Newsletter *Summer 2008*

AARMS Board Appoints New Director

At its April 2008 meeting the Board of AARMS appointed Dr. Viqar Husain as Scientific Director for the three-year term of July 2008 — June 2011, on the unanimous recommendation of the Search Committee. Viqar is Chair of the Department of Mathematics and Statistics at UNB (Fredericton). His academic interests are in general relativity and cosmology, quantum gravity, mathematical finance and scientific computation. Viqar will be the fourth Director of AARMS, succeeding Richard Wood (1996-2000), Hermann Brunner (2000-2005) and Jonathan Borwein (2006-2007).

Viqar received his PhD in theoretical physics from Yale University and held postdoctoral fellowships and research associate positions in the USA, Europe and Canada, before joining the faculty at UNB in 1999. At UNB he has supervised graduate students in quantum gravity and mathematical finance, as well as postdoctoral fellows in quantum gravity, general relativity and numerical computation. In addition to holding NSERC Discovery Grants, he has been a co-recipient of an NSERC equipment grant and a CFI equipment grant. Viqar has been a Visiting Professor at the Perimeter Institute in Waterloo, where he is an Affiliate Researcher on an ongoing basis. He also is an Adjunct Professor at the National Center for Physics in Islamabad.

Viqar has been a co-organizer of several AARMS-sponsored events, including the international Black Holes conference held in Nova Scotia in 2007 and the workshop on noncommutative geometry and applications at UNB in 2007. He was the supervisor of an AARMS-sponsored postdoctoral fellow during 2004-2005.

An immediate priority for the new Director is preparation of an application to NSERC for funding for AARMS under the Major Resources Support program. A Letter of Intent, prepared by Acting Director Richard Wood in consultation with Viqar and other researchers in the Atlantic region, has been submitted to NSERC.

AARMS Summer School moves to Fredericton

The seventh annual AARMS Summer School will be held at UNB-Fredericton from July 13 to August 9, 2008. We expect thirty-five or so students to attend, most having done a year of graduate study. From beyond the Atlantic region we welcome students from Mexico, the UK, Russia, Jamaica and elsewhere.

This year the courses on offer are:

(i) Computational Methods for PDEs, given by Anne Bourlioux, Université de Montréal;

(ii) Tropical Geometry, by Diane Maclagan, University of Warwick and Rutgers;

(iii) Mathematical Finance, by Mark Reesor, University of Western Ontario; and

(iv) Representation Theory of Algebras, by Ralf Schiffler, University of Massachusetts-Amherst.

Clearly these four weeks will be a rich but demanding exerience for both students and instructors. A few extra-curricular activities are planned to ease the load. In particular, we are pleased to help launch `A Course on the Web Graph', by Anthony Bonato of Wilfrid Laurier University. This book is the first title in the AARMS Monograph Series, produced in conjunction with the AMS and in part a byproduct of Anthony's course in the 2006 Summer School. You are welcome to attend the launch, 7PM, Wednesday, July 30 at the Alumni Memorial Building, UNB-Fredericton. For more information on the Summer School please see

http://www.aarms.math.ca/summer/2008/

News

Ninth Annual Bluenose Numerical Analysis Day

The Mathematics and Statistics Department at Dalhousie University is pleased to be hosting this year's Bluenose Numerical Analysis Day. This event is the ninth in a sequence of one day meetings for researchers interested in numerical analysis and scientific computing. This year it will be held on Friday June 13, 2008, from 10:00am to 6:00pm. The talks will take place in the Colloquium Room, 309, in the Chase Mathematics and Statistics Building. The organizers are Pat Keast (keast@mathstat.dal.ca, Dalhousie), Paul Muir (muir@stmarys.ca, Saint Mary's) and Ronald Haynes (ronald.haynes@acadiau.ca, Acadia).

