



Banff International Research Station

for Mathematical Innovation and Discovery



NSERC
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What's New at BIRS



From left to right: BIRS Director Nassif Ghoussoub, former NSERC President Tom Brzustowski, NSF Director Arden L. Bement Jr. and MITACS Director Arvind Gupta, during the visit of the leaders of the G8 Research Foundations to BIRS.

BIRS is a now federally incorporated, not-for-profit society capable of initiating and honoring contracts and agreements with other organizations such as The Banff Centre, universities, and the granting foundations. The corporation can establish a charitable foundation for the purposes of fundraising and supporting the capital and/or operating needs of the Station.

The Corporation now has a Board of Directors with the overall responsibility for the management of BIRS. In particular, the Board oversees the activities of the Scientific Director and the Scientific Advisory Board, as well as all financial aspects of BIRS, including reporting to the agencies/foundations that support the station.

The membership of BIRS Board of Directors will reflect the mandate of the station and represents its stakeholders. In particular, it will ensure adequate representation from Canada (3 representatives), the US (3 representatives), Mexico (3 representatives), as well as the province of Alberta (1 representative). The Directors of the 4 founding institutions of the station (PIMS, MITACS, MSRI and IM-UNAM), as well as the Scientific Director of BIRS are ex-officio members of the Board.

The Scientific Director is now responsible for the overall functioning of both the scientific and administrative aspects of BIRS. The responsibilities of the Scientific Advisory Board and of its Program subcommittee remain the same as in the past scientific management structure.

PERSI DIACONIS *Mathematics & Statistics, Stanford:*

"I have participated in five or six meetings at BIRS. First of all, I almost always say "yes" to an invitation to BIRS—it's spectacular, very well run, and productive. I co-ran a meeting on a small combinatorial subject (De Bruijn sequences and Gray codes) a few years back that was amazingly productive: a journal's worth of surveys, solutions, and open problems is about to come out of it. The meeting was on a non-standard topic and it meant a lot to our participants to have a chance to get together. I have featured the interactions at the meeting in a chapter of my forthcoming book with Ron Graham (From Magic to Mathematics and Back). I think this meeting marked the emergence of this new subject as a field!

I have gone to all the major math conference sites over a twenty-five-year period. The Banff site is unique and, I think, my preferred site. Thank you for doing all you can for keeping this crucial treasure healthy and thriving."

This restructuring addresses the need for a stable, robust and efficient organizational structure for BIRS that:

- Reflects its international mandate,
- Addresses the need for a fully dedicated Board,
- Guarantees a sound reporting structure,
- Contributes to the demands of fundraising for capital and infrastructure development,
- Opens opportunities for further international expansion,
- Provides operational flexibility to sustain such a station,
- Settles various issues regarding accountability, appointments and chains of command,
- Dispels issues of conflict of interest, especially vis-à-vis the competition for funds,
- Clarifies the relationships between BIRS and its partner institutions, while ensuring a more balanced representation among the stakeholders,
- Satisfies the wishes and allays the concerns of granting foundations,
- Formally acknowledges the de-facto administrative and scientific separation between BIRS and PIMS.





BIRS: A Profile

Established in 2003, the Banff International Research Station (BIRS) is a North American initiative that addresses the imperatives of collaborative research, cross-disciplinary synergy, and of intense and prolonged interactions between scientists. BIRS has a unique infrastructure that provides a creative environment for the exchange of ideas, knowledge, and methods within the mathematical sciences and their vast array of applications.

Unlike any other North American institute, the main mode of operation at BIRS is a series of weekly workshops, each hosting 42 researchers in disciplines in which mathematics, computer science and statistics are used in deep and novel ways. There are now 48 such workshops each year. In addition, the Station hosts teams of two to four researchers for periods of one to two weeks to allow collaborative, distraction-free, research and/or to finish major scientific projects. The setting of the Station is ideal for summer schools and graduate summer camps, for hosting focused collaborative research groups, and for promoting university-industry interactions. Every year, the station hosts over 2,000 researchers from 400 institutions in more than 60 countries who participate in over 70 different programs.

BIRS represents a new level of development in North American scientific cooperation as it brought together for the very first time: NSERC, the US National Science Foundation (NSF), Alberta Innovation, and Mexico's National Council for Science and Technology (CONACYT) in a partnership of this scale. As such, it provides new and exciting opportunities for North American faculty and students, giving them access to their international counterparts at the highest levels and across all mathematical disciplines.

