

Contact

Investing in people, discovery and innovation

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Message from the President

One of the highlights of being president of NSERC is meeting the countless Canadians who demonstrate this country's ability to produce some of the best discoverers and innovators in the world.

Among them are also a very special few who have the unique distinction of being recognized as both. Four researchers who have achieved this remarkable feat were honoured with the 2008 NSERC Synergy Awards presented September 25 in Halifax, N.S.

These scientists and engineers have made significant contributions to the advancement of knowledge in their own areas and have worked toward solving problems that enable our industries to be more productive, more sustainable and more profitable. They represent the best of the present and the promise of the future.

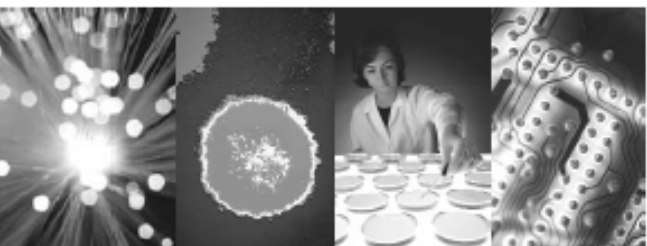
In addition, these recipients have also demonstrated the tremendously valuable results that arise from collaboration between our talented university researchers and innovative industrial partners.

Each Synergy Award winner received a \$200,000 research grant while NSERC's support also provides their industry partners the opportunity to have access to an Industrial Research and Development Post-doctoral Fellow. Established in 1995 as a \$25,000 prize, the Synergy Award lost roughly one-quarter of its value in the 13 years since it was first awarded, due solely to inflation. An NSERC study last year recommended that the prize amount be increased to \$200,000. The awards are given to one winner in each of the four categories: small- and medium-sized company, large company, two or more companies, and the Leo Derix Award.

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Dr. Suzanne Fortier



NSERC Welcome to the first issue of the new electronic version of NSERC's *Contact* newsletter. We hope this format will improve your access to important news from NSERC. If you have any comments or suggestions, please contact us at comm@nserc.ca.

The Natural Sciences and Engineering Research Council of Canada (NSERC) is a key federal granting agency investing in people, discovery and innovation. It supports both basic university research through partnerships among postsecondary institutions, government and the private sector, as well as the advanced training of highly qualified people.

Please send address changes by e-mail to bulletin@nserc.ca.

**NSERC Communications
350 Albert Street
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(continued from cover page)

This way, NSERC not only recognizes the incredibly valuable contributions that these extraordinary partnerships have already made, but the Awards also go a long way to help sustain exciting research well into the future.

In Halifax, we also announced the winners of the Innovation Challenge Awards—some of NSERC's brightest, rising talents.

I think the standing ovation we saw for these bright young researchers punctuated the impact of their individual contributions to their respective fields and the importance of these rising stars to the future of science and engineering.

The incredible research we saw from the finalists, such as laser-powered surgical tools and the targeted delivery of therapeutic agents to treat cancer using micro- and nano-particles, highlights the exceptional and significant contributions they have already made. But, the really exciting part is that there is much, much more to come from them and others like them.

I am confident that the Innovation Award is simply a starting point for these emerging stars. I fully expect that, in due time, a number of them will be on stage accepting a Synergy Award or other honour for continuing with their important and relevant work.

(See the Synergy story on Page 8 below to learn about the winning projects and the Innovation Challenge recipients.)

Council celebrates its 100th meeting



Hon. James Edwards and Dr. Suzanne Fortier prepare to serve cake to staff at the 100th Council Meeting reception

NSERC celebrated 30 years of funding research excellence in a celebration hosted by new Council chair, the Honourable James Edwards, in an all-staff event to mark the 100th Council Meeting last month.

About 250 staff attended the first ever reception during the Council sessions designed to allow employees to meet its members. The reception also helped to mark NSERC's 30th Anniversary.

Mr. Edwards used the occasion to outline some of the special challenges facing NSERC as it enters its fourth decade. The Council and its sister granting agencies, SSHRC and CIHR, he said, are challenged as never before to do their share in discovery and innovation, so that Canada can remain competitive in the world. The health and well-being of the next generation, he contended, depends on us.

"I'm a believer in basic human relations as an important way to get things done, and that's why an event like this is so valuable," Mr. Edwards said.

"You as staff people, and we as Council members each have a job to do, and the more we communicate and understand each other, the better we can do that. By working together, we can make NSERC's next 30 years even more successful than the first 30."

Council members in attendance were James Blatz, Charles Bridges, Jillian Buriak, Christopher Essex, Michael Irwin, Eugene McCaffrey, Elaine Phénix, Arlene Ponting, Barbara Sherwood Lollar, and Chan Wirasinghe.

"Council members looked forward to this event, which was a great opportunity for Council members and staff to meet one another and develop a better understanding of what each group does," said NSERC President Suzanne Fortier.

