

OFFICE OF RESEARCH CHAIRS

ANNUAL REPORT 2009-2010



UNIVERSITÉ
LAVAL

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MESSAGE FROM THE VICE PRESIDENTS FOR RESEARCH AND INNOVATION

Quality and structuration of research

The financial objective of 100 million dollars in new investments in research and innovation, assigned to the *Program for the Advancement of Innovation and Research* (PAIR), has been surpassed. As soon as May 2010, the investments in new research chairs totaled 103 million dollars, thanks to the contributions of more than 180 private partners and granting agencies. Such a sum represents major new investments for Québec City, but above all, it signals a paradigm shift for Université Laval – an institution that increasingly values its partners, responds to the needs of society, and trains highly qualified personnel, better prepared to fulfill the current needs of employers.

The quality of the research chairs created in 2009-2010 is of the highest rank. Most notably, Université Laval was the sole Québec university to be granted two of the nineteen *Canada Excellence Research Chairs* (CERC) awarded this year according to the highest norms of excellence. Two researchers, who count among the very best in the world in their respective domains, have joined the university to lead these two research chairs, namely the *CERC in Remote Sensing of Canada's New Arctic Frontier*, and the *CERC in Enabling Photonic Innovations for Information and Communication*. A seven-year financing will make it possible for the research chairs to recruit about a hundred graduate students, postdoctoral fellows and research professionals, and to secure the collaboration of as many researchers. The environment provided by the research chairs will also prove favorable to the nurturing of long-term partnerships with public institutions and renowned national and international enterprises, thus extending the influence of Université Laval in Canada and abroad.

In order to encourage pertinent and enduring exchanges between researchers and partners of the research chairs, the offices of the Rector and the Vice President for Research and Innovation established a network called *Force-Laval*. This exchange platform helps the Office of Research Chairs accomplish its task of promoting, supervising and sustaining the creation and monitoring of the research chairs. The exchanges between the holders and partners of all research chairs are promoted by networking meetings, sectional workshops and the presentation of research results. As the collaborations between the University and its partners take place according to the concept of open innovation, the research questions of the partners can reach a vast audience of science experts. In the first of these meetings, in May 2010, more than an hundred research chair holders, officers, and their partners gathered together and held fruitful discussions, conducive to the socio-economic development of our community.

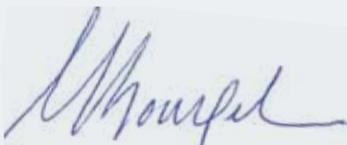
Finally, the year 2010 has been one of transition, as Mr Edwin Bourget, originator of the PAIR program, handed over to Mr Paul Fortier. The latter is fully committed to sustain the continuity of activities of the Office of Research Chairs during his term of office.



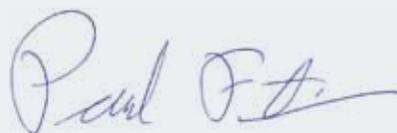
Edwin Bourget



Paul Fortier



Edwin Bourget



Paul Fortier

MESSAGE FROM THE DIRECTOR OF THE OFFICE OF RESEARCH CHAIRS

Opening up to innovation

The speeding up of innovation, the optimization of knowledge transfers and the strengthening of the innovation capacity with our strategic partners lie at the heart of the *Program for the Advancement of Innovation and Research* (PAIR), the flagship program of the Office of Research Chairs.

The dynamic team of the Office of Research Chairs, giving support to the university community and its partners, performed convincingly during this second financial year. Indeed, the five-year financial target has already been exceeded and the commitments amount to 103 million dollars. This feat is linked directly to the new *Canada Excellence Research Chairs* (CERC) program.

Thanks to a meticulous selection process over the years, Université Laval has developed a clear vision of the strategic research sectors it ought to support. These keys to innovation are rooted in a long tradition of dedication to and support of excellence. As a result, Université Laval was granted two prestigious *Canada Excellence Research Chairs* (CERC), leading all Québec universities in this respect. At the end of an extended selection process having required the contribution of numerous actors, we are privileged to welcome world renowned Prof. Babin and Prof. Messaddeq, recognized respectively for their work in Arctic research and optics/photonics. The addition of these new research chairs now positions Université Laval among the world leaders in these fields. The state-of-the-art research going on at Université Laval will stimulate innovation in the Québec region and contribute positively to its competitiveness at the international level.

