the United States and more recently by the University of Regina and the University of Saskatchewan as full members, and by the University of Lethbridge and Portland State University in Oregon as affiliates.

The mandate of PIMS is to:

- promote research in and applications of the mathematical sciences of the highest international caliber,
- facilitate the training of highly-qualified personnel at the graduate and postdoctoral levels,
- enrich public awareness of mathematics through outreach,
- enhance the mathematical training of teachers and students in K-12, and
- create mathematical partnerships with similar organizations in other countries, with a particular focus on Latin America and the Pacific Rim.

2. Unique Structure of PIMS

PIMS is unique in several ways, most fundamentally because of its distributed structure. Most institutes organize activities at a central location where international scientists are brought in residence; PIMS, on the other hand, has a site at each of ten major universities in Alberta, British Columbia, Saskatchewan and Washington and Oregon States. PIMS events and programs are organized at each of the ten sites, and PIMS' researchers are distributed throughout the network. PIMS is institutionally bi-national (the University of Washington is a full member, and Portland State University is an affiliate) and it is the only institute of this kind in mathematics. This unique international structure projects PIMS beyond the boundaries of Canada, notably towards the Pacific Rim, where much of the world's scientific and economic development is now taking place.

3. Scientific Highlights

PIMS has built an international reputation for excellence and transformed the conditions of mathematical research in Canada. PIMS funds Collaborative Research Groups, Post-Doctoral Fellowships and individual events and programs on a competitive basis. The following is a partial list of current scientific highlights:

- The innovative PIMS *Collaborative Research Groups* (CRG) aim to develop permanent research and training networks, establishing lasting interdisciplinary links between geographically separate groups of researchers at member universities. PIMS has developed 20 CRGs since its inception, in areas ranging across all the mathematical sciences. This has served as a catalyst for producing mathematical research of the highest quality in Western Canada and attracting outstanding faculty to PIMS' universities. For example the CRG in Climate Modelling is creating connections between university-based math researchers and the Canadian Centre for Climate Modelling and Analysis (CCCMA). A glance at the very well-organised Environmetrics CRG at pims.math.ca/scientific/collaborative-research-groups/environmetrics shows their collaboration with the US National Center for Atmospheric Research (NCAR). This same CRG is pioneering two statistics courses by video simultaneously to PIMS sites. At the pure mathematics end of the spectrum there will be a CRG in Operator Algebras connecting faculty at the Universities of Victoria, Alberta and Regina with visitors from the Australian National University, Berkeley and the University of Pennsylvania.

- Every year PIMS sponsors around thirty *postdoctoral fellows* (PDFs), attracting outstanding young scientists who contribute to PIMS research programs and some of whom later become faculty members at leading Canadian and international universities. They are distributed throughout PIMS' sites on a competitive basis.

- PIMS recently launched the *International Graduate Training Centre in Mathematical Biology.* This is a graduate training program focused on strategic topics of great current interest such as the mathematical modeling of ecosystems. Special fellowships are awarded to students and there are conferences and research summits connected to the program. This represents a coordination of resources and ideas from several PIMS sites that emphasises building a community of students and bringing this community into contact with the best science.

- PIMS organizes international summer schools to train the new generation of mathematical scientists in emerging areas of mathematics and its applications such as seismic imaging, string theory, atmospheric modeling, environmetrics and mathematical finance.

- PIMS has a lively program in industrial mathematics, and runs a yearly *Industrial Problem Solving Workshop* for students, faculty and industry. PIMS has also recently developed focused industrial programs in areas of strategic interest, such as a project on the mathematics of oil exploration (based in Calgary) which connects the oil industry with world-class academics working in geomathematics.

A complete listing of PIMS' scientific endeavours is given in §II.1 following.

4. National and International Collaborations

PIMS has taken a leadership role in both the national and international mathematical communities. Together with the two other mathematical institutes in Canada, it created major national programs such as MITACS (Mathematics of Information Technology and Complex Systems), NPCDS (National Program on Complex Data Structures) and AARMS (Atlantic Association of Research in the Mathematical Sciences). Together with the Mathematical Sciences Research Institute (MSRI) in Berkeley, it created the Banff International Research Station (BIRS), which is now the premier mathematical research station in North America.

PIMS has built close partnerships with mathematical institutes in Mexico and Chile, and has been instrumental in creating the Pacific Rim Mathematical Association (PRIMA), a network of mathematical institutes in Canada, the United States, Mexico, Chile, New Zealand, Australia, Singapore, China, Korea, and Japan, bound by a cooperative agreement. It is also affiliated with the Centre National de la Recherche Scientifique (CNRS), the French national agency for scientific research, as an "Unité Mixte Internationale," thus allowing PIMS to join the scientific networks of the European Community.

PIMS also fosters collaborations with industry. For instance, with the sponsorship of Shell Canada Limited, PIMS presents a series of lunch hour lectures at Calgary Place Tower 1. These lectures, given by experts from the PIMS' universities, focus on mathematical techniques and applications relevant to the oil and gas industry and demonstrate the utility and beauty of applied mathematics. The talks–8 per year–are aimed at a general audience.

5. Administrative Structure and Funding for PIMS

The central office and the Director of PIMS are at UBC, and at each of the other nine universities there is a PIMS site office and a site director. (See pims.math.ca/contact.) The role of the site directors is to look for local opportunities and synergies, while the PIMS site offices provide administrative assistance for organizing PIMS' activities locally. This distributed structure has energised departments of mathematical sciences in Western Canada.

The strong presence of PIMS at the university level gives it access to a vast reservoir of scientists of all disciplines. Over the years, PIMS has been able to break down disciplinary barriers, and create innovative research teams, making a sustained effort to extend the PIMS community beyond mathematics and statistics departments so as to include scientists in areas such as physics, biology, engineering, informatics, operations research and economics.

The governing structure of PIMS consists of **Alejandro Adem** (Director) and **David Brydges** (Deputy Director), located at PIMS Central at the University of British Columbia. PIMS' operations are overseen by its Board of Directors, which includes a senior academic administrator from each of the founding universities and representatives from the business, industry and resource sectors and the professional societies. In addition to the Director and Deputy Director, it is comprised of:

Brian Russell (Chair), Vice-President, Veritas DGC Inc., Calgary
Fernando Aguilar, President, Eastern Hemisphere Executive, CGGVeritas
Lorne Babiuk, Vice-President Research, University of Alberta
Katherine Bergman, Dean of Science, University of Regina
Charmaine Dean, Professor, Burnaby Mountain Research Chair, Department of Statistics and Actuarial Science, SFU
Jo-Anne R. Dillon, Dean, University of Saskatchewan
Darrell Duffie, Dean Witter Distinguished Professor of Finance, Stanford University
Haig Farris, President, Fractal Capital Corp.
Norbert Haunerland, Associate Vice President Research and Professor of Biological Sciences, SFU
John Hepburn, Vice-President Research, University of British Columbia
Richard Keeler, Assistant Vice-President Research, Professor of Physics, University of Victoria
Mark Lewis, Professor of Mathematics, University of Alberta
Hugh Morris, President and CEO, Padre Resource Management, Delta
J. S Murphree, Dean of Science, University of Calgary
Edwin Perkins, Professor of Mathematics, University of British Columbia
Vaho Rebassoo, Chief Technology Officer, IT Services, Boeing Company
Werner Stuetzle, Divisional Dean of Natural Sciences, University of Washington, and
Zelda B. Zabinsky, Professor of Industrial Engineering, University of Washington.