"We are enormously privileged at NSERC and in the whole research community to be able to benefit from the leadership and expertise offered by each of our Council members."

100th Council meeting reception photos



Photos from top to bottom:

Council members (l-r) Chan Wirasinghe, Barbara Sherwood Lollar, Michael Irwin, Jillian Buriak, James Blatz and Charles Bridges gather after being introduced to staff by the Hon. James Edwards.

Council chair and NSERC vice-president, the Hon. James Edwards, addresses NSERC's first Council reception for employees.

Council member Charles Bridges serves a piece of cake to team leader Céline Bérubé.

Council member Arlene Ponting gets ready to serve up some yummy cake.

Council member James Blatz, compensation advisor Delise Morris, Council member Charles Bridges, corporate and regional development project officer Andrzej Antoszkiewicz, creative services events coordinator Sarah Faloon, compensation assistant Catherine Helmer and administrative officer Caroline Côté enjoy some 30th Anniversary cake.

NSERC presidents (l-r) Gordon M. MacNabb (1978-1986), Peter Morand (1990-1995), Tom Brzustowski (1995-2005) and Suzanne Fortier (2005-) were on hand to celebrate the 100th Council Meeting and 30th Anniversary.

New application system begins pilot at NSERC

Applicants to the NSERC Collaborative Health Research Projects Program and SSHRC Postdoctoral Fellowships Program may have noticed a difference in the way things are done.

In August, the Councils began a pilot of an online application system for these two programs that promises to simplify the process that researchers, graduate students and universities follow in order to apply to NSERC and SSHRC programs.

Based on a proven process already used by the Fonds de la recherche en santé du Québec and the Ontario Institute for Cancer Research, among others, NSERC's new Enterprise Award Management System (EAMS) also incorporates the new Canadian Common CV, which will help lessen the administrative burden on researchers.

As part of the EAMS process, applicants will be required to fill out the Canadian Common CV. Access to the Canadian Common CV will be available from the Councils' websites.

The results of this pilot project will be used to determine whether NSERC should extend this system to its broad suite of programs.

The NSERC Collaborative Health Research Projects application became available October 1, 2008, with a deadline of December 1, 2008.

Applicants began accessing SSHRC's Postdoctoral Fellowships application in August.

Common CV allows researchers to “spend time on what they do best”

Canada’s granting councils, along with Quebec’s three research funding agencies, have renewed efforts to work toward the implementation of a system which promises to deliver a significant decrease in the administrative work required by researchers when they apply for funding.

The Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC), the Social Sciences and Humanities Research Council (SSHRC) along with Fonds de la recherche en santé du Québec, Fonds québécois de la recherche sur la nature et les technologies and Fonds québécois de la recherche sur la société et la culture (commonly referred to as CANTOR) signed an agreement in July to employ the Canadian Common CV.

The Web-based system allows researchers to create, store and update a standardized CV in an online repository. Having readily available and up-to-date CVs should reduce time and effort researchers spend completing this part of their grant applications.

The business plan will incorporate simplicity, efficiency and cost-effectiveness in the operation, management and governance of the Canadian Common CV for the benefit of researchers.

“The collaborative agreement reached by CIHR, NSERC, SSHRC and CANTOR is significant, as it will allow researchers to spend time on what they do best—

research—rather than on filling out the myriad of forms, used by funders, that require a core of common data,” said University of Toronto president David Naylor.

The Canadian Common CV was first established in 2002 by CANTOR and CIHR in response to calls from researchers to reduce the administrative burden when applying for funding. It has 20 subscriber organizations, including federal and provincial research agencies, health charities and others. It will also be integrated into the Enterprise Award Management System to help make that process move more smoothly.

After the agreement was signed, NSERC began implementing the Canadian Common CV through the two pilot programs—NSERC’s Collaborative Health Research Projects and the SSHRC’s Postdoctoral Fellowships Program—launched in July.

“We will use the Canadian Common CV for these two programs as a proof of concept for our new Enterprise Award Management System,” said Michel Cavallin, NSERC vice-president of common administrative services for both NSERC and SSHRC, at the launch of the pilot.

“Our intent is to eventually migrate all of our programs over to the Canadian Common CV. This would provide the long-awaited CV single window entry point for researchers.”

NSERC honours partnerships and entrepreneurs with Synergy Awards



The 2008 Synergy Awards on display prior to the ceremony in Halifax

The latest batch of top university-industry partnerships and entrepreneurial graduate students was honoured at a ceremony held in Halifax September 25, as NSERC presented its Synergy Awards for Innovation and Innovation Challenge Awards.

“Most of us would be thrilled to be recognized as either a discoverer or an innovator,” commented NSERC President Suzanne Fortier during the ceremony. “These researchers have the unique distinction of being recognized as both.”