The Office of Research Chairs has also built bridges between the university community and the collectivity at large through the establishment of Force-Laval, a network promoting the results obtained by the research and innovation chairs, thus sustaining and stimulating innovation in our partners. The launching of this network has been a unique opportunity to bear witness of the synergies between our institution and its environment, the innovation efforts on the part of Université Laval working toward a sustainable development of our region.

Undeniably, globalization brings about a profound mutation in economic development, which encourages the organizations promoting this development to adopt an approach based on region-specific know-how, i.e. competitive advantages. And it just so happens that the universities are at the crossroads of these two deep trends: they are indeed regionally rooted, and may also be the main engine of innovation.

As the reader will notice while reading this report, the Office of Research Chairs does not spare its efforts sustaining the innovation stemming from the structuring action of the research and innovation chairs. Each new chair adds a new landmark on the roadmap leading to the realization of our strategic objectives, so as to ensure the contribution of Université Laval to a sustainable economic growth, both regionally and nationally.



François Sauvé

François Sauvé

OFFICE OF RESEARCH CHAIRS

The creation

On May 5, 2008, Université Laval approved the creation of the Office of Research Chairs and adopted the *Politique relative aux chaires de recherche et de création de l'Université Laval*, in order to promote the development of research and innovation chairs and to establish a framework for their creation, evaluation, and renewal.

The mission

The mission of the Office of Research Chairs is to promote, supervise and support the creation and monitoring of the research chairs within Université Laval, as well as in its affiliated research institutes and hospitals, for the benefit of the university community, and to a larger extent of the Québec region and the society at large.

The mandate

The mandate of the Office of Research Chairs is to assist the faculties and researchers in the steps leading to the creation or renewal of a research chair. Under the authority of the Vice President for Research and Innovation, the Office carries out this mandate according to the policies, regulations and objectives of the University. The services it provides are primarily intended for the University researchers and creators, but the interested partners and enterprises can also take advantage of them. The Office of Research Chairs carries out its duties in three broad sectors: creation and maintaining of partnerships, assistance in the recruitment of high-caliber professors/researchers, and contribution to the fundraising.



1st row (from left to right): Kaouther Bessrou, Christian Pellerin
2nd row: François Sauvé, Fabienne Mathieu, Éric Lamiot, Michelyne Harton

The team

François Sauvé
Director

Michelyne Harton
Secretarial Agent

Christian Pellerin
Research Administrator
– Canada Research Chairs
– Canada Excellence Research Chairs

Éric Lamiot
Research Administrator
– Industrial Research Chairs

Kaouther Bessrou
Research Administrator
– Partnership Research Chairs

Fabienne Mathieu
Research Administrator
– Partnership Research Chairs
– Force-Laval

Olivier Moroni
Research Administrator
– Industrial Research Chairs
From September 20, 2010

PAIR PROGRAM

The main objective of the *Program for the Advancement of Innovation and Research* (PAIR) is to allow Université Laval and the affiliated research institutes and hospital centers to attain the highest levels of excellence in research and innovation, so as to become a world-class reference in our knowledge-based economy.

The PAIR improves the research and innovation capacity of Canada by attracting and keeping excellent researchers within Université Laval.

The PAIR allows exceptional university researchers and creators to formulate novel ideas and apply them locally.

Influence of the PAIR

Since its inception in 2008, the Office of Research Chairs has been able to negotiate and bring about many understandings of partnership that led to the creation of 22 research and innovation chairs.

The table below shows a distribution of these 22 Université Laval's research and innovation chairs according to the excellence niches that have been identified for the Québec & Chaudière-Appalaches region, as well as to Université Laval's institutional research and innovation priorities (Table 1).

