Atlantic Association for Research in the Mathematical Sciences

Research - Outreach - Community

Newsletter

Summer 2011

AARMS Board Appoints New Scientific Director

On the unanimous recommendation of the Search Committee (chaired by Dr. Edgar Goodaire) the Board of Directors, at its meeting of 21st April 2011, appointed Dr. Jeannette Janssen (Dalhousie University) as the fifth Scientific Director of AARMS. She succeeds Dr. Viqar Husain, and her appointment is for a four-four-year term, effective as from 1st July 2011.

Jeannette obtained her Ph.D. in Mathematics from Lehigh University. Following postdoctoral fellowships at UQAM and Concordia University in Montreal, and faculty positions at the London School of Economics and Acadia University, she is now a Professor of Mathematics at Dalhousie University (and also holds an Adjunct Professorship with Dalhousie's Faculty of Computer Science). From 2005 to 2008 she was the Director of the Division of Mathematics within Dalhousie's Department of Mathematics and Statistics. Her research interests are in the analysis and modelling of self-organizing networks and in graph theory. With her colleague, Dr. Evangelos Milios, she has co-led the MITACS project "Modelling and Mining of Networked Information Spaces. This was the first project in Atlantic Canada to receive MITACS funding. "

Jeannette's vision for the future of AARMS includes the further strengthening of research in the mathematical sciences across the Atlantic region. In particular, nurturing young talent by getting graduate and younger students involved in various programs (Summer School; regional Mathhematics activities and competitions; undergraduate research schemes similar to the NSERC-USRA program but aimed at the needs of local students)) are a key component of her vision. This will be complemented by enhancing the interaction and collaboration of researchers in Atlantic Canada.

- Hermann Brunner

AARMS Thanks Viqar Husain

Dr. Viqar Husain (University of New Brunswick) completed his three-year term as Director of AARMS at the end of June. His many other professional commitments (he is presently also the Chair of UNB's Department of Mathematics) did not allow him continue for another term, and it was with great reluctance that the Board of Directors of AARMS accepted his resignation.

Viqar was appointed in April 2008, succeeding Jon Borwein. His impressive and visionary leadership significantly strengthened AARMS' stature as the fourth Canadian research institute for the mathematical sciences. Among the highlights of his achievements on the research side of AARMS are the creation of the Collaborative Research Groups (CRG) Program and the extension of AARMS' Postdoctoral Fellowship Support Program. The aims of the CRG program include bringing together groups of three or more researchers in the Atlantic provinces with common research interests and offering young researchers a focus for growing their research programs. In its PDF program AARMS currently supports eight postdoctoral fellows at the University of New Brunswick, Dalhousie University and Memorial University of Newfoundland. These additional research activities were made possible by Viqar's hard work in soliciting substantial financial support from the Provinces of New Brunswick and Nova Scotia (while discussions with the Province of Newfoundland and Labrador are nearing their final stage). Moreover, Viqar has also put forward initiatives to enhance AARMS collaboration, by means of joint workshops and other scientific activities, with the Centre de Recherches Mathématiques (CRM), the Fields Institute for Research in Mathematical Science, and the Pacific Institute for the Mathematical Sciences (PIMS).

We thank Viqar for his invaluable contributions to AARMS, and we hope that AARMS will be able to benefit from his experience and advice in the future.

- Hermann Brunner

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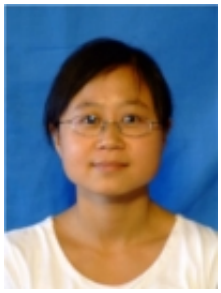
News

Four New AARMS Postdocs

The recent AARMS Postdoctoral Fellowship Competition was a very competitive event, with twenty-eight applicants completing the proposal process. In the end, our Scientific Review Panel narrowed the field down to four winners:

Dawood Kothawala did his Ph.D. in Theoretical Physics [2005-2010] from the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune (India) under the supervision of Prof Thanu Padmanabhan. His research interests are in thermodynamic aspects of gravity, semiclassical effects in black hole physics, and possible manifestations of Planck scale effects. He did his B.E. (Hons.) Electrical and Electronics Engineering, with integrated M.Sc.(Hons.) Physics, from the Birla Institute of Technology and Science (BITS), Pilani (India). He be will working at UNB under the supervision of Jack Gegenberg and Sanjeev Seahra.



Hongying Shu received her PhD from Harbin Institute of Technology (China) in 2010. She will be working at UNB under the supervision of Lin Wang and James Watmough. Her current research focuses on modeling, analysis and simulations of models in biology, epidemiology, immune system, and gene and neural networks.

Ryan Tifenbach is currently a doctoral student at the Hamilton Institute, National University of Ireland, Maynooth, under the supervision of Steve Kirkland. He will be working with Danny Dyer at the Memorial University of Newfoundland as an AARMS Postdoctoral Fellowship recipient. He received his masters degree from the University of Regina in 2008. His research interests include combinatorics and linear algebra, with a special focus on eigenvalues and graphs.