The value of the Synergy Awards was boosted substantially this year, with each winner receiving a \$200,000 research grant. The four categories remained unchanged.

In the small- and medium-sized company category, François Gagnon and the



Iwan Jemcyl of Ultra Electronics TCS (left) and François Gagnon

research group at Montreal’s l’École de technologie supérieure (Université du Québec) have helped Ultra Electronics TCS to become the global leader in developing “high-capacity, line-of-sight radios.”

The increased use of digital technology means that these radios operate more like computers, resulting in a cost effective and flexible platform that provides state-of-the-art multimedia connections for military personnel operating in the field. As with many technologies that are initially developed with military needs in mind, these developments also have great potential for commercial companies.

University of Saskatchewan and Cameco Corporation took the large company award for a partnership led by geochemist Jim Hendry, which has made great advances in the ability to store and monitor mine tailings in ways that keep toxins from escaping into the environment.



Jim Hendry (left) and Cameco's Gerald Grandey

The research program has developed unique testing and monitoring methods, and uncovered knowledge about the chemical behaviour of these tailings. This has helped the industry meet very stringent regulatory requirements as well as reassure the public about safety concerns. Other mining companies will benefit from this research as well, since many of them need to make sure that their storage sites remain secure for very long periods of time.

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Featuring an interdisciplinary research team under the direction of University of New Brunswick marine biologist Thierry Chopin and Department of Fisheries and Oceans scientist Shawn Robinson with industry participants Cooke Aquaculture Inc. and Acadian Seaplants Ltd., the award for two or more companies went to an integrated multi-trophic aquaculture (IMTA) partnership. IMTA enables the aquaculture industry to improve its environmental performance and, at the same time, diversify its product line.



From left: Jean-Paul Deveau, Shawn Robinson, Glenn Cooke, Thierry Chopin and Michael Szemerda

The IMTA approach is based on cultivating several species on sites that have traditionally grown only one. The result creates a small food chain, where waste from a salmon pen creates nutrients for mussels and seaweed.

The Leo Derikx Award went to McGill University, COREM, SGS Minerals Services, Teck Cominco Limited, Vale Inco and Xstrata Process Support for their

partnership which saw a group of leading Canadian mining companies, working with a research team led by Jim Finch.



From left: Norm Lotter, Sam Marcuson, James Finch, Leo Derikx and Donald Leroux

Their work has pioneered techniques that significantly improve the recovery of base metals from ore deposits. The research program has focused on flotation cells, which combine chemical reactions with precisely controlled bubbles in a huge tank to separate minerals from finely

ground ore particles. This technology has increased the amount and the purity of minerals recovered, saving mining companies around the world millions of dollars.

Nominations in the Innovation Challenge were narrowed down to 11 finalists. The first-place prize went to Darren Kraemer, whose research paved the way for a new generation of laser-powered surgical tools. His laser uses ultra-short pulses of infrared light to make clean cuts without damaging surrounding tissue. Second place went to Jiang Liu for research into using micro- and nano-particles in targeted delivery of therapeutic agents to treat cancer in the lymphatic system. Mehrdad Rafat, whose work focused on bioengineered materials for use in human organs, and Kris Woodbeck, who has developed new image-recognition software for Internet search engines, shared the third-place prize.



Innovation challenge finalists. Front row, l-r: Kris Woodbeck, Darius Remesat, Sarah Helgeson and Marc Boulé. Back row, l-r: Weian Zhao, Irwin Adam Eydellant, Richard Ting, Darren Kraemer, Terence Gilhuly, Mehrdad Rafat and Jiang Liu.

Half-fast atoms just don't cut it says Nobel Laureate



William Phillips plays with his favourite prop: liquid nitrogen — *Photo courtesy of Perimeter Institute*

It's a scene that's played out countless times on 42nd Street in New York City.

While the lights wouldn't dim in the theatre for hours, a long queue of anxious faces stretched out the box office door hoping to be among the lucky few to snap up a last minute ticket for the night's performance.

Only the crowds weren't gathered to see a hot Broadway musical. Instead, they waited patiently to be part of the packed house that would hear a lecture by a physics professor.

On the playbill at Perimeter Institute's (PI) lecture hall in Waterloo, Ont., was University of Maryland professor Bill

Phillips whose June 4 presentation "Time and Einstein in the 21st Century: The Coolest Stuff in the Universe" didn't disappoint the standing room only crowd.

"We are going to have some fun tonight," began Phillips, who shared the 1997 Nobel Prize in Physics for his work developing methods to trap and cool atoms with laser light. "I hope to convince you that this is really cool stuff."

Fittingly, Phillips captivated the audience with his dynamic presentation on the need for atomic clocks—complete with pouring several bubbling pots of super-cold liquid nitrogen on the floor and blowing up a recycle bin—as part of the celebration to honour PI as this year's winner of

NSERC's Michael Smith Award for Science Promotion in the group category. Named after the late Canadian biochemist and Nobel laureate, Dr. Michael Smith, the group award comes with a medal, a framed citation and a \$10,000 prize.