Université Laval		Literary, artistic, architectural, and musical creation	Culture, society, and education	Environment and sustainable development	Nordic studies and oceanography	Organizational sciences	Material sciences	Manufacturing technology	Life and health	TOTAL	
Québec & Chaudière-Appalaches	Applied technologies	Optics and photonics		1				1		2	
		Defense and security					1			1	
		Electronics									
		Information technologies									
		Geomatics			1	1					2
		Others			3				1		4
From science to nutrition	Health and nutrition								3	3	
	Life sciences			1					8	9	
Transformed materials: building the future	Wood second transformation										
	Plastics and composite materials						1			1	
TOTAL				6	1	1	1	2	11	22	

Table 1: Distribution of Université Laval's new research and innovation chairs created between 2008 and 2010, according to the excellence niches identified for the Québec & Chaudière-Appalaches region, as well as to Université Laval's institutional research and innovation priorities.

Achievements in 2009-2010

5 RESEARCH AND INNOVATION PARTNERSHIP CHAIRS CREATED IN 2009-2010, FOR A TOTAL OF \$63.67 MILLION

The agreements reached in 2009-2010 enabled the creation of:

- 2 Canada Excellence Research Chairs, for a total of \$61.4 million;
- 3 Partnership Research Chairs, for a total of \$2.37 million.

Furthermore, the Office contributed to the creation of two new Canada Research Chairs, for a total of \$1.9 million.



■ Two Canada Excellence Research Chairs
■ Three Partnership Research Chairs

THE \$100M FINANCIAL OBJECTIVE OF THE PAIR PROGRAM BY 2013 HAS BEEN SURPASSED IN 2009-2010

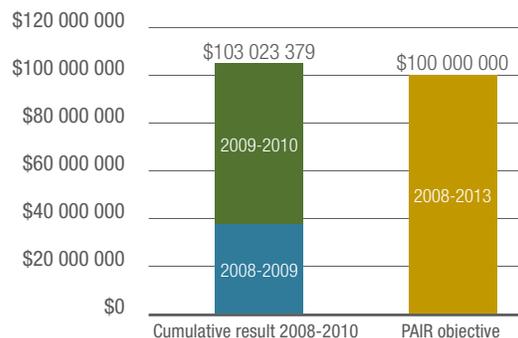
In two financial years only, the Office of Research Chairs created 22 research and innovation chairs of the partnership type in various domains of research and knowledge transfer.

The agreements reached during these two years total \$103 023 379 and will run for either 5 or 7 years.

The financial objective of \$100 million has been surpassed as soon as in the Office's second fiscal year.

According to the type of chair, these understandings for the establishment of research and innovation chairs are reached with diverse partners, namely:

- the federal government;
- the provincial government;
- the municipalities;
- the city of Québec, and
- private partners.



OFFICE OF RESEARCH CHAIRS

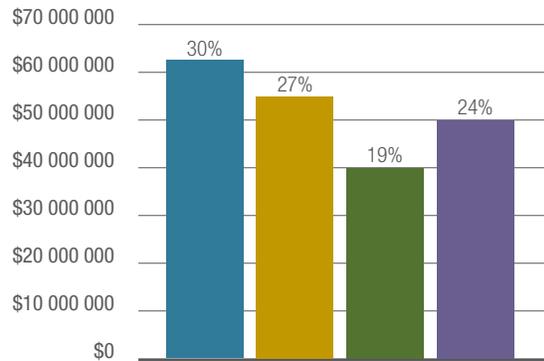
Global portfolio (2010)

RESEARCH AND INNOVATION CHAIRS PORTFOLIO – TOTAL \$207 686 164

The Office of Research Chairs administers the research and innovation chairs according to the *Politique relative aux chaires de recherche et de création de l'Université Laval* and under the authority of the Vice President for Research and Innovation. On June 1, 2010, there were 137 research and innovation chairs and total investment agreements of more than 200 million dollars.

