



**Atlantic Association for
Research in the
Mathematical Sciences**

Annual Report

2008

Preface

AARMS had another successful year of operation, with support provided for a wide range of high quality conferences and workshops, the successful summer school and a small PDF support programme. The demand for support from AARMS continues to grow, and this year as in 2007, available funding was oversubscribed. I would like to thank the regional universities, and the Mathematical Institutes CRM, FIELDS, and PIMS for their continued support for AARMS in 2008.

AARMS continues to be limited by its relatively small budget of about \$200,000 per annum, as both the size and breadth of research of the mathematical sciences community in the region continues to expand. This is evident in the activities reported here, so it is important for us to continue efforts begun in earlier years to obtain increased funding.

As the Directorship moved to UNB after a few years at Dalhousie, a major focus of the AARMS executive was to sustain the efforts begun in 2006 and 2007 to seek provincial funding for AARMS as a prelude to applying to NSERC through the MRS programme. In Nova Scotia this effort was begun by Richard Wood and in New Brunswick by Jon Thompson, both AARMS executive members. It is because of their groundwork that AARMS was able to secure commitments of \$50,000/year for five years from both governments, in time for the submission of AARMS' NSERC proposal. These were contingent on NSERC funding AARMS.

AARMS submitted an MRS proposal in Fall 2008. This was a significant undertaking and I would like to extend my thanks to the members of the executive and to the co-applicants for all their contributions to its preparation. Unfortunately, in response to the 2009 federal budget, NSERC cut funding for the MRS program, and choose to “focus on resources that are unique on a national or international scale.” It also decided to allocate no new funds for resources it considered to be “regional.” Due to this change in emphasis, which took place well after the start of the competition, AARMS' proposal was not funded.

Finally I would like to thank David Langstroth, who continues to be a highly valued member of the AARMS community as administrator. In addition to arranging Board and Executive meetings, managing our website, accounts and much more on an ongoing basis, this year he coordinated the setting up of an online PDF application system which operated very well.

Viqar Husain
AARMS Director
March, 2009

Report on Activities

Appointment of a new Director

In July 2008 AARMS completed its search procedure and Appointed Viqar Husain, Chair of the Department of Mathematics and Statistics at UNB, to a three-year term as Director of AARMS. Thanks to the search committee:

Jon Thompson (chair)
Catharine Baker
Edgar Goodaire
Barbara Lee Keyfitz
Dan Ryan
Keith Taylor

NSERC MRS Program

In October, 2008 AARMS submitted a proposal for funding over a five year period to the NSERC Major Resources Support Program (MRS). If successful, this proposal will lead to substantially increased funding and an expansion in the range of activities undertaken by AARMS including greater support for workshops and conferences, postdoctoral fellowships, regional research groups and all other AARMS activities. As well as the support of the universities, this proposal included financial commitments from the provinces of Newfoundland, New Brunswick and Nova Scotia. Discussions with the province of Prince Edward Island are currently under way. A decision from NSERC is anticipated in Spring 2009.

AARMS Summer School

The seventh annual AARMS Summer School was held at UNB-Fredericton July 13 to August 9, 2008. We offered four demanding graduate level courses: Computational Methods for PDES, by Anne Bourlioux, Université de Montréal (assisted by her student Pascal Turbis); Tropical Geometry by Diane Maclagan, University of Warwick; Mathematical Finance, by Mark Reesor, University of Western Ontario; and Representation Theory of Algebras by Ralf Schiffler, University of Connecticut.

More than 30 students took classes; although most were based at Canadian universities, we were happy to welcome young mathematicians from Mexico, Brazil, Jamaica, Russia, England, the Netherlands and the United States.

The next Summer School runs July 13 to August 7, 2009. We will then offer Algebraic Topology by Gustavo Granja (Lisbon); Topological Combinatorics by Daniel Matei (Bucharest); Introduction to Quantum Computing by David Kribs (Guelph); and Cryptography by Mike Jacobson (Calgary).

AARMS Postdoctoral Fellowship Program

In the 2008 competition, one Postdoctoral Fellowship was awarded to Daniel Horsley (University of Queensland, Australia) who is working under the supervision of David Pike at Memorial University. The PDF awarded in the previous year to Rebecca Hammond, supervised at Acadia University by Richard Karsten and Holger Teisman continued for a second year.

Also in 2008 AARMS installed a new online system to manage the annual PDF competition, enabling all applications and supporting materials to be submitted electronically, and allowing the Scientific Review Panel to view and rank these applications online. The system went online in November.

Scientific Activities

The following conferences, workshops and scientific activities were funded or co-funded by AARMS in 2008:

Combinatorial Algebra meets Algebraic Combinatorics

Organizers: Sara Faridi, John Irving, Hugh Thomas

Location: Dalhousie University, Halifax, Nova Scotia

Date: January 18 - 20, 2008

2008 East Coast Combinatorial Conference

Organizer: Stephen Finbow

Location: Saint Francis Xavier University, Antigonish, Nova Scotia

Date: May 1 - 2, 2008

Atlantic Conference on General Relativity

Organizer: Jack Gegenberg

Location: University of New Brunswick, Fredericton, New Brunswick

Date: May 10, 2008

Public Lecture: The important role of teachers in curriculum change

Organizer: Sherry Mantyka

Location: Memorial University, St John's, Newfoundland

Date: May 13, 2008

Workshop on Foundational Methods in Computer Science

Organizers: Dorette Pronk, Peter Selinger

Location: Dalhousie University, Halifax, Nova Scotia

Date: May 30 - June 1, 2008

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

Graded Algebras and Superalgebras

Organizer: Atlantic Algebra Centre

Location: Memorial University, St John's, Newfoundland

Date: August 29 - September 2, 2008

Canadian Hopf Algebras and Noncommutative Geometry Meeting

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

Location: University of New Brunswick, Fredericton, New Brunswick

Date: September 2 - 5, 2008

APICS Meeting: Mathematics Colloquium and Statistics Colloquium

Organizer: Jacques Allard

Location: Université de Moncton, Moncton

Date: October 17-19, 2008

Reports from the above activities are lodged online and can be read at

<http://www.aarms.math.ca/events/past.php>

AARMS Monograph Series

The First volume in the AARMS Monograph Series, in collaboration with the AMS, was published in 2008, with an official launch at the AARMS Summer School in Fredericton:

A Course on the Web Graph, by Anthony Bonato

Four other volumes are at various stages of development. We encourage lecturers at the AARMS Summer School to submit manuscripts based on their specialist courses. The editorial board consists of the following people:

Yuri Bahturin (Memorial University)
Robert Dawson (Saint Mary's University)
Ron Fitzgerald (Math Resources Inc)
Dan Kucerovsky (University of New Brunswick)
David Langstroth (Dalhousie University)



Income and Expenditure Account 2008

<u>Income</u> ¹	\$	\$	<u>2007</u>
Carried forward from previous year		38,631	15,235
Mathematical Institutes		90,000	120,000
Universities		122,000	114,000
Other Revenue (1)		10,662	15,400
		<hr/>	<hr/>
Total Income		261,293	264,635
<u>Expenditure</u>			
Summer School			
Instructors (2)	30,109		30,962
Students (3)	31,024		26,917
Other (4)	10,227		9,683
	<hr/>		<hr/>
	71,360	71,360	67,561
Workshops and Events (5)		51,718	67,180
PDF Program (6)		43,750	50,250
Director's PDF		15,415	16,750
Distinguished Lecturer Series		0	2,904
Book Series		217	2,500
Administrator Salary		18,385	11,541
Travel		352	605
Office Expenses		4,438	6,713
		<hr/>	<hr/>
Total Expenditure		205,636	226,004
Surplus: Income Less Expenditure		55,657	38,631

Notes

1. For a breakdown see Appendix 1
2. Travel, Accommodation and stipends of \$5,000 each
3. Residence and Meals
4. Texts and course materials, promotion, secretarial, computing , hospitality and Director's stipend
5. See Appendix 2
6. See Appendix 3



Balance Sheet

31/12/2008

note: as the outcome of the NSERC MRS proposal is uncertain, it is not included in these figures

<u>Assets</u>	\$	\$
Surplus from Operations (Income less expenditure)		55,657
Accounts Receivable ¹		
CRM	30,000	
Fields	30,000	
PIMS	30,000	
MITACS	5,000	
Acadia	5,000	
Cape Breton	1,000	
Dalhousie	30,000	
Memorial	30,000	
Moncton	1,000	
Mount Allison	1,000	
Saint Francis Xavier	1,000	
Saint Mary's	1,000	
UNB	30,000	
UPEI	1,000	
	<hr/>	196,000
		<hr/>
Total Assets		251,657
<u>Liabilities</u>		
Accounts Payable ²		
Summer School	70,000	
Postdoctoral Fellowships	43,750	
AARMS Director's PDF	17,500	
Scientific Activities ³	57,700	
AARMS Book Series	2,500	
Administrator Salary	15,000	
Distinguished Lecturers	2,500	
AARMS Poster	1,000	
Travel and Office expenses	5,000	
	<hr/>	214,950
Unallocated funds - for AARMS activities		<hr/>
		36,707
		<hr/>
Total Liabilities		251,657

Notes

1. Fees due to be collected in 2009
2. Funding Commitments in 2009
3. Workshops, Conferences, Meetings, Atlantic Algebra Centre



Annual Accounts 2008

Appendix 1

Revenue Breakdown

Mathematical Institutes		
CRM	30,000	
Fields	30,000	
PIMS	30,000	
	<hr/>	90,000
Universities		
Acadia	5,000	
Cape Breton	1,000	
Dalhousie	50,000	
Memorial	30,000	
Moncton	1,000	
Mount Allison	1,000	
Saint Francis Xavier	2,000	
Saint Mary's	1,000	
UNB	30,000	
UPEI	1,000	
	<hr/>	122,000
Other Revenue		
MITACS (for summer school)	6,552	
UNB VP (for summer school)	500	
Dalhousie Summer School holdover	3490	
Sales of Bonato Book	120	
	<hr/>	10,662
total		222,662



Annual Accounts 2008

Appendix 2

Workshops and Scientific Events

NB Grade 12 Math Exam project	2,600
Combinatorial Algebra meets Algebraic Combinatorics	4,500
Relativity in Cape Breton	1,594
10 th Workshop on Algorithms and Data Structures	2,500
Coast to Coast Seminar Series	2,000
Foundational Methods in Computer Science	4,800
Saskatoon Teacher's visit to Math Learning Centre	1,321
Canadian Undergraduate Math Conference	1,000
Euler Symposium	539
Graduate Student Conference	2,000
Graded Algebras and Superalgebras	5,000
Atlantic General Relativity Conference	1,538
APICS meeting in Moncton	1,471
AARMS/CRM Workshop: Functional and Delay Diff. Equ.	9,855
Atlantic Algebra Centre	11,000

total

51,718

Appendix 3

Postdoctoral Fellowships

Tobey Kenney	8,750
Dansheng Yu	8,750
Rebecca Hammond	17,500
Daniel Horsley	8,750

total

43,750