PI is a scientific research and educational outreach organization of international scientists exploring the understanding of physical laws and developing new ideas about space, time, matter and information. It also provides a wide array of educational outreach activities for students, teachers and members of the general public in order to share the joy of scientific research, discovery and innovation.

Phillips was at PI as part of its ongoing public lecture series aimed at non-specialists that brings great thinkers from around the world to Canada to share their ideas on a wide variety of interesting and topical subjects.

His presentation began by explaining three papers published by Albert Einstein in 1905 that changed the way man understood the physical world. Einstein's paper on the photoelectric effect, which won him the Nobel Prize, formed the basis for much of quantum mechanics, his paper on the Brownian effect showed that the world was made up of atoms and molecules, and his special theory of relativity proposed that space and time are altered near the speed of light.

Today, he added, Einstein's ideas continue to play a key role in helping to improve the accuracy of atomic clocks, something Phillips has studied for most of his career. A fellow at the U.S. National Institute of Standards and Technology (NIST), Phillips leads the Laser Cooling and Trapping Group in the Atomic Physics Division of NIST's Physics Laboratory, which has developed many techniques that are in general use around the world.

Unlike a \$100 quartz wristwatch, which will lose about half-a-second annually, a good atomic clock only loses 30 seconds

over one million years, but at a cost of about \$100,000.

"I think that's a bargain," Phillips said. "Wait a minute, you pay 1,000 times more money and get one million times more performance, that's a bargain. But you might ask who needs a clock that is that accurate?"

The simple fact is, he stressed, that the world needs super-accurate clocks for everyday activities. For example, having exactly the right time is critical to Global Positioning Systems (GPS), which would err by several kilometres without it. Using atomic clock accuracy, GPS can navigate cars right into their garages from just about anywhere on the planet. But pinpoint navigation isn't the only application powered by hyper-accurate time provided by atomic clocks.

In business, GPS is used in many ways from helping to increase the efficiency of delivery fleets to ensuring oil exploration crews hit the right spot. Atomic time is also used to time-stamp hundreds of billions of dollars worth of financial transactions conducted every business day, which helps reduce the incidence of fraud.

In addition, countless communication systems and electrical power grids rely on accurate time from atomic clocks for synchronization and operational efficiency. Canadians even rely on atomic clocks to watch their favourite shows since their super accurate time is used to ensure proper synchronization of television feeds to their homes.

But making clocks more accurate requires colder atoms, which can be measured more accurately when frigid temperatures slow them down. And that requires something really cold, like liquid nitrogen, which is 77 degrees Kelvin (-198 degrees Celsius) or roughly four times closer to absolute zero than room temperature (300 degrees Kelvin).

Using tricks like stuffing several inflated balloons into a small container of liquid nitrogen to make his point, Phillips kept the audience mesmerized.

“There is no lack of it,” he said as he blew hot air into another yellow balloon to stuff into the pot of liquid nitrogen. “I come from Washington D.C.”

“The more astute among you have noticed that the balloons I put in the bucket exceeded its volume. Why? Because they are little Frisbees,” he said, flinging the flattened balloons into the audience. “This is why we do physics: because it’s so much fun.”

Later in the presentation, he showed what would happen when liquid nitrogen is poured into a plastic pop bottle which was sealed tightly, set on the floor and covered with an ordinary blue recycle bin.

“It’s like putting it in an oven,” he explained before saying with an impish grin: “Let’s see what will happen.”

Phillips carried on for about five minutes, when the crowd suddenly shrieked as the bottle blasted through the bottom of the blue bin, throwing it several metres in the air and ripping a hole in its plastic shell.

While balloon pancakes and exploding pop bottles are fun ways to use liquid gas, all the antics helped punctuate Phillips’ point that there is also some serious research being done with super-cold gases.

For example, he explained, frigid temperatures are used to help atomic clocks make better measurements. And while liquid nitrogen works exceedingly well for pranks, it simply isn’t cold enough for atomic clocks.

Although liquid nitrogen is four times closer to absolute zero than room

temperature, it only cools an atomic clock’s Cesium atoms enough to cut their velocity by 50 percent. “But,” he added, “I didn’t devote 30 years of my career to make half-fast atoms.”

The solution goes back to Einstein and his 100-year-old ideas about the photoelectric effect. The photoelectric effect sees electrons emitted from the surface of a metal when light is shined upon it and the light’s energy is absorbed.

Scientists shine specially tuned laser beams on the atoms to make them absorb the light, which makes them slow down to an incredible one centimeter per second velocity.

Slowing Cesium to a crawl allowed scientists to create “fountain atomic clocks” that shoot atoms vertically like water jets and are accurate to within one second in 80 million years. Phillips called this achievement “close enough for government work.”