For biographies of Board Members visit pims.math.ca/about-us/board-directors.

Scientific events are adjudicated by an independent *Scientific Review Panel* composed of internationally renowned mathematical scientists. In addition to the Director and Deputy Director, its members are:

Carl de Boor (Professor Emeritus of Mathematics and Computer Science, University of Wisconsin-Madison)
Gunnar Carlsson (Professor of Mathematics, Stanford University)
Walter Craig (Professor of Mathematics and Statistics, McMaster University)
John Friedlander (Professor of Computer and Mathematical Sciences, University of Toronto at Scarborough)
Randy Goebel (Professor of Computer Science, University of Alberta)
Richard Kenyon (Professor of Mathematics, Brown University)
Bruce Reed (Professor of Computer Science, Canada Research Chair in Graph Theory, McGill University)
Nancy Reid (Professor of Statistics, University of Toronto)
Bob Russell (Professor of Applied Mathematics, Simon Fraser University)
Donald Saari (Professor of Mathematics and of Economics, University of California at Irvine)
Barry Sanders (Director of the Institute for Quantum Information Science, University of Calgary)
Gang Tian (Professor of Mathematics, Princeton University)
Tatiana Toro (Professor of Mathematics, University of Washington), and
Efim Zelmanov (Professor of Mathematics, University of California, San Diego).

For biographies see pims.math.ca/scientific/scientific-review-panel.

PIMS receives funding from NSERC, its member universities and the provincial governments of Alberta, British Columbia and Saskatchewan. It also receives contributions from industry and private donors for specific events such as the Industrial Problem Solving Workshops and the Summer Math Camps for Aboriginal Students. Its events are co-sponsored by funding agencies

such as the US National Science Foundation, the Centre de Recherches Mathématiques (CRM), the Fields Institute, MITACS and by international partner institutions such as PRIMA, Universidad Nacional Autónoma de México and the Centre National de la Recherche Scientifique. PIMS's annual budget is approximately $3 million, with only around one-third of this amount coming from NSERC.

6. PIMS Educational and Outreach Activities

PIMS has a mandate to vigorously promote mathematics in Canada, and takes upon itself the mission to help provide the elements for success that are necessary for current and future generations of teachers, scientists and engineers. In addition, the educational programs at PIMS advocate strongly for, and find models and activities to facilitate, the participation of people of all backgrounds in the mathematical endeavour. PIMS is actively involved in promoting mathematical outreach events in schools throughout Western Canada. These involve students, teachers and parents and seek to convey the excitement of discovery learning that underlies mathematics and its applications.

PIMS has developed a partnership with First Nations schools in British Columbia which is supported by the BC government as well as private donors. The activities under this program include: summer camps for students, teacher training sessions and a coordinated mentoring program where undergraduate students from universities work with local teachers and students to provide support in mathematics. Teacher training sessions have been held in Kamloops, Lytton, Barriere and Port Alberni and currently there are nine partnering schools in British Columbia.

Colleges and universities within the BC and Alberta post-secondary systems that do not qualify for regular membership in PIMS may become *PIMS Education Associates.* Using PIMS' considerable resources provides for information sharing and the exchange of good practices, whether it be teaching, outreach or professional development. Currently PIMS has 6 educational associates.

More information about PIMS can be obtained at pims.math.ca.

II. PIMS' ACTIVITIES IN FISCAL YEARS 2008-2009 and PLANNED ACTIVITIES IN 2009-2010

PIMS' efforts are focused in several overlapping directions: scientific, postdoctoral training, and educational. We discuss actual and planned activities and accomplishments in these areas below.

1. Scientific

PIMS' scientific activities divide into "Programs" and "Stand-alone events." Under Programs, PIMS enables and funds Thematic Programs, Collaborative Research Groups (CRG) and the International Graduate Training Centre (IGTC) amongst the affiliated universities and PIMS' sister institutes. Under Stand-alone events, PIMS sponsors and facilitates conferences and

workshops, runs summer schools for graduate students, finances Lecture and Seminar Series, and cultivates interactions between academia and industry via various Industrial Activities. These activities typically take place at PIMS institutions around the Pacific Northwest and the Prairie Provinces, but can range as far afield as, say, Malta and Sydney. Some of these activities are a way to prepare later developments. The Sydney meeting plays this role for our Pacific Rim initiatives.

A. Number and Types of Activities

Conferences and Workshops: PIMS organizes and/or funds a variety of meetings around North America and the Pacific Rim each year. These range from small one-day workshops to multi-week conferences involving hundreds of participants. The larger meetings are selected each year on a competitive basis by the PIMS Scientific Review Panel. Smaller events are often funded at the discretion of the Director and Deputy Director.

Summer Schools: Every year PIMS runs a number of topical summer schools. They are intended to educate graduate students and early career researchers on current developments**.**

Collaborative Research Groups: Collaborative Research Groups (CRG) consist of researchers with a common interest, and with a desire to collaborate and develop some aspects of their research programs. Groups may organize joint seminars and workshops, make joint postdoctoral fellowship (PDF) appointments, or develop joint graduate training programmes. CRGs are designed to promote and support longer term, multi-event, multi-site coordinated activities. During its period of operation, typically 3-4 years, a CRG can expect to receive priority access to the full gamut of PIMS' resources. See pims.math.ca/scientific/collaborative-research-groups for more information.

Thematic Programs: The most intensive research activities of PIMS are the thematic programs, each covering a specific but substantial area of research in the mathematical sciences, with participants ranging from students to world experts. These thematic programs consist of a group of scientific activities dealing with a specific theme of current importance to Canada and to the discipline. Thematic Programs are usually concentrated in the four summer months.

Lecture & Seminar Series: PIMS supports various ongoing seminar series at member universities and industrial centers throughout the year. Some of these are for specialists, while others are geared towards the general public, with the goal of inculcating in the citizenry the importance of mathematical research and its applications.

International Graduate Training Center: Recognizing the importance of mathematics in biology PIMS created the International Graduate Training Center in Mathematical Biology. This develops a specialized graduate programme shared between several PIMS universities. PIMS serves as a catalyst, by supporting the program with summer schools, and bringing to them international students; arranging for distinguished visitors from partner institutions to teach in the program; and awarding graduate fellowships to the program. After five years of operation, PIMS

financial support to this IGTC will be reviewed, to allow a new IGTC to be opened in another critical area. See pims.math.ca/scientific/igtc for more information.

Industrial Activities: *Industrial Problem Solving Workshops* are based on the Oxford Study Group Model, in which problems of interest to participating industrial companies are posed to the workshop attendees. Participating graduate students and faculty spend five days working on the problems, and the results are published. The advantages for participating students and academics are: (i) The challenge of applying one's skills to new and relevant problems directly applicable to industry. (ii) The opportunity for continued collaboration with the workshop's academic and industrial participants. (iii) Helping PIMS and mathematics by demonstrating to businesses and governments the tangible benefits of supporting the mathematical sciences.