Francis Valiquette obtained his Ph.D. in 2009 from the University of Minnesota and from 2009-11 he was an NSERC of Canada Postdoctoral Fellow at McGill University. As an AARMS PDF he will be working under the guidance of Professor Robert Milson at Dalhousie University. His current research deals with the theory and applications of transformation groups and their invariants to problems coming from geometry and mathematical physics.

Grants Awarded in the new Collaborative Research Groups Program

A new program supporting Collaborative Research Groups based in Atlantic Canada has just completed its first funding round. A Collaborative Research Group (CRG) typically consists of Atlantic Province University researchers with common research interests who wish to collaboratively develop their research programs. Members of a CRG typically organize intensive workshops, share PDF appointments, coordinate graduate training programs, propose and assist in AARMS summer school programs, jointly supervise graduate students, and carry out other activities supporting their research programs.AARMS believes that groups of researchers with common research interests can benefit from sharing resources and coordinating activities. Furthermore, CRGs offer young researchers a larger community for growing their research program. AARMS also believes that the critical mass achieved by CRGs will help the Atlantic Provinces to recruit and retain faculty in mathematical sciences, to attract post-doctoral fellows and offer enhanced training programs attracting more graduate students. This year we are pleased to announce two-year grants awarded to the following groups:

The Atlantic Algebra Centre, led by Yuri Bahturin, and including collaborators from MUN - Edgar Goodaire, Mikhail Kotchetov, Michael Parmenter, Hamid Usefi and Yiqiang Zhou; and collaborators from other universities - Margaret Beattie, Sara Faridi, Colin Ingalls, John Irving, Mitja Mastnak, Roman Smirnov, and Hugh Thomas.

The Collaborative Research Group in Dynamical Systems, led by Theodore Kolokolnikov and including Johan Brannlund, Alan Coley, David Iron, Ryan Lukeman and Robert van den Hoogen.

The Collaborative Research Group in Mathematical Ecology and Epidemiology, led by James Watmough and inlcuding Lin Wang, Andy Foster, Chunhua Ou, Yuan Yuan, Xiaoqiang Zhao, Frithjof Lutscher, Xingfu Zou and Wendi Wang.

Call for Proposals

We encourage mathematicians in Atlantic Canada to suggest programmes or themes for future AARMS activities in the region (workshops, conferences, periods of specialization and exceptional opportunities) and to direct all applications for funding to our Online System. Proposals are usually expected to show a detailed program with a significant number of confirmed speakers. They must also include a budget table showing projected total revenues and expenses. In general AARMS is not in a position to fund indefinite continuing activities. Successful applicants will be expected to produce a report on their event. The next deadline for submission: September 15, 2011. For more details please visit www.aarms.math.ca/events

Reports from Recent Events

The following are a couple of the many scientific events recently supported by AARMS:

The eighth annual workshop **Combinatorial Algebra meets Algebraic Combinatorics** took place in Thunder Bay, Ontario from Friday January 21 to Sunday January 23, 2011. This year, the conference was organized by Sara Faridi from Dalhousie, Anthony Geramita from Queen's University and the University of Genoa and Adam Van Tuyl from Lakehead University. Adam Van Tuyl was also the local host for the conference. The conference was opened on Friday afternoon with a colloquium talk by Anthony Geramita, and was followed by more specialized conference talks. This year there were 30 participants of which 15 were students and postdocs, and there were five invited talks: Nantel Bergeron (York University), Francois Bergeron (UQAM), Jessica Sidman (Mt. Holyoke), Victor Reiner (Minnesota), and Jerzy Weyman (Northeastern University). There were also nine contributed talks, seven of which were given by the students and postdocs. The purpose of this series of conferences is to foster a connection between algebraists and combinatorists. A particular target audience in the mind of the organizers has always been students and postdocs. With this in mind, this year's event was an especially successful one.

The **Visit of computer Scientists Michael Dietrich and Eric Andres from the German Research Centre for Artificial Intelligence** (DFKI - University of Saarland) to Memorial University took place November 20 - 27, organized by Sherry Mantyka. The week-long visit created important opportunities for universities and schools in Atlantic Canada to avail themselves of the services of the Math-Bridge on-line adaptive learning system and achieved the following outcomes:

1. The first workshop was conducted Monday morning at a local high school and involved two classes of students taking AP Calculus and the teachers. The general capabilities of the on-line adaptive system (Math-Bridge) were explained followed by a demonstration of the system in a calculus topic. Students were given an opportunity to use the system. After this, the teachers discussed with the students and the visitors various possibilities for uses of the system in the delivery of the school's AP courses. The possibility for the school to use the system was raised by the teachers and the visitors confirmed that this was an option available to them.

2. The second workshop was conducted Monday afternoon for all teachers in the Mathematics Department at a local high school. The general capabilities of the on-line adaptive system were explained. The teachers were most interested in the learning management facility of this system, which they acknowledged to be much more sophisticated than that of any other systems they were aware of. They expressed a keen interest in following up on gaining access to the system for student use at their school. The visitors said this was possible.