And, like Einstein did a century earlier, making better clocks helps scientists test some of the most fundamental theories of nature. Ironically, the man whose ideas made it all possible, may find some of his ideas disproved based on work that continues to use his theories.

“Some of the things that Einstein predicted will almost certainly turn out to be wrong and maybe super-accurate clocks will be one way we can test to find out if that’s happened,” Phillips said.

“Perhaps the most exciting things that will happen with cold atoms are things we haven’t even thought about yet. And it may be that a few of the young people sitting in the first rows will think of some of the most exciting things to do in this field.”

Cultivating a New Generation of Science Communicators



Banff Centre Science Communications Program chair, Jay Ingram, chats with course attendee Darcy Gentleman — Photo courtesy of the Banff Centre Science Communications Program

Effective science communication is an art that requires creativity, the ability to synthesize complex ideas, and a broad knowledge of established and emerging communications tools and techniques. There are very few courses designed to give communicators the skills needed to tell engaging stories about science and technology, but an innovative program at the Banff Centre is quickly gaining a reputation as one of the best.

Now in its third year, the Banff Centre Science Communications Program was established with support from NSERC and other government and private-sector sponsors. The intensive two-week residency explores new ways to use print and broadcast media—along with the latest web-based tools—to tell stories about science. Students typically range from journalists and professional communicators to government scientists and university researchers.

“Our ultimate goal is to build a community of professional, competent and creative science communicators who can blaze new trails in the public sphere,” said program director Mary Anne Moser, who is also Director of Communications at the University of Calgary’s Schulich School of Engineering, and was the driving force behind the creation of the program.

The 2008 course ran in August and culminated in a day of student project presentations. Blair Dickerson, NSERC Vice-President, External Relations and Communications, was on hand for the unveiling of the projects, and Frank Nolan of NSERC-Prairies was one of the project evaluators. This year, NSERC-Prairies also supported the addition of two Aboriginal facilitators.

The program emphasizes group work and encourages students to take advantage of the diverse skills each member brings. The resulting projects incorporate all of the new techniques the students have learned, as well as their individual strengths, expertise and talents.

“The course was, quite simply, mind-blowing, and I’m honoured to have participated,” said student Nicole Quinn, who is completing her PhD in genomics at

Simon Fraser University. “It really helped me focus on what I want to do with my career and how I’m going to do it.”

For Richard Hoshino, a mathematician with the Canadian Border Services Agency in Ottawa, it was the incorporation of a variety of media that really stood out.

“I never would have thought that science communications involved so much more than simply learning how to write better,” he said. “We’ve learned much more than writing skills here; everything from television and the Web to podcasting.”

The chair of the Banff Centre Science Communications Program is acclaimed Canadian science writer and broadcaster Jay Ingram. He said this multi-faceted approach has been the cornerstone of the program since its inception.

“We really want to broaden the horizons of science communication by using radically different ways to tell great stories that will grow interest and enthusiasm about science,” he said. “In this course, we’re willing to explore any method of communication that works.”

The Banff Centre [Science Communications 2009](#) will take place from August 10 to August 22. The application deadline is April 24, 2009.

NSERC signs cooperation agreement with Chilean counterpart



Dr. Fortier speaks with CONICYT President Vivian Heyl during her visit to NSERC

NSERC signed a Memorandum of Understanding (MOU) with the National Commission for Scientific and Technological Research of the Republic of Chile (CONICYT) in June designed to promote further collaboration in the natural sciences and engineering between Canada's and Chile's scientific research communities.

The NSERC-CONICYT MOU will lead to a strategic action plan that builds on the Federal Government's priority of attracting and securing talent as outlined in its Science and Technology (S&T) Strategy.

"This agreement opens doors and opportunities for joint research and development projects and promises to provide some fertile training opportunities for international students and Canada's next crop of research talent," said NSERC president Dr. Suzanne Fortier following the signing.

The agreement was signed on June 9 as part of a three-day state visit by Chilean President Michelle Bachelet and CONICYT President Vivian Heyl. The initial five-year agreement may be extended for an additional five-year term.

The move complements a similar agreement signed by the Governments of Canada and Chile to cooperate in science, technology and innovation. The two agencies have already shared information on NSERC programs available to Chilean students looking to study and conduct research in Canada.

The MOU builds on a number of initiatives with Chile beginning with Prime Minister Stephen Harper's signing of the Canada-Chile Partnership Framework in July 2007. Since the first agreement, two Canada-Chile S&T workshops identified aquaculture, bio-fuels and bio-refinery as promising areas of collaboration. The meetings were organized by Dr. Howard Alper under a mandate from the Clerk of the Privy Council.