PIMS *Graduate Industrial Mathematics Modeling Camps* have graduate students from Canadian universities attend to learn various aspects of high-level techniques for solving industrial mathematics problems. The camp prepares them for the PIMS IPSW, which follows the GIMMC.

As well, industrial workshops, mini-courses, summer schools and seminar series are organized by PIMS researchers, with topics of interest to both industry and academia, which serve to disseminate newly developed mathematical tools that can be of use in industry.

See pims.math.ca/industrial/all-events for more information.

The numbers of each type of activity supported by PIMS during the reporting periods are given below.

Activity	4/2008–12/2008	1/2009–3/2009	4/2009–12/2009
Conferences/ Workshops	49	5	28
Summer Schools	9		10
Collaborative Research Groups	10	6	7
Thematic Programs	-	-	2
Lecture and Seminar Series	4	6	10
International Graduate Training Center	1	1	1
Industrial Activities	4	3	5
Others	1	-	1

All activities are listed individually below. The sheer number of PIMS' endeavours precludes us from doing more than merely mentioning them here; however, details about specific activities can be obtained at pims.math.ca/scientific or by request. Such details typically include lists of organizers and plenary speakers, titles and abstracts of talks, scientific background and summaries, schedules, and so forth.

B. Listing of Activities: April-December 2008

Conferences and Workshops

1. *Disease Dynamics 2008*, University of British Columbia, April 3-6, 2008
2. *ABC Algebra Workshop*, Simon Fraser University, April 12-14, 2008
3. *Regulators and Heights in Algebraic Geometry*, University of Alberta, April 12- 16, 2008
4. *National Institute for Complex Data Structures Workshop*, University of British Columbia, April 24-25, 2008
5. *Waves in Atmosphere and Ocean Workshop*, Simon Fraser University, April 25-26, 2008
6. *Alberta Colleges Mathematics Conference*, University of Calgary, May 2-3, 2008
7. *Bayesian modeling and computation for networks,* Semiahmoo Resort, WA, May 3-4, 2008
8. *Climate Change Impacts on Ecology and the Environment*, University of Alberta, May 4-10, 2008
9. *Mathematics of Biological Systems*, University of Alberta, May 6-16, 2008
10. *Number Theory Day*, University of Lethbridge, May 7, 2008
11. *2nd Prairie Network Annual Meeting and Student Workshop*, Brandon University, May 7-9, 2008
12. *Fifth Annual Conference for Young Researchers in Mathematics and Statistics*, University of Alberta, May 9-11, 2008
13. *Pacific Northwest Geometry Seminar*, University of Washington, May 10-11, 2008
14. *Fluid Dynamics CRG Nelson Retreat*, Nelson, BC, May 10-11, 2008
15. *The Mathematical Interests of Peter Borwein*, Simon Fraser University, May 12-16, 2008
16. *ACM Symposium on Theory of Computing*, University of Victoria, May 17-21, 2008
17. *Eighth Algorithmic Number Theory Symposium*, Banff, May 17-22, 2008
18. *Lie Theory and Geometry: The Mathematical Legacy of Bertram Kostant*, University of British Columbia, May 19-24, 2008
19. *Western Canadian Linear Algebra Meeting*, University of Manitoba, May 30-31, 2008
20. *PIMS Vancouver Econometrics Workshop*, Simon Fraser University, June 3, 2008
21. *19th Annual Conference of The International Environmetrics Society*, University of British Columbia-Okanagan, June 8-13, 2008
22. *Workshop on Variational Methods and Nash-Moser*, University of British Columbia, June 16-22, 2008
23. *International Society for the History of Philosophy of Science (HOPOS),* University of British Columbia, June 18-21, 2008

24. *Workshop on Algorithms for Modern Massive Data Sets*, Stanford University, June 25-28, 2008
25. *Conference on Algebraic Aspects of Association Schemes and Scheme Rings*, University of Regina, July 8-11, 2008
26. *Canadian Undergraduate Math Conference 2008*, University of Toronto, July 9-12, 2008
27. *Workshop on Transport, Optimization, Equilibrium in Economics*, University of British Columbia, July 14-20, 2008
28. *Stochastic Parametrizations in Atmosphere and Ocean Models Workshop*, University of Victoria, July 21-25, 2008
29. *Society for Mathematical Biology Conference*, Fields Institute, July 30-August 2, 2008
30. *The Northwest Dynamics Symposium III*, University of Victoria, August 5-9, 2008
31. *Sage Days 9: Mathematical Graphics and Visualization Workshop*, Simon Fraser University, August 8-16, 2008
32. *International Conference of Information Theoretic Security*, University of Calgary, August 10-13, 2008
33. *International Conference on Similarity: Generalizations, Applications and Open Problems*, University of British Columbia, August 11-15, 2008
34. *Third Canadian Summer School on Communications and Information Theory*, Banff, August 18-20, 2008
35. *The Ninth International Conference on Quantum Communication, Measurement and Computing*, University of Calgary, August 19-24, 2008
36. *Geometric Analysis: Present and Future,* Harvard University, August 27-September 1, 2008
37. *Workshop on Regulatory Networks,* University of Washington, September, 2008
38. *The West Coast Optimization Meeting*, University of British Columbia-Okanagan, September 5, 2008
39. *Second Graduate Research Summit of the IGTC in Mathematical Biology*, Banff, September 19-21, 2008
40. *International Conference on Infinite Dimensional Dynamical Systems*, York University, September 24-28, 2008
41. *7th Pacific Northwest PDE Meeting*, University of Victoria, September 27, 2008
42. *Is there an internal wave continuum in the ocean?*, University of Washington, October 3-4, 2008
43. *American Mathematical Society 2008 Fall Western Section Meeting*, University of British Columbia, October 4-5, 2008
44. *Women in Numbers*, Banff, November 3-7, 2008
45. *The Tenth Northwest Probability Seminar,* University of Washington, November 8, 2008:
46. *Recent advances in modeling biological processes,* Fred Hutchinson Cancer Research Center, Seattle, WA, December 1-2, 2008
47. *International Workshop on Cluster Algebras and Related Topics*, Morelia, Mexico, December 8-13, 2008
48. *Conference in Honour of Robert Woodrow's 60th Birthday*, University of Calgary, December 12-13, 2008

49. *International Conference on Cluster Algebras and Related Topics*, Mexico City, Mexico, December 15-20, 2008