This portfolio is comprised of several types of chairs, covering a varied expertise in research and innovation. There are:

- 2 Canada Excellence Research Chairs;
- 76 level 1 and 2 Canada Research Chairs;
- 19 research chairs in partnership with NSERC or the CIHR, and
- 40 research chairs in partnership with various private partners (including the capitalized chairs in partnership with La Fondation de l'Université Laval).



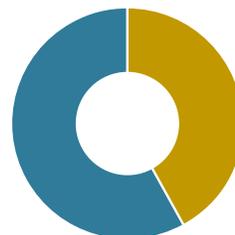
TOTAL BY TYPE OF RESEARCH CHAIR

- Canada Excellence Research Chairs – \$61 400 000
- Canada Research Chairs – \$55 970 000
- NSERC Industrial Research Chairs and CIHR Research Chairs – \$40 109 610
- Partnership Research Chairs – \$50 206 554

UNIVERSITÉ LAVAL'S SUSTAINABLE DEVELOPMENT POLICY

- The research sector is interested in the three dimensions of sustainable development: economic, social and environmental.
- 58 of the 137 research and innovation chairs supervised by the Office of Research Chairs, or 42% of the portfolio, are connected with this policy.

42% of the research and innovation chairs are connected with the *Politique institutionnelle de développement durable* of Université Laval



- Research and innovation chairs connected with sustainable development – 58/137

Force-Laval

Force-Laval has been launched on May 10, 2010 by the Office of Research Chairs for the benefit of the holders and partners of the Industrial Research Chairs (NSERC and CIHR) and the Partnership Research Chairs. The activities organized in this context are meant as a mark of gratitude to the 180 financial partners of Université Laval's 60 Industrial Research Chairs and Partnership Research Chairs, and as a way of offering new opportunities for collaboration. The three specific objectives are to stimulate the creation of a network between Université Laval and its partners in the research chairs; to consolidate the positioning of the research chair holders as partners in the creation and transfer of knowledge; and to stimulate the investments within the framework of the PAIR program.



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Mr. Régis Labeaume, mayor of the City of Québec and honorary president at the inauguration of Force-Laval



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To gain a correct understanding of one's genuine interest – this phrasing wonderfully sums up the basis of the sustained cooperation between Université Laval and Industrial Alliance. We now reap the benefits of our collaboration on research, workplace training, and courses in English, to name but a few elements. We thank the University for its training of a competent workforce, open to the world and well prepared for the labor market.

**Yvon Charest, President and Chief Executive Officer,
Industrial Alliance Insurance and Financial Services Inc.**

FPIinnovations is a proud partner of Université Laval in many chairs, research projects and strategic networks. In the current crisis faced by the Canadian forest industry, as the development of new avenues and new technologies is of prime importance for the sector, the concerted research activities with Université Laval gave rise to a state-of-the-art expertise, which is vital for the forest industry. Thanks to the training of a highly qualified workforce and the development of new technologies, FPIinnovations can better help its industrial members retain their competitive edge.

**Francis Fournier, Manager
Lumber Manufacturing Technology, FPIinnovations**



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“The best attract the best”

As the saying goes, the best attract the best! Our researchers of great repute, such as Louis Fortier (ArcticNet), Réal Vallée (Centre d’optique, photonique et laser - COPL), and Warwick Vincent (Centre d’études nordiques) joined their efforts to those of many regional, national and international partners and of the Office of Research Chairs. All of them have contributed to this success.

Edwin Bourget
Vice President for Research and Innovation

On May 17, 2010, the Rector of Université Laval, Denis Brière, and the Vice President for Research and Innovation, Edwin Bourget, have made public the granting to Université Laval of two Canada Excellence Research Chairs (CERC), an investment totaling more than 60 million dollars. Université Laval is the sole Québec university to receive two of these 19 prestigious chairs, awarded according the highest standards of excellence. The announcement was made in the presence of the Honourable Josée Verner, Minister of Intergovernmental Affairs.

Mr. Marcel Babin will hold the *CERC in Remote Sensing of Canada’s New Arctic Frontier*, and Mr. Younès Messaddeq, the *CERC in Enabling Photonic Innovations for Information and Communication*. As initially required by the CERC Program, Profs. Babin and Messaddeq have been recruited abroad following a rigorous peer-review process.