The Chilean government is investing a record \$100 million in S&T projects this year, mostly in five priority sectors: aquaculture, software development for international markets, tourism, mining, and fresh fruits and processed foods. It has also instituted new tax measures designed to encourage private sector investment.

President Bachelet announced a \$6 billion fund in May to finance an ambitious program of scholarships for postgraduate training in trades and high technology, both in Chile and abroad. This will fund 1,000 training grants aimed at foreign universities in 2008, a number the Chilean government plans to increase to 2,500 in 2009 and to 6,500 by 2012.

5th World Science Centre Congress: Boldly going where no exhibit has gone



University of British Columbia astrophysicist Jaymie Matthews addresses the attendees of the 5th World Science Centre Congress

NSERC and Canada were on centre stage as Ontario Science Centre (OSC) welcomed more than 400 delegates from around the globe to the 5th World Science Centre Congress held in Toronto, June 15-20.

Dr. Suzanne Fortier joined the Ontario Ministry of Research and Innovation in hosting a two-part plenary showcasing some of Canada's best research.

"NSERC's participation in the World Congress marks yet another step in the Council's plan to build links with science centres and museums across Canada," said Dr. Fortier.

"We are particularly grateful to the Congress Chair and Ontario Science Centre chief executive Lesley Lewis for helping pave the way for our participation at this important event."

Nine NSERC-supported scientists, including such well-known personalities as University of British Columbia astronomer Jaymie Matthews and Dalhousie University chemist Mary Anne White, spoke about their landmark research and the passion that drives it.

In the second part of the session, a panel of science centre chief executives led by Dr. Pelle Persson of Heureka in Finland talked about the challenges faced by science centres and museums in capturing

current research and bringing it to the public's attention.

The discussion generated much engagement from the audience, as well as numerous follow-up contacts with the researchers to discuss exhibition ideas.

A great and overriding theme of the Congress was how science centres can engage the public in the many science-based problems and issues facing the

world. One outcome was the issuance of the landmark [Toronto Declaration](#), a new agenda for science centres around the world.

A [summary](#) of the NSERC plenary discussion can be found on the Congress website along with all the conference highlights, including an inspirational address by a self-admitted "friend of science," Stephen Lewis.

Program news

Discovery Grant review

NSERC has now posted the [complete set](#) of documents related to the major review of the NSERC Discovery Grants Program (DG). The [Report of the International Review Committee on the Discovery Grants Program](#), published in May, provided exhaustive evidence for the program's success in supporting high quality, internationally competitive research and for its foundational role in supporting Canadian research and training in science and engineering.

Watch the [video message](#) from Dr. Fortier.

The International Review Committee, chaired by Dr. Peter Nicholson, chief executive of the Council of Canadian Academies, also found that the Discovery Grants Program generally strikes an appropriate balance between “promoting and maintaining a diversified base of high quality research capability in the natural sciences and engineering (NSE) in Canadian universities” and “fostering research excellence.”

The Committee concluded that:

- the relatively high success rate of the DG program applications is not

incompatible with, and in fact encourages, a high degree of research excellence across a broad range of fields;

- the best researchers are able to use support of a Discovery Grant as a base to lever an internationally competitive level of funding from other sources;
- the broad base of DG program grants sustains an important level of research capability and student training across the NSE disciplines and throughout Canada and thus contributes significantly to meeting the nation's needs for research results and highly-qualified people; and
- the DG program is therefore an exceptionally productive investment and thus deserves additional funding to ensure that the value of its grants keeps pace with the growing opportunity.

GSC structure review

Following closely on the Discovery Grants report, NSERC published its second major review in June, after an in-depth investigation of the challenges facing the Discovery Grants peer review system.

The Grant Selection Committee (GSC) Structure Review Advisory Committee, chaired by Dr. Adel Sedra, Dean of Engineering at the University of Waterloo, looked specifically at the rapid emergence of new areas, proposals that cross traditional boundaries and the growing workload faced by many GSCs.

The report's key recommendation is for NSERC to adopt a conference model for the review of applications. The new model would be developed from a system that four GSCs have already implemented successfully.

It brings the primary advantage of a much more flexible and dynamic approach to

grant reviews, allowing the system to adapt quickly to changes in the research environment and to accommodate proposals that cross disciplines.

The [report](#) of the Advisory Committee made other recommendations which may be found on the NSERC website.

"We heard from many researchers about their perception of the strengths of the current system, so we were very conscious of the need to build on these positive features," said Dr. Sedra.

"What we recommend is not quite a complete re-design—there are many evolutionary elements—but it is also not just a fine tuning."

The new model and processes will be subjected to extensive focus testing with fine tuning as required.

More on CREATE

The [Collaborative Research and Training Experience](#) (CREATE) provides an enriched training environment for the next generation of researchers in the natural sciences and engineering (NSE), and will help develop the professional and personal skills needed to build capacity within Canada's research community to address significant research challenges.