Summer Schools

1. *2008 Summer School on Mathematical Modeling of Infectious Diseases*, University of Alberta, May 1-11, 2008
2. *Third Canadian Summer School on Communications and Information Theory*, Banff, Alberta, May 18-20, 2008
3. *IGTC Graduate Summer School in Mathematical Biology*: *An ACCELERATE BC Graduate Training Event*, University of British Columbia, May 11 - June 11, 2008
4. *Summer School in Probability 2008: An ACCELERATE BC Graduate Training Event*, University of British Columbia, June 11-July 8, 2008
5. *Math Finance Summer School: Perceiving, Measuring and Managing Risk: Illiquidity, Long-term risk, Natural Resources*, University of British Columbia, June 30 - July 11, 2008
6. *Summer School on Bayesian Modeling and Computation,* University of British Columbia, July 14-18, 2008
7. *Summer School on Stochastic and Probabilistic Methods for Atmosphere, Ocean, and Climate Dynamics*, University of Victoria, July 14-18, 2008
8. *Summer School on Particles, Fields and Strings*, University of British Columbia, July 22-August 1, 2008
9. *The International Graduate Summer School on Statistics and Climate Modeling*, Colorado, August 9-13, 2008

Collaborative Research Groups

1. *CRG 10 - Algebraic Geometry, Cohomolgy, and Representation Theory*, 2005-2008 *Leaders:* Arturo Pianzola (UA), Jim Bryan (UBC)
2. *CRG 11 - Geometric and Harmonic Analysis,* 2006–2008 *Leaders:* Anthony to-Ming Lau (UA), Nicole Tomczak Jaegermann (UA)
3. *CRG 12 - The Economics and Finance of Climate Risk and Natural Resources,* 2006–2008 *Leaders:* Ulrich Horst (UBC), Ivar Ekeland (UBC)
4. *CRG 13 - Mathematical Modeling and Computation in Biology*, 2006–2008 *Leaders:* Eric Cytrynbaum (UBC), Daniel Coombs (UBC), Rachel Kuske (UBC)
5. *CRG 14 - Geometric Analysis,* 2007–2009 *Leaders*: Jingyi Chen (UBC), Ailana Fraser (UBC)
6. *CRG 15 - Environmetrics: Georisk and Climate Change,* 2007-2010 *Leaders:* Charmaine Dean (SFU), Sylvia Esterby (UBC Okanagan), Peter Guttorp (UW), Jim Zidek (UBC)
7. *CRG 16 - Mathematical Problems in Climate Modeling: Multiscale Processes in the Tropics,* 2007–2010 *Leaders:* Boualem Khouider (UV), Adam Monahan (UV)
8. *CRG 17 - Geophysical and Complex Fluid Dynamics,* 2007–2010 *Leaders:* Neil Balmforth (UBC), Mark Jellinek (UBC)
9. *CRG 18 - Bayesian Modeling and Computation for Networks,* 2008–2010 *Leaders:* Raphael Gottardo (UBC)
10. *CRG 19 - Partial Differential Equations,* April 1, 2008 - March 31, 2010 *Leaders:* Nassif Ghoussoub (UBC)

Lecture & Seminar Series

1. *Seminars and Colloquia at the University of Victoria*, Apr 1 2008-Mar 31, 2011
2. *PIMS/Shell Lunchbox Lecture Series*, Calgary, 2002-onwards
3. *The AMI seminar series,* University of Alberta**,** July 1, 2008-June 1, 2010
4. *PIMS Postdoctoral Colloquium Series*: University of British Columbia, November, 2008-onwards

International Graduate Training Centre in Mathematical Biology*,* 2007-2012

Industrial Activities

1. *PIMS Graduate Industrial Mathematics Modelling Camp*, University of Regina, June 9-13, 2008
2. *12th PIMS Industrial Problem Solving Workshop*, University of Regina, June 16-20, 2008
3. *Industrial Short Course on Monte Carlo Methods for Financial Modelling*, Calgary, June 24-25, 2008
4. *Pseudodifferential Operator Theory and Seismic Imaging,* University of Calgary, August 1, 2008-July 31, 2009.

Other

1. *PIMS Postdoc Day*, University of British Columbia, October 25, 2008

C. Listing of Activities: January-March 2009

Conferences and Workshops:

1. *8th Pacific Northwest PDE Meeting*, University of British Columbia, January 17, 2009:
2. *2009 Applied Math Graduate Student Conference,* Simon Fraser University, January 24-25, 2009
3. Intensive course for young researchers on *Statistical software for climate research*, Sliema, Malta, 16-17 March 2000
4. *Interdisciplinary Workshop on the Effects of climate change: coastal systems, policy implications, and the role of statistics,* Sliema, Malta, March 18-20, 2009.
5. *Sixth Combinatorics Day*, University of Lethbridge, March 27, 2009

Collaborative Research Groups

1. CRG 14 - *Differential Geometry and Analysis,* 2007–2009
2. CRG 15 - *Environmetrics: Georisk and Climate Change,* 2007-2010
3. CRG 16 - *Mathematical Problems in Climate Modeling: Multiscale Processes in the Tropics,* 2007–2010
4. CRG 17 - *Geophysical and Complex Fluid Dynamics,* 2007–2010
5. CRG 18 - *Bayesian Modeling and Computation for Networks,* 2008–2010
6. CRG 19 - *Partial Differential Equations*, 2008–2010

Lecture & Seminar Series:

1. *PIMS Postdoctoral Colloquium Series*: University of British Columbia, November, 2008-onwards
2. *PIMS/Shell Lunchbox Lecture Series*, Calgary, 2008-onwards
3. *Seminars and Colloquia at the University of Victoria*, Apr 1 2008-Mar 31, 2011
4. *The AMI seminar series,* University of Alberta**, ** July 1, 2008-June 1, 2010
5. *PIMS Seminar on Mathematical Modeling in Public Health*, University of Alberta, September 1, 2008-August 31, 2010
6. *PIMS Distinguished Lecture Series in the Department of Mathematics and Statistics*, University of Regina, January 9 - March 31, 2009

International Graduate Training Centre in Mathematical Biology*,* 2007-2012

Industrial Activities

1. *Mini-courses in Geomathematics*, University of Calgary, 2009
2. *Geomathematics Meetings***,** University of British Columbia, 2009
3. *Pseudodifferential Operator Theory and Seismic Imaging,* University of Calgary, August 1, 2008-July 31, 2009.

D. Listing of Activities: April, 2009-March 2010

Conferences and Workshops:

1. *PIMS Vancouver Econometrics Workshops*, Simon Fraser University, April 1, 2008 - June 1, 2009
2. *ABC Algebra Workshop*, University of Calgary, April 17 - 18, 2009
3. *Third Annual Meeting of the Prairie Network for Research in Mathematical Sciences and Student Workshop*, University of Saskatchewan, April 29 - May 1, 2009
4. *Alberta Number Theory Day II*, University of Calgary, April 30, 2009
5. *Combinatorics, Randomization, Algorithms and Probability* Workshop, Centre de recherches mathématique, Montreal, May 4-8, 2009
6. *Canadian Abstract Harmonic Analysis Symposium 2009*, University of Alberta, May 11-15, 2009
7. *New Directions in Random Spatial Processes*, Centre de recherches mathématique, Montreal, May 11-15, 2009
8. *Interacting Stochastic Particle Systems*, Centre de recherches mathématique, Montreal, May 18-23, 2009
9. *Canadian Discrete and Algorithmic Mathematics Conference*, Centre de recherches mathématique, Montreal, May 25-28, 2009
10. *Canadian Operator Symposium*, University of Regina, May 26-29, 2009
11. *Workshop on Geometry Related to the Langlands Programme*, University of Calgary, May 27 - 31, 2009
12. *Workshop on KMS States in Non-commutative Geometry,* University of Victoria, June-July, 1009
13. *Workshop on Statistical Methods for Dynamic System Models*, Simon Fraser University-Vancouver, June 4 - 6, 2009