Canada Excellence Research Chair IN REMOTE SENSING OF CANADA’S NEW ARCTIC FRONTIER

Prof. Marcel Babin specializes in marine optics and remote sensing. An oceanographer recognized the world over, he worked at the Laboratoire d’océanographie de Villefranche (France) before joining Université Laval. A pioneer of the research on the interactions between light and the ocean matter, he certainly intends to put his talents, his expertise and his vast network of contacts at the service of a better understanding and managing of the Canadian Arctic, a region undergoing profound changes.

“Coming to Québec, I will remain linked with the team at Villefranche and that of the Centre national de la recherche scientifique of France. In fact, I greatly increase my

network and I add Canadian collaborations to those that I have been developing for 20 years in France and Europe at large. And then, I am coming back to the province of Québec, where I studied and spent very happy years”, adds Mr. Babin.

The CERC hold by Marcel Babin will receive a grant of \$33.3M over the next seven years.

Canada Excellence Research Chair

IN ENABLING PHOTONIC INNOVATIONS FOR INFORMATION AND COMMUNICATION

The CERC held by Prof. Messaddeq will enable the development of innovative optics materials, thanks to his work on new types of glass and optic fibers. The information and communication systems require ever more power and greater transmission speed. The research done by Prof. Messaddeq and his team will find applications in the biomedical field, as well as in security and defense. This researcher brings with him his vast experience and counts among the very best in the world in the field of vitreous materials. Until recently, Prof. Messaddeq led the team of the Institute of Chemistry UNESP in Brazil.

“The facilities at the COPL and the quality of the work done for many years at Université Laval were very attractive to me. Moreover, the region of Québec has made a priority of the field of optics and photonics, and the many firms established here generate a dynamism which is unique and favorable to innovation”, Prof. Messaddeq has been keen to specify.

The CERC held by Prof. Younès Messaddeq will manage a budget of \$28.1M over the next seven years.

These new researchers, members of the world elite in their respective domain, join very efficient teams. Université Laval was already acknowledged for the quality of its research on the Arctic and optics/ photonics; the addition of these new chairs now positions us among the world leaders.

Denis Brière
Rector of Université Laval



Josée Verner, Minister of Intergovernmental Affairs, Younès Messaddeq, holder of the Canada Excellence Research Chair in Enabling Photonic Innovations for Information and Communication, Marcel Babin, holder of the Canada Excellence Research Chair in Remote Sensing of Canada's New Arctic Frontier, and the Rector Denis Brière, at the 17 May announcement, "The best attract the best."

PERSPECTIVES

Excellence through mobilization

As the reader of this report will notice, an important milestone has been reached with financial commitments already surpassing the five-year objective of \$100M. However proud of this success, we do not intend to slow down the pace. The capacity to innovate being present in all sectors of activity, it is incumbent upon us to realize our full potential in order to prosper. Although the socio-economic dynamism of the region has served us well in the recent years, many challenges are seen to be emerging.

The 2010-2013 *Québec Research and Innovation Strategy* stipulates that, because of the strong international competition, the firms from all sectors – the main engine of innovation – have no other choice but to increase their innovation capacity and their productivity. The growing complexity of innovation now requires that they integrate their innovation strategy into their business strategy.

The market's fast evolution stresses the important role of each one of the actors of innovation and appeals directly to the academic community. In this regard, reinforcing the networks, accompanying the firms and supporting the collaboration between the actors of innovation are challenges that we face every day. The Office of Research Chairs mobilized to secure the commitment of all actors in an active networking of researchers and creators from both the University and the businesses. To help implement this strategy, the Office set up an external consultation forum (Force-Laval), that makes possible for the firms and the governmental agencies to work together toward innovative research and creation.