3. Monday evening the visitors observed classroom sessions at the Mathematics Learning Centre (MLC) and discussed the MLC pedagogy with staff and students there.

4. Tuesday morning the visitors did a presentation of the on-line adaptive system for all staff at the MLC and offered to code Dr. Mantyka's Mathdrill computer software into their system by the end of the week as a demonstration of the power of the system. This would require Dr. Mantyka's permission and assistance. Dr. Mantyka agreed to both, and suggested that the best content to test the system would be laws of exponents. The visitors and Dr. Mantyka began this work immediately following the presentation.

5. Tuesday evening the MLC hosted an open house so the visitors could demonstrate their on-line adaptive system to any interested members in the community. This event attracted a handful of Memorial University staff.

6. On Wednesday, Dr. Mantyka and the visitors met with the Head of the Department of Mathematics and Statistics to see if the Head would agree to the installation of the DFKI system on the Math Department server. The Head thought that would be possible so Dr. Mantyka suggested that the visitors demonstrate the system to a group of interested faculty members in the Mathematics Department to make a recommendation to the Head on the usefulness of installing the system on the Departmental server. Dr. Mantyka and the visitors spent the rest of the day working on the coding of the Mathdrill software into Math-Bridge.

7. Thursday morning and early afternoon, Dr. Mantyka and the visitors worked on the Mathdrill/Math-Bridge coding. Late Thursday afternoon, the visitors demonstrated the Math-Bridge system to faculty members from the Mathematics Department. Afterwards, we were advised that they would recommend installation of Math-Bridge on the Mathematics Department server.

8. Friday morning, the visitors demonstrated the successful integration of Mathdrill into Math-Bridge to staff at the MLC. In the afternoon, Dr. Mantyka and the visitors met with the Dean of Science to discuss the possibility of Memorial University becoming an associate partner of the EU Math-Bridge project. The Dean was receptive and the visitors were asked to pursue the development of a contract by the DFKI.

9. Late Friday afternoon, Dr. Mantyka and the visitors decided upon further extensions of joint research between the MLC and the DFKI, and the possibility for other Atlantic Canada Provinces to avail themselves of the opportunity to install the Math-Bridge system on their own servers.

If any University or School is interested in learning more, please contact Dr. Sherry Mantyka at the Mathematics Learning Centre, Memorial University (www.mun.ca/mlc).

New Faces on Scientific Review Panel

AARMS is pleased to announce the recent addition of the following members to our Scientific Review Panel: Dr. Chen Grief (UBC), Dr. Java Mashreghi (McGill), Dr. James A. Mingo (Queens), Dr. Michael A. Newton (Wisconsin), Dr. Jungcheng Wei (Chinese University of Hong Kong), Dr. Xingfu Zou (UWO). Thanks to all our new members for joining us.

Recent and Upcoming Events

W. J. Blundon Seminar
Organizer: Margo Kondratieva
Location: Memorial University, Saint John's
Date: May 19-21, 2011
Contact Information: Margo Kondratieva

Theory Canada 6 and Atlantic General Relativity Meeting
Organizers: Aleksandrs Aleksejevs, Svetlana Barkanova, Rainer Dick, Ivan Booth
Location: Memorial University, Corner Brook
Date: June 10-12, 2011
Contact Information: Aleksandrs Aleksejevs

CMESG - Annual Conference of Canadian Mathematics Education Study Group
Organizers: Margo Kondratieva and Mary Stordy
Location: Memorial University, Saint John's
Date: June 10-14, 2011
Contact Information: Margo Kondratieva

Canadian Undergraduate Mathematics Conference 2011
Organizers: A. Papillon, A. Deschenes, L. Pelletier, D. Maheux, F. Gourdeau
Location: Laval University, Quebec City
Date: June 15-19, 2011
Contact Information: Dominique Maheux

Bluenose Computational and Applied Mathematics Day 2011
Organizers: Paul Muir, Ronald Haynes, Theodore Kolokolnikov
Location: Saint Mary's University, Halifax
Date: June 17, 2011
Contact Information: Paul Muir

23rd Canadian Conference on Computational Geometry
Organizers: Greg Aloupis and David Bremner
Location: Fields Institute, University of Toronto
Date: August 9-12, 2011
Contact Information: Greg Aloupis

AARMS Workshop on Mathematical Biology
Organizers: Yuan Yuan, Xiaoqiang Zhao, James Watmough
Location: Memorial University, St. John's
Date: August 13-14, 2011
Contact Information: Yuan Yuan

Special session on High-Dimensional Data Analysis at APICS Conference
Organizers: Martin van Bommel
Location: St Francis Xavier University, Antigonish
Date: October 15-16, 2011
Contact Information: Martin van Bommel

Polynomial Identities in Algebras II
Organizer: Yuri Bahturin
Location: Memorial University, Saint John's
Date: September 2-6, 2011
Contact Information: Yuri Bahturin

Even stranger things have happened; and perhaps the strangest of all is the marvel that mathematics should be possible to a race akin to the apes.
~Eric T. Bell, The Development of Mathematics