14. *Random Walks in Random Environments*, University of British Columbia, June 15-19, 2009
15. *Workshop on Sensor Networks,* University of Alberta, Spring, 2009
16. *Workshop on Topics in Kinetic Theory*, University of Victoria, June 29 - July 3, 2009
17. *The Renormalization Group and Statistical Mechanics,* University of British Columbia, July 6-10, 2009
18. *First PRIMA Congress*, University of New South Wales, Sydney, Australia, July 6-10, 2009
19. *IGTC Summit*, July 23-25, 2009
20. *Workshop on New Connections Between Differential and Random Turn Games, PDEs and Image Processing*, University of British Columbia, July 27-31, 2009
21. *Workshop on Regularity Problems in Hydrodynamics,* University of British Columbia, August 3 - 7, 2009
22. *Analysis of Nonlinear Wave Equations and Applications in Engineering,* University of British Columbia, August 10-14, 2009
23. *Selected Areas in Cryptography 2009*, University of Calgary, August 13 - 14, 2009
24. *Second Canadian Mathematical Society - Sociedad Matematica Mexicana Meeting 2009*, University of British Columbia, August 13-15, 2009
25. *Workshop on Nonlinear Dispersive and Geometric Evolution Problems: Singularities and Asymptotics*, University of British Columbia, August 17-21, 2009
26. *Prairie Discrete Mathematics Workshop*, University of British Columbia-Okanagan, August 22 - August 23, 2009
27. *Workshop on Elliptic Curve Cryptography*, University of Calgary, August 22 - 24, 2009
28. *Workshop on Discovery and Experimentation in Number Theory*, Simon Fraser University, September 22 - 26, 2009

Summer Schools

1. *Algebra Summer School*, University of Alberta, May 23 - June 3, 2009
2. *Summer School in Probability*, University of British Columbia, June 4 - June 6, 2009
3. *PIMS/Accelerate Canada Summer School in PDE: Topics in Kinetic Theory*, University of Victoria, June 29 - July 3, 2009
4. *Bayesian summer school*, July, 2009
5. *PIMS/Accelerate Canada Summer School in PDE: Asymptotic analysis in the calculus of variations and PDEs*, University of British Columbia, July 6 - July 10, 2009
6. *PIMS/Accelerate Canada Summer School in PDE: Analysis of nonlinear PDEs and free boundary problems: applications to homogenization*, University of British Columbia, July 20 - July 24, 2009
7. *PIMS/Accelerate Canada Summer School in PDE: New connections between differential and random turn games, PDEs and image processing*, University of British Columbia, July 27 - July 31, 2009
8. *PIMS/Accelerate Canada Summer School in PDE: Regularity problems in hydrodynamics,* University of British Columbia, August 3 - August 7, 2009
9. *PIMS/Accelerate Canada Summer School in PDE: Nonlinear dispersive and geometric evolution problems - singularities and asymptotics,* University of British Columbia, August 17 - August 21, 2009

10. *Models in Ecology,* IGTC Graduate Summer School in Mathematical Biology: An ACCELERATE BC Graduate Training Event, Bamfield, BC, July 17-August 14, 2009

Collaborative Research Groups

1. CRG 14 - *Geometric Analysis,* 2007–2009
2. CRG 15 - *Environmetrics: Georisk and Climate Change,* 2007-2010
3. CRG 16 - *Mathematical Problems in Climate Modeling: Multiscale Processes in the Tropics,* 2007–2010
4. CRG 17 - *Geophysical and Complex Fluid Dynamics,* 2007–2010
5. CRG 18 - *Bayesian Modeling and Computation for Networks,* 2008–2010
6. CRG 19 - *Partial Differential Equations*, 2008–2010
7. CRG 20 - *Operator Algebras,* 2009–2011*, Leaders: D. Farenick, M. Laca, T. Lau, I. Putnam*

Thematic Programs

1. *Partial Differential Equations,* June-August, 2009 Organizing Committee chaired by Nassif Ghoussoub (UBC)
2. *Challenges and Perspectives in Probability,* May-September, 2009 Organizing Committee chaired by David Brydges and Gordon Slade (UBC)

Lecture & Seminar Series

1. *PIMS Postdoctoral Colloquium Series*: University of British Columbia, November, 2008-onwards
2. *PIMS/Shell Lunchbox Lecture Series*, Calgary, 2008-onwards
3. *The AMI seminar series,* University of Alberta**,** July 1, 2008-June 1, 2010
4. *Seminars and Colloquia at the University of Victoria*, Apr 1 2008-Mar 31, 2011
5. *PIMS Seminar on Mathematical Modeling in Public Health*, University of Alberta, September 1, 2008-August 31, 2010
6. *PIMS Distinguished Lecture Series in the Department of Mathematics and Statistics*, University of Regina, January 9-December 15, 2009
7. *Alberta Topology Seminars*, University of Calgary, April 1, 2009 - March 31, 2010
8. *Applied Mathematics Seminar*, University of Saskatchewan, April 1, 2009 - March 31, 2010
9. *Seminars on Analysis and Partial Differential Equations*, University of Calgary, September 1 - April 30, 2010
10. *PIMS West End Number Theory Seminars*, University of Calgary, September 1, 2009 - August 31, 2010

International Graduate Training Centre in Mathematical Biology*,* 2007-2012

Industrial Activities

1. *Pseudodifferential Operator Theory and Seismic Imaging,* University of Calgary, August 1, 2008-July 31, 2009.
2. *Graduate Industrial Mathematics Modelling Camp and Industrial Problem Solving Workshop*, U. Calgary, May 19 -29, 2009.

3. *Spring Research Conference on Statistics in Industry and Technology*, Simon Fraser University, May 27 - 29, 2009
4. *Summer School in Geomathematics*, University of Washington, Summer 2009
5. *Mini-courses in Geomathematics*, University of Calgary, 2009

Other

1. *PIMS Postdoc Day,* October, 2009

E. Demographics

Here we provide some demographics of participants in PIMS' scientific events and programs during the current period April–December 2008. For all conferences/workshops, summer schools, lecture and seminar series, the IGTC, industrial and "other" activities, we:

- summarize the total number of attendees and the number of attendee-days
- sort the attendees into academics, educators, industrial scientists, and others. We further sort academics into professors, postdoctoral fellows, graduate students, undergraduate students, and others.
- list the number of males/females
- classify the attendees as to whether they belong to Canadian institutions, other North American institutions, or institutions located elsewhere. As well, we break down the Canadian participants by province.

Caveats: PIMS has not systematically collected these data in the past, and so many of these figures for individual events are not known. Furthermore, tallies are not always consistent since, for example, attendees are not required to indicate their sex on our registration forms (so that the total number of attendees may exceed the sum of males and females). There is very little information extant for previous years, and so we have not included these in our report. PIMS Central is currently designing a new reporting and registration system and consequently we will be able to consistently provide this data in the future.