This forum allows the partners to link their own research teams with Université Laval's researchers and creators. Through the forum, each partner is invited to take part in seminars, meet the University personnel involved in research and innovation development in order to make connections and appreciate the discoveries being made here. It provides an opportunity to see how the research chairs can stimulate innovation in firms, but also to discuss the priorities of innovation policy and discover several of the region's poles of excellence structured around projects planned by the research chairs. By supporting

the joining of the forces of academic and entrepreneurial sectors in matters of fundamental, applied and clinical research, the Force-Laval forum offers a unique showcase of the achievements made possible by the PAIR program, which pushes innovation and advanced technologies in all fields of research and innovation. From this building up of a mutual trust will emerge still stronger networks that will help ensure the well-being of the collectivity and the sustainability of development.

Strategic action

The Office of Research Chairs is the main element in the strategy deployed to implement Université Laval's *Research Development Plan*. This plan provides guidelines for the strategic investments to be made according to institutional priorities, account being also taken of the orientations and lines of development of the regional authorities. The coming years will be mostly characterized by the implementation of the new *Research Development Plan 2010-2014*.

Université Laval wants to go a step further in the structuring of its research activities. During the next five years, it will confirm the priority of certain research projects according to transversal strategic orientations, indistinctly applied to all disciplinary fields. These orientations are the following three: interdisciplinarity, collaboration and partnership, and the international dimension. Let's see what we are talking about here.

Interdisciplinarity

When specialists of various disciplines independently study the same research object, then share their conclusions, each one of them revealing different aspects of the said object, this is called multidisciplinary (or pluridisciplinarity). Interdisciplinarity requires going a step further: there ought to be interactions and mutual enrichment between these specialists, which entails an interpenetration of their knowledge and methods. Interdisciplinarity is, above all, the search for a collective expertise shared by a group of persons possessing together all the competencies necessary to tackle a complex problem – one that could be called a multifaceted scientific question.

Collaboration and partnership

Collaboration and partnership are the leitmotifs of contemporary research. More than in any other Québec university, partnership is a priority at Université Laval; the institution supports organizations, be they private or public, in order to contribute to their development, or to the solution of certain problems. A very telling indicator of this particular approach, this very real anchoring in society, is the fact that 25.6% of its research revenues come from non-governmental partners, compared to an average of 13.6% for the other Québec universities .

International dimension

As is the case with interdisciplinarity, collaboration and partnership, the international dimension has become a fundamental fact of academic life. A few examples: Université Laval has signed 570 partnership agreements with universities from 65 countries. It hosts some 4,000 foreign students from 110 countries and its alumni have formed associations in 27 countries. In the other direction, more than 800 of its students train or study abroad each year and 13% of its graduates have studied or trained abroad.

These three strategic orientations are the main elements of what could be called a new paradigm of research. When significant progress is made, when technological breakthroughs are achieved, it is very often in an interdisciplinary, collaborative and partnership context where the international dimension is also present. The frontiers – between disciplines, institutions, or countries – do not disappear altogether, but lose part of their limitative and constraining character. The central notion here is that of openness.

The establishment of a research and innovation chair is but a materialization of this new research paradigm. It calls for the contributions of numerous actors from various disciplinary horizons to find novel solutions to complex problems. It also requires a constant collaboration and partnership. The results from the activities of a research chair reach farther than the local issues. Be it technological, organizational, or social, innovation is the main instrument for improving the quality of life in our

collectivities. The research chairs listed in this report are an indication of the vast innovation project undertaken by Université Laval and its partners.

In today's mutating world, innovation and adaptation are the keys to success. With globalization, the frontiers separating innovation systems at the local, national and international levels are blurring. The innovation challenge is actually a human capital challenge in a world market ever more competitive: we need more high-level researchers, dynamic and ambitious entrepreneurs, an innovative and qualified workforce. Granted, the missions of the university remain what they were: research, initial education and permanent training, service to the collectivity and cooperation. But they must now answer the needs of the other actors of our collectivities.

Each one of our research chairs contributes to the structuring of the research enterprise. The Office of Research Chairs will strive to ensure conditions conducive to an effective knowledge transfer and to the planning of roadmaps for the development of research in the strategic domains shared by Université Laval and its partners. Together, we will pave the way to prosperity, thanks to the innovation produced by the research and innovation chairs – these chairs that make Université Laval a unique crossroads for establishing fruitful partnerships.