BIRS embraces all aspects of quantitative research: its programs span almost every branch of pure, applied, computational and industrial mathematics, statistics, computer science, and also physics, biology, engineering, as well as economics, finance, psychology and scientific writing. The extraordinary response to the opportunities at BIRS has led to extremely high quality competitions.

Besides the 5-day workshops and Research-in-Teams programs, BIRS hosts NSF's Focused Research Groups, Canada's Collaborative Research Teams, Department Chairs meetings and other leadership retreats, gatherings for Women in Mathematics, summer schools in emerging areas, modeling camps, training sessions for Math Olympiad teams, industrial fora, ateliers in scientific writing, as well as

MARK L. GREEN, *Director Emeritus, Institute for Pure and Applied Mathematics:*

"As someone who spent 10 years running an institute (the Institute for Pure and Applied Mathematics at UCLA) and who is familiar with the Canadian mathematical scene through my time on the MRS committee of NSERC, I want to say that I have always been impressed by BIRS. The points I would like to make are:

- The organizational side is handled admirably. As a workshop organizer, I have been able to concentrate on the science and know that the administrative side will be handled professionally.
- It is a truly international resource that draws top-notch researchers on a regular basis.
- The venue is conducive to research interactions and is especially favorable to junior researchers who do not yet know many of the senior people. Because everyone is on-site for the duration of the workshop, and participants eat all of their meals together, it is easy to get to know new people and launch new collaborations.
- The quality of the workshops I have been to has been first-rate.
- There is an open call for workshop proposals. BIRS manages over time to involve the math and other scientific communities very broadly."

Bridges conferences for Mathematics, Music and the Arts. BIRS has also led the way in hosting workshops that address science and education issues for aboriginal people.

BIRS assumes scientific leadership in moments of crisis (e.g., current epidemiological issues, technological challenges of security, etc.) and reacts pro-actively to scientific opportunities and challenges (quantum computing, genomics, fuel cells, etc.)

BIRS provides cost-effective access to collaborative research. The savings incurred by securing dedicated space for long-term use, by achieving a substantial economy of scale, and the advantages obtained by pooling the resources of several organizations, (the province of Alberta and three federal governments) allow BIRS to greatly multiply the opportunities for researchers participating in international collaborative research.





Participant Statistics

BIRS provides equal access to the world's research community regardless of geographic origin or scientific expertise, as long as it is anchored on solid mathematical, statistical or computational grounds. Applications are selected on a competitive basis, using the criteria of excellence and relevance, by a scientific panel of experts drawn from across the entire breadth of the mathematical sciences and related areas.

The overwhelming response of the scientific community during the first years of operations led us to expand the North American partnership by involving the Mexican mathematical community in the scientific management of BIRS, and to increase BIRS opportunities by extending the program from 40 weeks in 2003, to 44 in 2006, to 48 weeks in 2007, and to 49 weeks per year starting in 2011.

The station now hosts over 2,000 researchers every year from hundreds of institutions in more than 60 countries who participate in over 70 different programs spanning almost every aspect of pure, applied, computational and industrial mathematics, statistics, computer science, and also physics, biology,

CHITAT CHONG *National University of Singapore:*
 "I wish to highlight that BIRS has played a significant role in promoting international collaboration and supporting scientific research."

ROBERT E. MEGGINSON *University of Michigan:*
 "A Native American myself, I have participated in three sets of workshops at BIRS on First Nations Mathematics. As far as I know, these are the only opportunities that have ever existed for mathematicians, First Nations elders, and educators to sit down to talk together about the issues that affect participation of First Nations people in Canada in the mathematical enterprise of the nation."

engineering, economics, finance, psychology and scientific writing.

The extraordinary reaction to the opportunities at BIRS has led to extremely high quality competitions, with over 170 proposed activities competing for the 49 available weeks.