During the reporting period April–December 2008, PIMS helped to support (financially and/or logistically) **73** scientific activities of the types listed above. However, we have data on only 47 of these. Of these **47**,

- The total number of attendees: **3,775**
- Attendee-days spent at PIMS activities: **19,265**
- Average attendees/activity: **80**
- Average attendee-days/activity: **410**
- Average activity duration: **5.1** days

Of these attendees,

- 2339 were identified as **academics** [78% of all identifiable attendees], and of these:
    - 34% were **professors**,

    - 16% were **PDFs**,
    - 32% were **graduate students**,
    - 16% were **undergraduate students**, and
    - 1% were **other academics**.
- 28 were identified as **educators** [1% of all identifiable attendees],
- 558 were identified as **industrial scientists** [18% of all identifiable attendees], and
- 95 were **others** [3% of all identifiable attendees].

Of those attendees who stated their sex,

- 72% were male, and
- 28% were female.

Also

- 1319 identified themselves as being from **Canadian** institutions [56% of all identifiable attendees], of which
    - 23% were from British Columbia,
    - 58% were from Alberta,
    - 3% were from Saskatchewan,
    - 3% were from Manitoba,
    - 9% were from Ontario,
    - 3% were from Quebec,
    - < 1% were from elsewhere in Canada.
- 889 were from **other North American** institutions [28% of all identifiable attendees], and
- 499 from **elsewhere** [16% of all identifiable attendees].

We have also computed the geographical distribution of PIMS events and programs over the period FY 2008-2009. Of 138 activities with well-defined geographic loci during that period,

- 123 were/will be held in **Canada** [89%], of which:
    - 61 were/will be held in British Columbia [50%],
    - 44 were/will be held in Alberta [36%],
    - 8 were/will be held in Saskatchewan [7%],
    - 2 were/will be held in Manitoba [2%],
    - 3 were/will be held in Ontario [2%],
    - 5 will be held in Quebec [4%],
- 10 were/will be held in the **United States** [7%], in particular:
    - 1 in California,
    - 1 in Colorado,
    - 1 in Massachusetts, and
    - 7 in Washington,
- 2 were held in **Mexico** [1%],
- 2 will be held in **Malta** [1%], and finally
- 1 will be held in **Australia** [< 1%].

Of course, some programs such as CRGs are spread over several provinces and states.

2. PIMS Postdoctoral Fellowships

PIMS has created a large number of postdoctoral opportunities for young researchers in the mathematical sciences. The regular PIMS Postdoctoral Fellow (PDF) competition takes place each January. PDFs associated with the Collaborative Research Group periods of concentration go through the same rigorous review process. Candidates must be nominated by a scientist or group of scientists
affiliated with PIMS. The two year Fellowships are tenable at any of the Canadian member or affiliated universities.

Award decisions are made by the PIMS PDF Review Panel based on the excellence of the candidate, potential for participation in PIMS programs and potential for involvement with PIMS partners. To ensure that PIMS Postdoctoral Fellows are able to participate fully in institute activities, they may not teach more that two single-term courses per year.

The FY 2008 PIMS Postdoctoral Fellows were distributed as follows: Simon Fraser University (5), University of Alberta (8), University of British Columbia (8), University of Calgary (6), University of Lethbridge (1), University of Victoria (2), University of Washington (3).

Postdoctoral candidates from institutions in France are eligible for CNRS/PIMS fellowships. This fiscal year there have been three: one each at UA, UBC, and SFU/UBC.

For the 2009-2010 PDF competitions, currently underway, the amount of the awards are at least $20,000 and the sponsor(s) is (are) required to provide additional funds to finance minimum stipends of $40,000. We expect to award about 6 or 7 new PDFs in total.

In addition to the PDFs awarded by PIMS via competitions, there are several PIMS-supported PDFs that are associated with Collaborative Research Groups. They were apportioned as follows: CRG 10 (3), CRG 11 (4), CRG 12 (1), CRG 13 (2), CRG 14 (3), CRG 15 (2), CRG 16 (2), CRG 17 (1), CRG 18 (1), CRG 19 (2), for a total of 22 CRG PDFs. We will support approximately 2 new CRG PDFs this year.

3. Educational

A. K-12 Educational Activities:

PIMS sponsors and coordinates a wide assortment of educational activities for the K-12 level, as well as for undergraduates, graduate students, women and minorities. PIMS is dedicated to increasing public awareness of the importance of mathematics in the world around us. We want young people to see that mathematics is a subject that opens doors to more than just careers in science. Many different and exciting fields in industry are eager to recruit people that are well prepared in this subject. From its inception, PIMS has supported a series of educational initiatives, including:

- Organization of interesting, fun and challenging math events for children of all ages
- Facilitation of access to information about math education matters to parents, teachers and university faculty. (Newsletters, workshops, conferences, special publications, etc.)

- Coordination of workshops to create links of communication between parents, teachers, mathematicians and math educators.
- Publishing *Pi in the Sky*, a math magazine for high school students, to promote mathematics, increase the involvement of high school students in mathematical activities, and promote careers in the mathematical sciences.
- Holding the Elementary Math Contest (ELMACON) for pupils in grades 5-7.
- Organizing a series of mathematical events in schools (Math Fairs in Alberta and Math Mania in B.C.).
- Hosting the annual Changing the Culture conferences for school teachers.

1. K-12 Educational Activities: April-December, 2008

Educational Events in Vancouver

Event	Details
Lesson Study Workshops for Teachers	These workshops started in November 2006. "Lesson Studies," in various formats, have become popular in the teaching community as a means of professional development. We invite teachers from all the Lower Mainland of BC to participate. The aim is for the teachers to develop a better understanding of various mathematical concepts as well as the development of math lessons. These workshops are held at PIMS UBC every 5-6 weeks.
UBC/PIMS Problem Solving Lessons	Faculty at UBC, PIMS Staff and graduate and undergraduate students visits school all over British Columbia and work with students grades 6 to 12, helping them to develop problem solving skills. We visit around 80 schools a year.
ELMACON	ELementary MAth COntest for children in grades 5-7, held on May 5, 2008.
Math Mania	Math Mania presents a variety of interactive demonstrations, puzzles, games and art. There are about 15 of these events in Victoria and Vancouver
Math Circles Coaching Program	Math Circles is an ongoing learning and coaching process that will gently "force" a child to succeed. We use thematic seminars and structured problem solving to illuminate various topics in mathematics, and to help develop mathematical thinking in children. 15 meetings a year.