¹ Association canadienne du personnel administratif universitaire, *Information financière des universités et collèges 2007-2008 (Pour l'exercice financier terminé en 2008)*

Research and innovation chairs

GLOBAL LISTING

 Research and innovation chair whose activities are connected to Université Laval's *Politique institutionnelle de développement durable*. www.developpementdurable.ulaval.ca

CANADA EXCELLENCE RESEARCH CHAIRS	
Chairholder	Chair title
 BABIN, Marcel	Canada Excellence Research Chair in Remote Sensing of Canada's New Arctic Frontier
 MESSADDEQ, Younès	Canada Excellence Research Chair in Enabling Photonic Innovations for Information and Communication

CANADA RESEARCH CHAIRS	
AUDET, René	Canada Research Chair in Contemporary Literature
BEAULIEU, Jean Martin	Canada Research Chair in Molecular Psychiatry
 BÉLANGER, Richard	Canada Research Chair in Phytoprotection
 BERNATCHEZ, Louis	Canada Research Chair in Genetic Conservation of Aquatic Resources
BISANSWA, Justin K.	Canada Research Chair in African Literature and Francophonie
 BOIRAL, Olivier	Canada Research Chair in Sustainable Development Management Standards
BOIVIN, Guy	Canada Research Chair on New Viruses and Antiviral Resistance
 BOIVIN, Michel	Canada Research Chair on Children's Social Development
BONNET, Sébastien	Canada Research Chair in Vascular Biology
 BOUSQUET, Jean	Canada Research Chair in Forest and Environmental Genomics
BRISSON, Marc	Canada Research Chair in Mathematical Modeling and Health Economics of Infectious Diseases
CAMPANA, Aurélie	Canada Research Chair in Identity Conflicts and Terrorism
CHIN, See Leang	Canada Research Chair in Ultrafast and Intense Laser Science
CIANFLONE, Katherine	Canada Research Chair on Adipose Tissue
CORBEIL, Jacques	Canada Research Chair in Medical Genomics
CÔTÉ, Daniel	Canada Research Chair in Biophotonics
CÔTÉ, Jacques	Canada Research Chair in Chromatin Biology and Molecular Epigenetics
CUMMING, Steven G.	Canada Research Chair in Boreal Ecosystems Modelling
 D'AMOURS, Sophie	Canada Research Chair in Planning Sustainable Forest Value Networks
 DESBIENS, Caroline	Canada Research Chair in Historical Geography of the North
DRISSEN, Laurent	Canada Research Chair on Massive Stars and Hyperspectral Imaging
 DUHAIME, Gérard	Canada Research Chair in Comparative Aboriginal Conditions
EDWARDS, Geoffrey	Canada Research Chair in Cognitive Geomatics
FECTEAU, Shirley	Canada Research Chair in Human Cognition, Decision-Making and Brain Plasticity
 FORTIER, Louis	Canada Research Chair on the Response of Arctic Marine Ecosystems to Climate Change
 FORTIN, Bernard	Canada Research Chair in Social Policy and Human Resource Economics
GAUTHIER, Clermont	Canada Research Chair in the Study of Teacher Training
GERMAIN, Lucie	Canada Research Chair in Stem Cell and Tissue Engineering
 GODIN, Gaston	Canada Research Chair on Behaviour and Health
GOSSELIN, Clément	Canada Research Chair in Robotics and Mechatronics

Research Chair

ON AIR TRANSPORTATION

Chairholder: Denis Bolduc, Professor, Faculty of Social Sciences

Québec City Jean Lesage International Airport is a proud contributor to the activities of the Research Chair on Air Transportation, notably with a commitment of one million dollars over five years. As we anticipate exponential growth, the works of Prof. Denis Bolduc and his team will enable us to gather a wealth of data that will prove essential for the planning and development of our organization, and that will let us look at the future with confidence, rigor and optimism.