The previous eight meetings were held in the following locations:

2007   Saint Mary's University
2006   St. Francis Xavier University
2005   Cape Breton University
2004   Acadia University
2003   Saint Mary's University
2002   Dalhousie University
2001   Saint Mary's University
2000   Acadia University

The terms Numerical Analysis and Scientific Computing cover a vast area of research including not only mathematics and computer science, but also statistics, physics, biology, earth sciences, finance and many more. Even within the Atlantic provinces of Canada we see a variety of work being performed in numerous distinct areas. This day is an opportunity for those in these areas to come together, communicate and broaden our research interests and strengthen our levels of interactivity.

Confirmed speakers are Drs. Thomas P. Wihler (McGill), Richard Pancer (Toronto), David Iron (Dalhousie) and Theodore Kolokolnikov (Dalhousie). Talks are invited from faculty members, graduate students and undergraduate students.

The Mathematics Learning Centre Shares its Expertise

On a recent trip to Saskatchewan to deliver a workshop to teachers in the Saskatoon School Board system, Dr. Sherry Mantyka, who is increasingly becoming known as the *"Math Lady"*, met two Saskatoon based teachers who were more than a little interested in the way the *"Math Lady"* facilitates the learning of mathematics for students of Memorial University's Mathematics Learning Centre (MLC). These two dedicated teachers have now received support from their school board to travel to St. John's to participate in a week long training workshop taking place May 12-16th at the MLC. The intent of this workshop is to provide the Saskatoon teachers with the tools to facilitate the incorporation of a remedial program for students in grade 9. The teachers will become well acquainted with the program offered by the MLC. This fall they will pilot a similar program in their school using pedagogies observed at the MLC. This provincial collaboration is particularly timely given the Newfoundland government's recent decision to abandon the Atlantic Provinces common curriculum in favour of the Western and Northern Canadian protocol, which is being used in Saskatchewan now. Other Atlantic Canada provinces are considering the same shift. To some it may seem a long way to travel Saskatchewan to Newfoundland - to adopt a remedial mathematics program, but what these teachers are looking for is only offered at one place, the Mathematics Learning Centre at Memorial University

Book Launch: A Course on the Web Graph, by Anthony Bonato

AARMS is pleased to announce the launch of the first volume in our series, in collaboration with the AMS: *A Course on the Web Graph,* by Anthony Bonato. The book will be launched at the AARMS Summer School (July 13 - Aug 9) in Fredericton, New Brunswick; come along and meet the author, hear him speak on the topic, and pick up a copy of the book at a special offer price. At the time of going to print the date and time of the launch had yet to be determined, so please get in touch with Barry Monson, the Summer School Director, for more details (barry@erdos.math.unb.ca).

Workshop Funding Oversubscribed

The last two years has seen a steady rise in the scientific activities supported by AARMS throughout the Atlantic Region. While it has been gratifying to see this growth we have to some extent become victims of our own success and have approached the limit of what AARMS can support. For the remainder of 2008 the workshop/conference budget in the centre is fully allocated, although some funds remain in the regional budgets of NB/PEI and NL. If our application to the NSERC MRS program in the autumn is successful then we will be in a position to continue this pattern of growth.

People

2008 Postdoctoral Fellowships

2008 was a very competitive year in our annual Postdoctoral Fellowship competition. More than one member of our Scientific Review Panel commented upon the very high level of applicants. At the time of going to press we are able to announce one award, and hope to announce another shortly.

Daniel Horsley will be working as an AARMS PDF at Memorial university under the supervision of David Pike. Dr. Horsley obtained both his Bachelor's degree (2002) and his PhD (2008) from the University of Queensland, Australia. His research interests lie in combinatorics, particularly in the field of graph decompositions.

People Moving On

AARMS is an organization that relies heavily on the efforts and goodwill of a great many people who volunteer their time to contribute. We would like to take this opportunity to say thanks to some of the people who are leaving us to pursue other opportunities:

Rod Nolan has been a valued member of the AARMS Board for several years, bringing us the benefit of his expertise and his contacts in private industry and government. Much of our progress in our talks with the government of New Brunswick concerning the upcoming NSERC application is thanks to Rod's help. We wish Rod all the best in his retirement.