Changing the Culture	The Annual Changing the Culture Conference (CTC), organized and sponsored by the Pacific Institute for the Mathematical Sciences, brings together mathematicians, mathematics educators and school teachers from all levels, to work together towards improving teaching of mathematics.
SFU Math Summer Camp	Every year, during the last week of June, we are hosting regional CMS Math Camps for students from grades 9 and 10. The CMS Math Camps, which are organized annually at several universities across Canada, are designed to encourage and benefit students who have demonstrated a talent for mathematics.
Taste of Pi	The program consists of monthly Saturday morning meetings at SFU, from 9:00 to 12:30, during which students will have an opportunity to hear talks given by distinguished faculty members about their research, about new and exciting developments in the mathematical sciences, and about contemporary applications of mathematics. The talks will be followed by problem sessions, where students will be working on exciting problems and activities related to the concepts discussed in the talks. The session will end with a talk with the topic from another scientific discipline.
SNAP Math Fairs	A SNAP math fair is a non-competitive event that gives teachers an opportunity to have their students problem solve with a particular goal in mind. The math fair can be adapted to almost any curriculum and set of standards, and it will motivate and inspire all of the students. PIMS Faculty in Alberta started this event. There are more than 25 events held each year at different locations in Alberta and British Columbia.

Aboriginal/First Nation events in BC

Event	Details
Mathematics Night Dinner	Neqweyqwelsten School at Barriere: Parents and students were invited to have some fun with math puzzles and games. Parent were given a math "care package."
Math Family Evening	Sk'elep school of Excellence at Kamloops: Parents and students were invited to have some fun with math puzzles and games. Parent were given a math "care package."

Event	Details
Musqueam Math Club	Every Wednesday: Half an hour of homework, 45 minutes of math games and puzzles.
PIMS Sponsored Summer Camp	Sk'elep school of Excellence at Kamloops, Stein Valley Nlaklapamux at Lytton, Britannia Secondary, PIMS Central
Teacher Training in Mathematics	Workshops with teachers from the following schools in BC: Stein Valley Nlaklapamux at Lytton, First Nations Elementary School Port Alberni
Teacher Training in Science	PIMS sponsors Science World staff to come to the schools and train teachers in science. Stein Valley Nlaklapamux at Lytton, First Nations Elementary School at Port Alberni, Sk'elep school of Excellence at Kamloops
Student Assessment and Placement	Sk'elep school of Excellence at Kamloops, Stein Valley Nlaklapamux at Lytton, First Nations Elementary School Port Alberni
Friendship Center Mentorship Program	Twice a week starting October 7, 2008. Run by students and faculty from SFU.

2. K-12 Educational Activities: January-March, 2009

Event	Details
Math Family Evening	See above. To be held at Britannia Elementary in Vancouver
Musqueam Math Club	See above
Teacher Training in Mathematics	Two workshops with teachers from the following schools in Vancouver: MacDonald Elementary, Queen Alexandra, Britannia Elementary, Souhtlands Elementary, Seymour, and Strathcona
Lesson Study Workshops for Teachers	See above
UBC/PIMS Problem solving lessons	See above
Math Circles Coaching Program	See above
Friendship Center Mentorship Program	See above

3. K-12 Educational Activities: April, 2009-March, 2010

Aboriginal/First Nation events in BC

Event	Details
Sponsored Summer Camps for Aboriginal Students:	Math and English summer camp for students in 7 grade transitioning into 8 grade at Britannia Secondary in Vancouver. Summer camp for students in 10, 11 and 12 grade at PIMS UBC
Teacher Training in Mathematics	See above
Teacher Training in Science	See above
Student Assessment and Placement	See above
Musqueam Math Club:	See above
Friendship Center Mentorship Program	See above

Educational Events in Vancouver

Event	Details
Lesson Study Workshops for Teachers	See above
UBC/PIMS Problem Solving Lessons	See above
ELMACON	See above
Math Mania	See above
Changing the Culture	See above. Next year's event will be held May 1, 2009
Canadian Mathematics Education Forum	See above. CMEF 2009 will be held in Vancouver, April 30 to May 3, 2009
SFU Summer Math Camp	See above
Taste of Pi	See above
Lesson Study Workshops for Teachers	See above
SNAP Math Fairs	See above
Math Circles Coaching Program	See above

B. Post-Secondary Educational Activities

Colleges and universities wishing to enjoy an affiliation with PIMS (but not otherwise eligible for regular PIMS membership) may engage as *PIMS Education Associates*. Membership is for a period of three years and is renewable. An annual membership fee of $500 is paid by the college

or university college for the affiliation. Members are entitled to apply for PIMS funding to engage in appropriate education, outreach, and professional development activities in their region. Examples of approved activities are the support of a guest speaker on the Hadron collider, support for a regional math competition and for the purchase of mathematical models and demonstration materials for the use in the classroom in both colleges and local secondary schools.

To date 3 colleges in BC and 3 in Alberta have become PIMS Education Associates:

- Camosum College, BC
- Vancouver Island University, BC
- Okanagan College, BC
- Red Deer College, AB
- Concordia College, AB
- Grant McEwan College, AB

III. MECHANISMS OF ACCESS TO PIMS

PIMS has developed several means of alerting current and potential users to its activities, including: the PIMS website, various publications, annual reports, conference proceedings, global advertizing, video streaming and video conferencing.

1. Website

Relaunched in early 2008, the new PIMS website pims.math.ca has been re-organized and redesigned. Dividing the work at PIMS into three major categories (Scientific, Educational and Industrial), the website offers easy global access to information on PIMS' activities, press releases and resources.

2. Popular Publications

PIMS Magazine is produced twice-yearly. In connecting the PIMS community, the magazine contains: scientific articles; announcements of upcoming scientific, industrial and educational events; reports on the recent activities at PIMS; accolades and breakthroughs within the PIMS community; and upcoming opportunities and how to apply. The latest issue can be found at pims.math.ca/media/publications/magazines

Pi in the Sky is primarily aimed at high-school students and teachers, with the main goal of providing a cultural landscape for mathematics. It has a natural extension to junior high school students and undergraduates, with articles that put curriculum topics in a different context. *Pi in the Sky* accepts materials on any subject related to mathematics and its applications, including: articles, problems, cartoons, statements, jokes, etc. Pi in the Sky is mailed to various institutes

and private subscriptions throughout Canada and the world, and can be downloaded through the new PIMS website: pims.math.ca/media/publications/pi-sky .

3. Advertising

PIMS-funded events are advertised both electronically and in print. We advertise through websites and publications at institutions such as MITACS, the Institute of Mathematical Statistics, the Canadian Mathematical Society, SIAM and the American Mathematical Society, and by offering custom-designed posters which are distributed to over 200 of the top scientific institutions world-wide.

4. Annual Reports

PIMS produces an annual report which is sent to sponsors, administrators at PIMS-affiliated universities, representatives from the business, industry and resource sectors as well as the major professional societies. Past annual reports (1997-2008) can be viewed at pims.math.ca/media/publications/annual-report .

5. Conference Proceedings

Conference proceedings, abstracts and lecture notes are all made available for download through the PIMS event database in PDF format. (See pims.math.ca/scientific .) Each conference's proceedings are attached to the corresponding event, which are listed chronologically and are searchable by keyword for ease of access.

6. Audio/Video Facilities

PIMS-funded event coordinators are offered a full range of audio-visual services to accommodate the global nature of collaborative scientific work. Through video-conferencing facilities installed at various PIMS sites, multi-university collaborations are now possible at up to 5 sites simultaneously. Also, lectures and workshops can be filmed, edited and streamed through the PIMS website, which currently houses over 200 recordings (see pims.math.ca/media/multimedia/). An application is currently in review at iTunes U to provide distribution of the PIMS video library through Apple's hugely successful iPod-integrated iTunes download service. With the domain mathtube.org registered, PIMS plans to create an online venue for not only the library of past scientific events, but also publicly licensed mathematical video.