Canadian Participants (2006 - 2008)												
Province	AB	BC	MB	NB	NL	NS	ON	PE	QC	SK	YT	Unknown
Participants	410	478	17	20	11	44	490	1	144	23	1	24
Total Canadian Participants: 1663												

US Participants (2006 - 2008)																							
AL	17	AR	3	AZ	47	CA	496	CO	30	CT	44	DC	7	DE	15	FL	33	GA	62	HI	7	IA	18
ID	4	IL	140	IN	83	KS	14	KY	10	LA	18	MA	175	MD	62	MI	78	MN	44	MO	26	MS	2
MT	7	NC	85	NE	13	NH	7	NJ	125	NM	14	NV	6	NY	213	OH	43	OK	4	OR	18	PA	91
RI	27	SC	10	TN	23	TX	140	UT	27	VA	34	VT	2	WA	90	WI	44	WV	3	WY	2	?	12
Total US Participants: 2475																							

International Participants (2006 - 2008)									
Afghanistan	1	Argentina	7	Australia	55	Austria	38	Belarus	1
Belgium	24	Brazil	15	Chile	14	China	49	Columbia	1
Costa Rica	1	Cuba	1	Cyprus	2	Czech Republic	6	Denmark	35
Finland	11	France	296	Germany	263	Greece	7	Hong Kong	1
Hungary	26	India	13	Ireland	6	Israel	66	Italy	74
Japan	127	Korea	29	Luxembourg	1	Mexico	46	Moldova	1
Netherlands	35	New Zealand	8	Norway	28	Poland	13	Portugal	6
Puerto Rico	1	Singapore	9	Romania	1	Russia	16	Slovakia	3
Slovenia	10	South Africa	4	Spain	45	Sweden	32	Switzerland	64
Taiwan	13	Turkey	3	UK	223	Uruguay	3	Unknown	3
Total International Participants (from outside Canada and the US): 1737									



BIRS Inaugural Board of Directors



Chair of the Board: Karen Prentice Q.C., ICD.D, became a Member of the Alberta Securities Commission in April 2006 and serves as Chair of the Human Resources Committee. She holds an LL.B. from the University of Calgary. Ms. Prentice has spent over 25 years in various legal and executive management roles. Most recently, she was Executive Vice-

President, Legal and Corporate Affairs of Enmax Corporation. Ms. Prentice has been active in the community for many years and is currently a member of the Advisory Board of Homburg Invest Inc., a director of the Alberta Capital Market Foundation, and a member of the Executive Committee of the Calgary Chapter of the Institute of Corporate Directors.



Tom Brzustowski, Ph.D. Aerospace Engineering, Princeton, 1963 RBC Professor, Telfer School of Management, University of Ottawa, and Chair of the Board, Institute for Quantum Computing, University of Waterloo. He was a professor in Mechanical Engineering at Waterloo from 1962 to 1987, teaching and carrying out research in thermodynamics and combustion, and was Waterloo's Vice-President,

Academic from 1975 to 1987. After that he served as Deputy Minister in the Government of Ontario from 1987 to 1995, first in the Ministry of Colleges and Universities, and later in the Premier's Council. He was President of NSERC from 1995 to 2005. Tom Brzustowski is an Officer of the Order of Canada and a Fellow of the Canadian Academy of Engineering and of the Royal Society of Canada, and holds honorary doctorates from numerous Canadian universities.



Alejandro Adem, Director, Pacific Institute for the Mathematical Sciences, and Canada Research Chair in Algebraic Topology at the University of British Columbia, received his PhD from Princeton University in 1986. He has held visiting positions at Stanford University, the Institute for Advanced Study in Princeton, ETH-Zurich, the Max Planck Institute in Bonn, the University of Paris VII and XIII, and at

Princeton University. Alejandro was on the faculty at the University of Wisconsin from 1989 to 2004 and served as Chair of the Department of Mathematics during the period 1999-2002. He was awarded an NSF Young Investigator Award in 1992, a Romnes Faculty Fellowship in 1995 and a Vilas Associate Award in 2003. He is an editor for the Transactions of the American Mathematical Society.



Robert Bryant, Director, Mathematical Sciences Research Institute (MSRI), received his PhD in mathematics from the University of North Carolina at Chapel Hill and is currently a professor at the University of California at Berkeley. His research interests center on the geometry of differential equations and their applications to Riemannian geometry and mathematical physics. He is a Vice President of the American Mathematical

Society, the Chair of the Northern California, Nevada, and Hawaii Section of the Mathematical Association of America, and served a term as the director of the Park City/IAS Mathematics Institute. In 2002, he was appointed by President Bush to serve on the Board of Directors of the Vietnam Education Foundation and he currently serves on the International Committee for the National Mathematics Center of Nigeria. He is a fellow of the American Academy of Arts and Sciences and a member of the National Academy of Sciences.



