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News from the Fields Institute

by Carl Riehm

Edward Bierstone, Professor of Mathematics at the University of Toronto, has been appointed as the new Director of the Institute, beginning July, 2009. He succeeds Barbara Lee Keyfitz, who will be retiring from the Directorship on December 31 to assume a professorship at Ohio State University in Columbus, Ohio. The current Deputy Director, Juris Steprans, will be acting Director in the interim. Bierstone, a graduate of the University of Toronto and a Ph.D. from Brandeis, has made pathbreaking contributions in singularity theory, analytical geometry and differential analysis.

Some future activities which may be of interest to members of the CAIMS:

- Thematic Program on *Foundations of Computational Mathematics* in fall term, 2009 This program will focus on
 - Computational Algebraic Geometry and Symbolic Computation;
 - Computational Number Theory;
 - Computational Geometry, Topology, and Dynamics;
 - Complexity and Computability in Real Computation;
 - Optimization Theory

Three workshops are planned:

- *Discovery and Experimentation in Number Theory*, September 22-26, 2009
- *Complexity of Numerical Computation*, October 20-24, 2009
- *Computational Differential Geometry, Topology, and Dynamics*, November 17-21

See www.fields.utoronto.ca/programs/scientific/09-10/FoCM/ for more information

- Thematic Program on Quantitative Finance in winter term, 2010. There will be three workshops:
 - *Foundations of Mathematical Finance*, January 11-15, 2010.
 - *Numerical and Statistical Methods in Finance*, March 22-26, 2010.
 - *Financial Derivatives and Risk Management*, May 24-28, 2010.

There will also be at least four “Industrial-Academic Forums”, bringing together financial experts from the business and academic worlds, and the 6th World Congress of the Bachelier Finance Society will be held June 22-26, 2010, in conjunction with the thematic program.

- IFID/MITACS Conference on *Financial Engineering for Actuarial Mathematics*, Nov. 9-10.

There are also regular seminars, such as the Centre for Mathematical Medicine Seminar Series, the Colloquium/Seminar in Applied Mathematics, the Toronto Quantum Information Seminars, the Actuarial Science & Financial Mathematics Group Meetings, the PRMIA Risk Management Seminars, the Fields Industrial Optimization Seminar, the Seminar Series on Quantitative Finance, and the Fields Symposia on the Mathematics of Transportation.

For more information on all activities at the Institute, please see www.fields.utoronto.ca/programs/scientific/

MITACS Update

by Aliza Fung

There has been a flurry of activity at MITACS in the last year—diversifying the MITACS research portfolio, expanding and enhancing our training and networking

programs and strengthening international collaborations were the hallmarks of the network's efforts.

In 2007-2008, funding was announced for new projects in each of MITACS five research themes. Led by Drs. Fahima Nekka (Université de Montréal), Ian Goldberg (University of Waterloo) and Rei Safavi-Naini (University of Calgary), Irène Abi-Zeid (Université Laval), Tom Salisbury (York University), Ray Spiteri (University of Saskatchewan) and Thomas Hillen (University of Alberta), the projects address some of the most important industrial and societal issues of our time. These include quantifying the negative impact on patients who fail to take prescription medication properly, developing effective models to understand the spread, and better control, of forest fires, enhancing the privacy of computer data in our highly-connected world and new tools to help military teams select the best path through terrain in conflict situations.

New funding from the federal and provincial governments enabled MITACS to expand its internship program—now dubbed ACCELERATE Canada—across the country beyond the mathematical sciences to include all academic disciplines. This past year alone, over 235 internships were funded. Looking back to 2003, when MITACS devised the internship program concept and funded 18 interns, no one could have foreseen the impact of this program just five years later.

Due to the support of the Ontario Government through the Ministry of Training, Colleges and Universities and the Government of Canada, MITACS officially opened its second largest office in September. Located in Toronto at York University, MITACS is well-placed to build on its successful record of strengthening connections between all the key players in Canada's knowledge economy.

MITACS is especially pleased with the continued momentum of the MITACS International Program. France's Institut national de recherche en informatique et automatique joined the network as a full partner. At the same time, MITACS expanded its focus to include a major new project—modeling spread of infectious diseases in sub-Saharan Africa.

The network also hosted 30 undergraduate students from around the globe for a math "boot camp". The 2008 MITACS Industrial Math Summer School at Simon Fraser University created quite a buzz in the media around how mathematics can address societal and business challenges. Under the guidance of faculty and graduate student mentors, participating students worked in teams of five to tackle mathematical research on real industry challenges submitted by Canadian companies.

For more information about MITACS, visit www.mitacs.ca. For more information about the MITACS ACCELERATE program, visit www.acceleratecanada.ca.

News from the Pacific Institute for the Mathematical Sciences

by Adam Wojtowicz

On July 1, 2008, Alejandro Adem started his term as Director of PIMS. The University of Saskatchewan has joined PIMS as a full member, and now there are eight member universities in the consortium, including the major research universities from Alberta, British Columbia, Saskatchewan and Washington State.

The summer was full of scientific activities throughout the PIMS sites, including summer schools in modelling of infectious diseases, mathematical finance, string theory, probability, statistics and atmospheric modelling. Two new Collaborative Research Groups (CRGs), in Partial Differential Equations and in Bayesian Modelling and Computation for Networks, started their activities last spring.

The CRG on Complex Geophysical Fluids held two important events this year, namely the Waves in Atmosphere and Ocean Workshop (April 25-26 at SFU) and the meeting "Is there an internal wave continuum in the ocean?" (October 3-4, at University of Washington). The CRG on Climate Modelling held a workshop on Stochastic and Probabilistic methods for atmosphere, ocean, and climate dynamics (July 21-23, at the University of Victoria).

The International Graduate Training Center in Mathematical Biology organized a vibrant summer school at UBC as well as its second annual research summit at Banff last September. This program (directed by Mark Lewis, from University of Alberta) which started in 2007 has been successful at attracting top level graduate students and creating lots of exciting activities in Western Canada.

On October 4-5, PIMS hosted the Western Section meeting of the American Mathematical Society, which had a record participation. There were 18 mini-symposia and a number of plenary lectures.

PIMS is helping to organize the first congress of the Pacific Rim Mathematical Association (PRIMA) to be held in Sydney next July. There will be participation from all over the region, coordinated through the PRIMA network that was established by PIMS (see <http://www.primath.org>).

Next summer PIMS will be organizing two world-class thematic programs, one of them in Partial Differential Equations (main organizer: N.Ghoussoub, UBC), and the other one on Challenges and Perspectives in Probability (main organizers: D.Brydges & G.Slade, UBC). This second program is a joint venture with our partner institute in Montreal, the Centre de Recherches Mathematiques.

On the industrial side, the 2008 Industrial Problem Solving Workshop was held at the University of Regina and the 2009 edition will be held in Calgary next May. Our recently launched Geomathematics Program will feature a summer school on seismic imaging in Seattle in 2009 as well as industrial short courses in Calgary.

For more information about PIMS, please visit our website
<http://www.pims.math.ca>