To build on Canada's research strengths and priorities, at least 60 percent of the CREATE funding will be directed to the four priority areas identified in the S&T Strategy: environmental science and technologies, natural resources and energy, health and related life sciences and technologies, and information and

communications technologies. This aligns with the S&T strategy to build on Canada's existing Entrepreneurial, Knowledge and People advantages.

CREATE also encourages the private sector to participate actively in the program, especially supporting the transition of students and postdoctoral fellows from the lab to the labour force.

NSERC will provide funding in the amount of \$1.65 million to 20 new initiatives annually over a six-year period. When fully ramped up, the annual program budget is expected to reach \$33 million. The first awards will be made in April 2009.

Program Evaluation Committee change

In response to a new Treasury Board Secretariat evaluation policy, a proposed modification to NSERC's Program Evaluation Committee (PEC) was presented to Council for approval in June. PEC is a Standing Committee of Council composed of external members.

The new policy directed the establishment of a departmental evaluation committee composed of senior officials and chaired by the deputy minister (President Fortier in NSERC's case) or a senior level designate.

Since NSERC's existing executive management committee already meets the requirements of the new policy, it was

proposed that it adopt the duties of the new committee, which would avoid the creation of an additional working group.

It was resolved that PEC cease to serve the role as NSERC's departmental evaluation committee with EMC taking over its duties. This item was approved by Council without caveat.

It is important to note that the input of external stakeholders in program evaluation will continue to be included and welcomed by NSERC. This will continue by inviting experts to participate in the steering committees that guide evaluation projects.

Regional News

UPEI students make most of USRA funding



Some UPEI undergrads jump-started their research this summer thanks to NSERC

Summer usually finds most students taking it easy and forgetting about school, but for 26 NSERC undergraduate scholarship research award (USRA) winners at the University of Prince Edward Island, it meant kicking their research into high gear.

For third year biology student Jessica Willis, working through the summer helped open her eyes to a possible new career path.

“The appeal of doing research is just to find out new things,” Willis told *The Guardian* newspaper.

“I actually like the fact that I got to work on a project that I can call my own and get to analyze the results and decide if I want to take it even further next year.”

Before the USRA, Willis was leaning toward applying to medical school, but the experience has her taking a serious look at becoming a researcher.

The 26 USRA grants is the highest number UPEI has ever received from NSERC. In 2007, 16 students had received these grants from NSERC.

“NSERC received more funding for student research projects this year, and UPEI was in a good position to take advantage of the increase since we had a record number of high-quality applicants,” explains Donna Giberson, NSERC scholarship liaison for UPEI.

“It is an incredible opportunity for the students.”

Student research topics included the effects of green crab sediment disturbance on eelgrass beds, the potential health benefits of cranberries and blueberries, the development of a new animal model of schizophrenia, the effects of nitrate pollution on development of fish eggs and the investigation of new chemical

compounds that could lead to more environmentally-secure batteries.

“When I asked the students what excited them most about their summer work, the main thing that they mentioned: the chance to work on real research equipment, and contribute to real research projects,” Giberson says.

Rising Stars of Research

About 100 undergraduate students from across the country, including many NSERC Undergraduate Student Research Award winners, shined brightly at the University of British Columbia (UBC) in August during the first [Rising Stars of Research](#) conference.

There was little time to rest for the participants of the three-day event which began with a keynote address by UBC Microbiology and Immunology professor Dr. Bob Hancock.

The students moved to the poster competition, where they demonstrated their ability to highlight their research in a one-stop display to judges and on-lookers alike. First prize in the Discovery Division went to Gareth Hopkins of the University of Northern British Columbia. The Facility for Infectious Diseases and Epidemic Research (FINDER) Award went to Eric Asava-Aree of UBC.

The awards dinner featured a presentation by Dr. Gwenn Flowers, Canada Research

Chair in Glaciology, while NSERC-Pacific manager Rick Warner presented the winners of the poster sessions.

The conference also gave students the opportunity to tour some local research facilities, including the B.C. Cancer Agency, the Advanced Materials and Process Engineering Laboratory, and the Michael Smith Laboratories.

“Rising Stars of Research” was supported by the Pacific Regional Opportunities Fund, which gave the gathering critical early-stage funding. The contribution from NSERC-Pacific was key to its success and helped the conference attract other contributions and maximize the impact of the event.

The organizers plan to make the Rising Stars of Research an annual conference that focuses on science, health and technology research.

NSERC bits

New council members

After a number of members' three-year terms expired in 2008, there were several new faces around the table for NSERC's 100th Council Meeting in October.

The Honourable Jim Prentice, who at the time was Minister of Industry and Minister responsible for NSERC, appointed six members earlier this year, bringing the total of new faces to 10.