Javier Bracho, Director, Instituto de Matemáticas, Universidad Nacional Autónoma de México (UNAM), obtained his PhD degree from MIT in 1981. From 1995 to 2000 he was the founding Head of the Cuernavaca Branch of the Institute of Mathematics. His present research interests are in combinatorial and discrete geometry, but he has also worked in algebraic topology, algebraic geometry and topological graph

theory. From 2003 to 2006, he was member of the evaluation committee of the National Research System of Mexico. His interest in science outreach includes editorial activities and the design of the mathematics section of the Science Museum at UNAM, which tries to integrate math and arts.





Rita Colwell, *President, Cosmos ID, Inc., Senior Advisor, Canon US Life Sciences, Inc., and Distinguished University Professor* both at the University of Maryland at College Park and at Johns Hopkins University Bloomberg School of Public Health, obtained a Ph.D. in Oceanography from the University of Washington. Her interests are focused on global infectious diseases, water, and health, and she has developed an international network to

address emerging infectious diseases and water issues, including safe drinking water for both the developed and developing world. Dr. Colwell served as the 11th Director of the National Science Foundation. Her major interests include K-12 science and mathematics education, graduate science and engineering education, and the increased participation of women and minorities in science and engineering. Dr. Colwell has served as Chairman of the Board of Governors and President of several professional associations and societies. Dr. Colwell is a member of the National Academy of Sciences, the Royal Swedish Academy of Sciences, Stockholm, the American Academy of Arts and Sciences, and the American Philosophical Society. Dr. Colwell has authored or co-authored 17 books and more than 750 scientific publications. She produced the award-winning film, *Invisible Seas*, and has served on editorial boards of numerous scientific journals. Dr. Colwell has also been awarded 54 honorary degrees from institutions of higher education, including her Alma Mater, Purdue University, and received the National Medal of Science in 2006. A geological site in Antarctica, Colwell Massif, has been named in recognition of her work in the polar regions.



Juan Ramón de la Fuente, *President, International Association of Universities*, obtained his MD at UNAM's school of medicine and trained in psychiatry at the Mayo Clinic in Minnesota, USA. Before joining UNAM's School of Medicine he was the founding Head of the Clinical Research Unit of the Mexican Institute of Psychiatry. He was elected Rector of the university in 1999. He was President of the Mexican Academy of Sciences in

1995 and of the National Academy of Medicine in 2001. He served as Minister of Health in the government of Mexico from 1994 to 1999. Prof. de la Fuente has served as Vice President of the World Health Assembly, President of the Board of the United Nations Program on AIDS, a member of the Board of Directors of the International Association of Universities, and President of the Net of Macro-Universities of Latin America and the Caribbean. He is a member of the Board of the Cervantes Institute and of the Administrative Council of UNESCO's International Institute for Higher Education for Latin America and the Caribbean. He has published extensively on health, education, and scientific research, and is the recipient of numerous national and international awards and honours.



Nassif Ghossoub, *Scientific Director, BIRS*, obtained his Doctorat d'état in 1979 from the Université Paris VI in France. He is currently a Professor of Mathematics, a Distinguished University Scholar, and an elected member of the Board of Governors of the University of British Columbia. He was the founding Director of PIMS, a co-founder of the MITACS Network of Centres of Excellence and a member of its Board of Directors for the periods 1998-

2003 and 2008-10. He is also the founder of BIRS and has been its Scientific Director since 2004. He was vice-president of the Canadian Mathematical Society, the editor-in-chief of the Canadian Journal of Mathematics from 1993 to 2002, and the founding editor-in chief of *Pi in the Sky* magazine. He was awarded the Coxeter-James prize in 1993, the Jeffrey-Williams Prize in 2007 and a Doctorat Honoris Causa From Université Paris-Dauphine in 2004. He was elected Fellow of the Royal Society of Canada in 1994.



Arvind Gupta, *Scientific Director and CEO of MITACS*, a national research network which connects academia, industry and the public sector to develop cutting-edge tools for Canada's knowledge-based economy. Dr. Gupta obtained his PhD in Computer Science from the University of Toronto in 1991, and is a Professor at the University of British Columbia. Prior to joining MITACS, Dr. Gupta helped found the Pacific Institute for the

Mathematical Sciences. He is the editor of two book series on industrial mathematics and is currently the President of the 2011 International Congress on Industrial and Applied Mathematics. He is also the founder of the widely acclaimed Accelerate Canada and Global Link programs.