IV. ACTIVITIES TO KEEP ABREAST OF SCIENTIFIC ADVANCES

The Scientific Review Panel (SRP) is responsible for the scientific leadership at PIMS. Through their continuing efforts, PIMS keeps abreast of activities in the mathematical community and seeks to develop programs in new areas. The process that the SRP follows can be briefly described as follows:

(1) identify research topics,

(2) discuss at length the value, impact and feasibility of running scientific activities in these areas at the annual SRP meeting and through email discussion,

(3) serve as liaisons between experts in a particular area and the PIMS Director and Deputy Director thus providing crucial scientific expertise,

(4) once an important theme has been identified, the SRP will work with potential organizers to develop a proposal that encompasses the required depth and breadth to ensure a high quality event of international caliber.

Aside from the role played by the SRP, the PIMS Directors regularly attend research conferences and meetings of professional societies (such as the American Mathematical Society and Canadian Mathematical Society), and consult with leading experts to obtain/solicit information on recent advances in the mathematical sciences. This also involves establishing regular channels of communication with the PIMS community and encouraging researchers to use PIMS as a platform for development of their ideas. In addition, through a systematic scanning of web based literature (such
as preprints on the arXiv) and announcements of scientific breakthroughs in bulletin boards and journals, PIMS maintains a pro-active involvement in learning about and enhancing the impact of new developments.

V. FINANCIAL REPORTS

PIMS MRS NSERC Activity Report

	Use of the resource - paid from all revenue sources Apr - Dec 2008	Planned use of MRS funds Jan - Mar 2009	Planned use of MRS funds Apr 09 - Mar 10
Resource Expenditures			
1) Salaries & Benefits			
a) Students	85,332	0.00	0.00
b) Postdoctoral Fellows	481,363	154,250.78	566,470.00
c) Technical/Professional Assistants	158,859		0.00
d) Administrative Staff	281,600	0.00	0.00
e) Scientific Support Personnel	194,112		0.00
2) Equipment or Facility			
a) Purchase or Rental	38,142	0.00	0.00
b) Operation and Maintenance Costs	39,683	0.00	0.00
3) Materials & Supplies			
a) Furniture	1,344	0.00	0.00
b) Meals/Refreshments	6,588	0.00	0.00
c) Office Supplies	19,970	0.00	0.00
4) Travel - by PIMS Staff			
a) PIMS Meetings (SRP, PDF, Board, Admin, Exec)	33,075	0.00	0.00
b) Grad Student and PDF Travel Support	5,900	25,000.00	0.00
c) Director Scientific Collaboration/Consultation	15,861	5,000.00	0.00
5) Dissemination Costs			
a) Publication Costs	16,252	0.00	0.00
b) Other activities	1,576	0.00	0.00
6) Other - Scientific Activities			
a) CRGs	405,091	30,000.00	256,680.00
b) IGTC	53,021	0.00	32,517.00
c) Conferences/Symposia	228,499	53,500.00	142,333.00
d) Summer School	128,835		0.00
e) Workshops/Seminars/Colloquia (inc. IPSW)	127,570	6,000.00	102,000.00
f) Distinguished Visitors/Chairs/Speakers	18,783	5,000.00	0.00
g) Education Initiatives	121,970	0.00	0.00
h) NICDS	52,831	0.00	0.00
i) Support for BIRS	76,180	0.00	0.00
j) CNRS/UNAM/PRIMA Visitors	13,024	17,000.00	0.00
k) Other Support	63,299	0.00	
TOTAL MRS EXPENDITURES	**804,249**	**295,750.78**	**1,100,000.00**
TOTAL OTHER EXPENDITURES	**1,864,511**		

Resource Revenues		
a)	User Fees (Registration Fees collected)	26,850
b)	Contributions from Partner Universities	
	University of Alberta	155,400
	University of Regina	41,050
	University of Lethbridge	5,550
	University of Calgary	67,710
	University of Victoria	66,600
	University of Washington	21,243
	Portland State University	3,972
	University of Saskatchewan	37,500
	Simon Fraser University	80,000
	UBC	156,238
c)	Contributions from MITACS	
	Summer School in Probability	25,000
	CRG Math Finance (Transport Workshop)	10,000
	IGTC Math Bio Summer School	25,000
	CRG Math Biology (Disease Dynamics)	6,000
	IPSW Regina 08	18,000
d)	Private Donations	44,405
e)	NSERC Prairies Discovery Grant U. Regina	2,500
f)	Contributions from Industry	8,000
g)	Other Contributions	
	Education Associates	2,500
	MIT re Lie Theory Conference	4,988
	APCTP re Particles, Fields & Strings Summer School	10,001
	rimeter Inst. re Particles, Fields & Strings Summer School	10,000
	Alberta Government re NICDS Project	75,000
	British Columbia Government re Summer Math Camps	40,000
	British Columbia Government re IGTC Students	60,000
	UBC Math Dept re CRG Math Finance	71,417
	UBC Math Dept re Probability Summer School	3,931
	AMS re American Math Soc Conference	4,329
	UBC Math Dept re AMS Conference	3,240
	British Columbia Government re Forest Project	20,000
	BC NCE Infrastructure Grant	42,500
	Saskatchewan Government re IPSW Regina 08	50,000
	U. Regina Math Dept	9,500
h)	NSERC Grant	1,100,000
i)	Carried Forward from FY 2007-2008	1,077,283
TOTAL REVENUES		**3,385,707**

Appendix: Glossary of Acronyms

PIMS	Pacific Institute for the Mathematical Sciences
AMS	American Mathematical Society
AARMS	Atlantic Association of Research in the Mathematical Sciences
BIRS	Banff International Research Station
CCCMA	Canadian Centre for Climate Modelling and Analysis
CRM	Centre de Recherches Mathématiques
CNRS	Centre National de la Recherche Scientifique
CMEF	Canadian Mathematics Education Forum
CMS	Canadian Mathematical Society
CRG	Collaborative Research Groups
ELMACON	Elmentary Math Contest
GIMMC	Graduate Industrial Mathematics Modeling Camps
IPSW	Industrial Problem Solving Workshop
IGTC	International Graduate Training Centre in Mathematical Biology
MSRI	Mathematical Sciences Research Institute
NCAR	US National Center for Atmospheric Research
MITACS	Mathematics of Information Technology and Complex Systems
NPCDS	National Program on Complex Data Structures
PRIMA	Pacific Rim Mathematical Association
PDF	Postdoctoral Fellows
SNAP Math Fair	Student-centered, Non-competitive, All-inclusive and Problem-based
SFU	Simon Fraser University
UA	University of Alberta
UBC	University of British Columbia
UC	University of Calgary
UL	University of Lethbridge
UR	University of Regina
US	University of Saskatchewan
UV	University of Victoria
UW	University of Washington