The most recent appointment was Louis R. Lamontagne, chief executive of Paineceptor Pharma since its inception in 2003. Mr. Lamontagne also served as chief executive of Neurochem and maintained key roles with the Ottawa Life Sciences Technology Park and the National Research Council of Canada's Institute of Biological Sciences. He holds a PhD in Immunology from McMaster University and a BSc (Honours, Chemistry) from Queen's University.

The announcement followed the June appointments of five new Council members to replace those whose terms had expired.

The new members are: Charles Richard Bridges, Dr. Michael John Irwin, Elaine C. Phénix, David A. Robbins, and Dr. Sumedha Chandana (Chan) Wirasinghe.

A lecturer in business and human resource management with the Department of Management at the Sobey School of Business, Mr. Bridges serves as vice-president (Assoc.) of external affairs at Saint Mary's University in Halifax, Nova Scotia. In addition, Mr. Bridges is vice-chair of the 2011 Canada Winter Games in Halifax, Nova Scotia. Mr. Bridges brings with him a diverse range of non-governmental organization, volunteer and university committee experience.

Dr. Michael John Irwin brings a background in commercialization of research to the Council after working for eight years as a laboratory manager and senior chemist with 3M Canada Company. He is the company's executive director of technical operations. He has also served on several boards, including the Ontario Phonics Consortium and the Canadian Advanced Technology Alliance.

Elaine C. Phénix is president of Phénix Capital Inc., which provides advisory services in financial planning for small and medium-sized companies. Previously, she was executive vice-president of the Montréal Exchange for five years, beginning in 1994. She is a Fellow of the Canadian Securities Institute and serves on various boards as a member or chair of numerous audit, governance and compensation committees.

An environmental scientist, David A. Robbins serves as vice-president of Atlantic operations for AMEC Earth & Environmental Ltd., a multidisciplinary international environmental and engineering firm. Previously, he was principal of EPIC Environmental Services Inc., and worked with BFL Consultants Limited, providing environmental consulting services. Mr. Robbins has extensive Board experience, including the Newfoundland Environmental Industry Association, Association of Newfoundland Land Surveyors, and Oceans Advance.

With more than 30 years in transportation engineering and planning, Dr. S.C. (Chan) Wirasinghe's research focuses on public transportation, air transportation, mitigating the effects of large natural disasters and transportation in developing countries. He has been a professor at the University of Calgary's Department of Civil Engineering for the past three

decades and is founding Dean Emeritus of the Schulich School of Engineering. He is co-editor-in-chief of the *Journal of*

Advanced Transportation and was named Calgary's Citizen of the Year for 2005.

Seats, scholarships and stipends

NSERC continues to develop a number of new programs announced in Budget 2008, including the Canada Excellence Research Chairs (CERC), Georges Vanier Scholarships and Foreign Study Stipends.

The detailed design and implementation of these Budget initiatives continues to

move forward with all the programs launched in September.

SSHRC, NSERC and CIHR prepared a joint submission to Treasury Board concerning the development of these programs, which was approved, as proposed, in July.

CRYSTAL gathering

The 2008 national conference of the Centres for Research in Youth, Science Teaching and Learning (CRYSTAL) program brought participants from across Canada together back in September in Sherbrooke, Quebec.

From September 25 to 27, the representatives gathered from each Canadian regional CRYSTAL to provide an

update of all the regional initiatives to share best practices.

Mario Lamarca, NSERC Director of Life Sciences and Special Research Opportunities, represented NSERC to inform participants of some program updates and was very proud of the results accomplished by each regional CRYSTAL.

Bravo



Professor Masoud Farzaneh receives the Charles Biddle Prize from Yolande James, Quebec Minister of Immigration

Charles Biddle Prize

Professor Masoud Farzaneh took home the prestigious Charles Biddle Prize in May in recognition of his outstanding contribution of a person from cultural communities to the development of Quebec society. A native of Iran, Prof. Farzaneh is an Industrial Research Chair on Atmospheric Icing of Power Network Equipment (CIGELE) and the Canada Research Chair on Engineering of Power Network Atmospheric Icing, at l'Université du Québec à Chicoutimi (UQAC).

NSERC/Industrial Alliance Chair

Dr. Nadia Ghazzali, of the Université Laval, is the new holder of the NSERC/Industrial Alliance Chair for Women in Science and Engineering in Québec. The goal of the Women in Science

and Engineering chair program is to increase the participation of women in science and engineering and to provide role models for women considering careers in these fields. The program offers one Chair for each of the Atlantic, Québec, Ontario, Prairie, and British Columbia and Yukon regions.

J.P. Black Award

Civil and environmental engineering professor Peter Huck became the first Canadian, and the first researcher outside the United States, to take the American Water Works Association's A.P. Black Research Award for 2008. Huck was presented with the award during AWWA's annual conference and exposition in June. This award was established in 1967, in honour of Dr. A. P. Black, to recognize outstanding research contributions to water science and water supply rendered over an appreciable period of time.