Jacklyn Sturm, *Vice President of Finance and Controller for the Technology and Manufacturing Group at Intel Corporation*. She oversees the financial management and controls for the company's technology development, manufacturing and capital investments. Sturm has held a variety of financial management positions since joining the company in 1993. Previously, she was controller for several product divisions as well as Intel Capital and the

New Business Group. Prior to joining Intel, she worked for Hewlett-Packard, Ridge Computer and Apple Computer. Sturm received an MBA from the University of Santa Clara in 1981 and a bachelor's degree in finance from San Jose State University in 1979.

GUIDELINES FOR SUBMITTING A PROPOSAL

- Proposals should be submitted using the online form at <https://www.birs.ca/proposals/>
- Read the description of programs before preparing your proposal.
- Indicate the subject area of your proposal. In rare cases, the codes may not be adequate. Use *Other* and specify in the *Additional Comments* field.
- The guidelines allow for only one organizer per institution.
- The text should be plain ascii text. You may use LaTeX2e syntax for mathematical expressions.
- Provide options for your proposed dates, particularly low-season alternatives. You may use the link http://www.vpcalendar.net/Holiday_Dates/2010_2015.html for a list of holidays to ensure that the dates you indicate as being acceptable do not coincide with an important holiday.
- Suggestions on writing Workshop Proposals
 1. The workshop should be sufficiently innovative and timely that holding it has the potential to make a difference to the subject. Proposals that take advantage of newly emerging links between areas or offer opportunities for groups of participants who do not normally meet are of special interest.
 2. The proposal should be written carefully. The total length of the *Short Overview* and the *Statement of Objectives* should run between 2 and 4 pages.
 3. The proposal should avoid being too diffuse, attempting to cover too many areas at once, nor should it be similar to events being held elsewhere.
 4. The proposed participant list should be realistic and coherent with the goals of the event.
 5. At least some of the organizers should have recognized international stature. You may have more than two organizers, but only one will be designated as the main Contact Organizer.
 6. You should include a list of possible participants, their affiliations and departments, and indicate that a number of your participants have been contacted and have expressed their interest in the workshop.
 7. We encourage you to consider opportunities to train young talent (including graduate students and postdoctoral fellows) and to ensure appropriate representation of women and other underrepresented groups.
- Additional Comments
 - Participation in the programs at BIRS is by invitation only. Workshop organizers determine the list of participants, and BIRS sends out invitations.
 - Confirmation: After you submit your proposal, you will receive an automatically-generated message containing the text of your proposal. The BIRS Program Coordinator will send you an e-mail message within one week to confirm that the proposal has been received and is complete. Please contact the Program Coordinator if you do not receive confirmation or if the copy you receive back from us seems to be corrupted.
 - If you have other questions about submissions of proposals, please feel free to contact the BIRS Program Coordinator.

PROGRAM DESCRIPTIONS

5-Day Workshops:

- 5-day workshops are the basic program format of BIRS. They run Monday through Friday (arrival Sunday afternoon, departure Friday midday).
- Accommodation, use of BIRS facilities (lecture halls, Internet facilities, etc.) and meals are provided at no cost to the participants of the workshops.
- The maximum number of participants is 42.
- A small number of half-workshops with 20 - 22 people will be considered.
- The organizers are required to submit, at the completion of their program, a 5-10 page article (possibly written by one of the participants) surveying the status of the subject of the Workshop in the context of the events of the Workshop. These reports are compiled into annual volumes documenting the activities of BIRS. In addition, a number of talks will be video-taped for dissemination on the Internet, and for archival purposes.

2-day Workshops:

- 2-day workshops run Saturday and Sunday (arrival Friday afternoon, departure Sunday midday).
- The maximum number of participants is 25.
- Accommodation and use of BIRS facilities (lecture halls, Internet facilities, etc.) are provided at no cost to the participants of the workshops. Meals are the responsibility of the organizers and participants.

Focused Research Groups:

- This program offers teams of up to 8 researchers the opportunity to live and work at BIRS facilities for periods of 1 to 2 weeks. Accommodation and meals are provided.
- Two dedicated discussion rooms with computer workstations are provided for the use of the group.
- Teams should consist of individuals from different institutions.
- Proposals should detail the project, list the team members and their institutions, and justify the case for using BIRS facilities.