Paul Cabilio of Acadia University has served on the AARMS Scientific Review Panel for several years giving us the benefit of his experience and expertise in evaluating workshop proposals and the annual Postdoctoral Fellowship Competition. We'd like to thank Paul for all his contributions and to welcome in his successor, **Franklin Mendivil**, also of Acadia University.

Bob Lucas has recently stepped down from his position as Dean of Science at Memorial University and has handed on his place on the AARMS Board to his successor, **Mark Abrahams**. Thanks Bob, for being an active member of our Board and for all your contributions.

Carl Breckenridge, VP Research at Dalhousie University will be retiring shortly. Carl has been a valued member of our Board and a strong supporter of our organization both within Dalhousie and further afield. We wish Carl all the best in his retirement with a heartfelt thanks for all he has done for us.

Richard Wood probably never expected to find himself at the helm of the organization when he took on the Associate Director's role in 2006. However, since the resignation of Jon Borwein nearly a year ago Richard has stepped up to the plate and steered AARMS through a busy year involving some difficult decisions and a lot of extra time on his part. Thanks from all of us to Richard for leaving us in a good position to go forward with the new Director and with our application to the NSERC MRS program.

James Watmough and the Mathematics of Honey Bees

James Watmough (Mathematics, UNB) is part of an international collaboration led by Erika Plettner (Chemistry, SFU) to understand the role of social pheromones in regulating the progression of honey bees from hive bees to foragers. At the simplest level, this progression is linked with age: younger bees perform tasks inside the hive, while older bees perform the riskier task of foraging. If there is a sudden decline the number of foragers, however, the younger bees must quickly mature in order to restore the balance and ensure an adequate food and water supply for the colony. The project aims to understand this phenomenon at multiple levels. Erika and her lab are responsible for the chemical synthesis of the pheromones. Behavioural experiments will be done by Yves le Conte and his lab (INRA, Avignon), and physiology experiments by Wolfgang Roessler (University of Wuerzburg). Each of these sub-projects on their own lead to interesting dynamical systems: from chemical and gene regulatory networks involved in the synthesis on one hand, to the larger scale flow of pheromone through the colony on the other. However, the main objective of the project is to link the pheromone chemistry with the behavioural ecology and physiology of the honey bee. Mathematically, the dependence of the task transition rates on the distribution of workers in each task presents an interesting challenge. The collaboration with colleagues doing manipulative experiments on the system makes the project all the more interesting.

Recent and Upcoming Events

Canadian Hopf Algebras and Noncommutative Geometry Meeting

Organizers: Alain Connes, Piotr Hajac, Dan Kucerovsky, Henri Moscovici, Bahram Rangipour

Location: University of New Brunswick, Fredericton, New Brunswick

Date: September 2 - 5, 2008

Contact Information: Dan Kucerovsky

Graded Algebras and Superalgebras

Organizer: Atlantic Algebra Centre

Location: Memorial University, St John's, Newfoundland

Date: August 29 - September 2, 2008

Contact Information: Yuri Bahturin

Groups of Self-Homotopy Equivalences and Related Topics

Organizers: Keith Johnson, Renzo Piccinini

Location: Dalhousie University, Halifax, Nova Scotia

Date: June 29 - July 5, 2008

Contact Information: Renzo Piccinini

workshop on Foundational Methods in Computer Science

Organizers: Dorette Pronk, Peter Selinger

Location: Dalhousie University, Halifax, Nova Scotia

Date: May 30 - June 1, 2008

Contact Information: Peter Selinger

Public Lecture: The important role of teachers in curriculum change

Organizer: Sherry Mantyka

Location: Memorial University, St John's, Newfoundland

Date: May 13, 2008

Contact Information: Sherry Mantyka

Key Dates

June 29, 2008	Groups of Self-Homotopy Equivalences
June 30, 2008	Deadline for supervisor reports for renewing PDFs
August 29, 2008	Graded Algebras and Super Algebras
September 1, 2008	Start Date for 2008 PDFs
September 2, 2008	Cdn Hopf Algebras and Noncommutative Geometry

Who is he that every man in **AARMS** *would wish to be?*

-William Wordsworth