Research in Teams:

- This program offers teams of up to 4 researchers the opportunity to live and work at BIRS facilities for periods of 1 to 2 weeks. Accommodation and meals are provided.
- Each team is provided with its own private workspace and computer workstation.
- Teams should consist of individuals from different institutions.
- Proposals should detail the project, list the team members and their institutions, and justify the case for using BIRS facilities.

Summer Schools:

- BIRS welcomes proposals for schools of 1 to 2 weeks in duration.
- Schools and Training Camps are pedagogical by definition, but may be aimed at any level from elementary or high school students or teachers, through undergraduate and graduate levels, or preparation for Institute thematic programs, etc. Summer Schools typically run Sunday through Sunday (arrival Sunday afternoon, departure Sunday noon).
- The maximum number of participants is 30.
- Normally, these workshops are held in the summer.

IMPORTANT INFORMATION

- DEADLINES
 - Proposals for 5-day workshops and Summer Schools are usually late September, early October, 15 months before the programming year. For more specific information on deadlines please refer to the website at <http://www.birs.ca/applicants/deadlines/>
 - Proposals for 2-day Workshops, Focused Research Groups and Research in Teams events must be received a minimum of 4 months before the proposed start of the event.
- SPECIAL NEEDS
 - BIRS and the Banff Centre are both wheel-chair accessible.
 - The Banff Centre dining facility can provide special meals on request.
 - Travel expenses to and from the Banff Centre are the responsibility of the participants/organizers.
- ONLINE SUBMISSION
 - All proposals should be submitted online at <https://www.birs.ca/proposals/>
- WEBSITES
 - Banff International Research Station: <http://www.birs.ca>
 - The Banff Centre: <http://www.banffcentre.ca>



The Review Process

Key to the success of BIRS is its ability to attract top scientific proposals and then to have a selection process by peer review at international standards, balanced across all areas of the mathematical sciences. To represent the mathematical sciences in their entirety, the Scientific Advisory Board consists of 30 internationally recognized experts representing as broad a spectrum of the mathematical sciences community as possible.

Every year, an international call solicits proposals for workshops from every field of the mathematical sciences and its applications. A proposal template requires a summary of the present state of the field, a discussion of the leading questions that motivate the proposal, and a justification for the timeliness and appropriateness of the workshop. A preliminary list of potential participants is also requested.

Proposals have so far outnumbered available spots by a ratio of 3:1, with no sign of let-up, in fact, quite the reverse, so the competition is strong and the committees are never short of excellent proposals to select from. All proposals are made available to the members of the SAB who then make their comments online. In addition, the Scientific Director solicits additional reviews for particular proposals from outside experts, so that by the end of the process, each proposal has had at least 5 reviews.

The Program Committee then meets in November and makes the final selection. At this meeting, the committee first reviews each category, linearly ranking the proposals within it. Proposals are then selected by running across the categories. In this way, a distribution across the mathematical sciences is maintained, to the extent that there are first-rate proposals in those areas. The BIRS Program Committee ranks proposals by scientific excellence and relevance alone, without regard for the geographical origin of the proposal.

The commitment of the organizers is also a key criteria in the selection process. In return, the limited number of allowed participants forces the organizers to adhere to the highest standards. All these factors combine to make BIRS a unique centre of excellence, with a substantial scientific return on the investment by four governments.

The sheer multitude and diversity of the BIRS events make any blanket description difficult. For more detailed information about BIRS, please refer to:

- Participation Statistics,
- Book of Participant Testimonials,
- BIRS Annual Reports,
- Proceedings of the Scientific Programs.

These are available on the BIRS webpage at:
<http://www.birs.ca/publications/>

ROBERT M. GRAY *Alcatel/Lucent Professor of Communications and Networking, School of Engineering, Stanford University:*

“During my two years of participation on the Advisory Board, I have been impressed by the dedication, enthusiasm, and hard work of the Board to judge fairly the many proposals and to balance all of the criteria in order to choose the best possible schedule.

They have also worked hard to encourage resubmissions by potential organizers with good ideas, but whose proposals did not meet the high threshold. There is a great effort to encourage new directions while avoiding technical fads, and to balance well established areas with lesser known topics with significant activity or high potential.”

L. GARY LEAL *Chemical Engineering, U. California:*

“I view the BIRS programs as a special treasure that has played a very significant role in my own research. It would be a tragedy if this unique research workshop facility did not continue to play the special role that it has developed in many branches of science and engineering research.”

RICK SZELISKI *Microsoft, Washington*

“I thought that this week’s BIRS workshop was the best focused workshop I have ever attended in my 25 years of doing computer vision research and attending conferences and workshops in my field.”

ANATOLI IVANOV *Penn State University, Wilkes-Barre:*

“During my 25 plus years of research activities I have been to many research centers and facilities around the world, and I can testify that your Centre is definitely one of the best and at the very top in all regards. “

PHILIP HOLMES *Mechanical & Aerospace Engineering and Applied Mathematics, Princeton:*

“I attended a BIRS workshop on Creative Writing in Mathematics and Science. I rarely get to mix my lives as an applied mathematician and poet. BIRS enabled this, and rekindled my attempts to mix it up on paper.”

JOHN HOLBROOK *University of Guelph:*

“BIRS is an extremely valuable international resource for science, and it is especially important for Canadian mathematics. It deserves generous support from all levels of government and from the international mathematical community.”



Scientific Director

Nassif Ghossoub

Phone: 604-822-1649

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Email: birs-director@birs.ca



- Responsible for the overall functioning of the station
- Ensures that all scientific activities are run at the standards and with the integrity expected by its sponsors and granting councils and foundations
- Acts as ambassador and public representative of BIRS
- Chairs the Scientific Advisory Board

Administrator

Danny Fan

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Email: birs-administrator@birs.ca



- Oversees human resources
- Manages and budgets all financial matters
- Ensures the continued smooth operation of BIRS scientific activities

Scientific Program Assistant

Christina Girardi

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- Administrative and program support to Scientific Director
- Website maintenance
- Compiles BIRS publications and scientific reports from workshops

Scientific Program Coordinator

Wynne Fong

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Fax: 604-822-0883

Email: birs@birs.ca



- Responsible for all administrative aspects of scientific programs, workshop organization and invitations
- Communicates with participants and organizers prior to and after workshops
- Supports the proposal review process

Station Manager

Brenda Williams

Phone: 403-763-6999

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- Responsible for all logistical issues for onsite participants and for the day-to-day support of all scientific events at BIRS
- BIRS Liason Officer with the Banff Centre

Systems Analyst

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- Manages all aspects of the BIRS Information Technology systems
- Provides technical support as needed for BIRS participants and administrative staff

BIRS Mailing Address in Banff:

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 107 Tunnel Mountain Drive
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BIRS Mailing Address in Vancouver:

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 Canada

RICHARD MELROSE *MIT:*

"I have found the Banff International Research Station to be excellently run and to have a stimulating atmosphere."

BILL FREEMAN *Computer Science, MIT:*

"... As a matter of fact, this workshop at BIRS may have been the best one I've ever attended."

JOSEPH A. WOLF *University of California, Berkeley:*

"The Banff International Research Station plays an important role in North American science. Its programs bring Canadian, Mexican and U.S. researchers into contact with European and Asian researchers, for scientific programs at the highest level. The only comparable facility in the world is the Mathematisches Forschungsinstitut Oberwolfach in Germany."

DAVID TARTAKOFF *University of Illinois at Chicago:*

"I had the privilege of attending, and speaking at, one of the weeklong workshops at BIRS a few years ago and must say it was an extraordinarily productive experience - inspirational even. The blend of excellence of the participants, and their care, in a spectacular setting, permitted the most fruitful exchange of ideas and growth."

FRED BRAUER *University of British Columbia:*

"The establishment of BIRS was a great contribution by the mathematical community to the development of science, and its continuation is essential for Canada to continue to be a player in the world of science."

MARTIN ROETTELER *NEC Labs. America, Princeton:*

"It was amazing how open the atmosphere at BIRS was and how freely people talked about open problems and challenges. The organizers compiled a long compendium of open problems in the field, a unique source of inspiration for students and researchers. There were talks until late in the night, everybody being genuinely interested in recent results of the other participants. Summarizing, to me, the Banff research station is a unique place."

VOLKER RUNDE *University of Alberta:*

"Let me just say that I wouldn't know really what to do if BIRS were not around. Having a world class institution like BIRS literally at our doorsteps is a major factor contributing to the excellent research environment at the U of A. BIRS puts Alberta on the world map as far as mathematical research is concerned. For mathematical researchers around the globe, Alberta is best known as the province within whose borders BIRS is located (and whose government has had the vision to fund it)."