Moreover, thanks to the establishment of the Research Chair on Air Transportation, dynamic and competent human resources will ensure the permanence of our airport and will help consolidate our socio-economic leadership.

Gaëtan Gagné, LLIF, C. Dir. ASC

President and Chief Executive Officer, Québec City Jean Lesage International Airport



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1st row (from left to right):

Mr. Gaëtan Gagné, President and Chief Executive Officer, Québec City Jean Lesage International Airport

Mr. Denis Bolduc, Holder, Research Chair on Air Transportation, Université Laval

Mr. Denis Brière, Rector

Mr. Guy Vachon, Chairman of the Board of Directors, Québec City Jean Lesage International Airport

2nd row:

Mr. François Sauvé, Director, Office of Research Chairs

Mr. Edwin Bourget, Vice President for Research and Innovation

Mr. François Blais, Dean, Faculty of Social Sciences

Mr. François Bilodeau, Vice President, Finance and Administration, Québec City Jean Lesage International Airport

CANADA RESEARCH CHAIRS (CONTINUATION)		
	GUAY, Frédéric	Canada Research Chair in Motivation and Academic Success
	GUILLEMETTE, Chantal	Canada Research Chair in Pharmacogenomics
	HALLEY, Paule	Canada Research Chair in Environmental Law
	ISENRING, Paul	Canada Research Chair on the Molecular Physiology of Cation-chloride Co-transporters
	JOERIN, Florent	Canada Research Chair in Territorial Decision Making
	JULIEN, Jean-Pierre	Canada Research Chair in Neurodegeneration
	KINKEAD, Richard	Canada Research Chair in Respiratory Neurobiology
	LAMARCHE, Benoît	Canada Research Chair in Nutrition, Functional Foods and Cardiovascular Health
	LANDRY, Jacques	Canada Research Chair in Cellular Stress-Signal Transduction
	LARACHI, Faical	Canada Research Chair on Sustainable Energy Processes and Materials
	LAROCHELLE, Sophie	Canada Research Chair in Communications and Optical Fibre Components
	LARUE, Bruno	Canada Research Chair in International Agrifood Trade
	LECLERC, Mario	Canada Research Chair in Electroactive and Photoactive Polymers
	LÉGARÉ, France	Canada Research Chair in Implementation of Shared Decision Making in Primary Care
	LEMAN-LANGLAIS, Stéphane	Canada Research Chair in Surveillance and the Social Construction of Risk

CANADA RESEARCH CHAIRS (CONTINUATION)

	LÉTOURNEAU, Jocelyn	Canada Research Chair in Contemporary Political History and Economy in Quebec
	LEVASSEUR, Maurice	Canada Research Chair in Plankton-Climate Interaction
	MALDAGUE, Xavier	Canada Research Chair in Multipolar Infrared Vision
	MARCHAND, Jacques	Canada Research Chair on Predicting Useful Life of Concrete Infrastructures
	MARTEL, Hugo	Canada Research Chair in Theoretical and Numerical Cosmology
	MARTIN, Tania	Canada Research Chair on Built Religious Heritage
	MAZIADE, Michel	Canada Research Chair in the Genetics of Neuropsychiatric Disorders
	MCINTIRE, Eliot	Canada Research Chair in the Biology of Conservation
	MOLSON, John	Canada Research Chair in Quantitative Hydrogeology of Fractured Porous Media
	MONTREUIL, Benoit	Canada Research Chair in Business Engineering: Manufacturing Network Design and Management and Logistics
	MORIN, Charles M.	Canada Research Chair on Sleeping Disorders
	NOURANI, Amine	Canada Research Chair on Genetic Transcriptional Regulation Mechanisms
	OUELLETTE, Marc	Canada Research Chair in Antimicrobial Resistance
	PAQUIN, Jean-François	Canada Research Chair in Organic and Medicinal Chemistry
	PIBAROT, Philippe	Canada Research Chair in Valvular Heart Diseases
	POIRIER, Guy	Canada Research Chair in Proteomics
	RANSFORD, Thomas Joseph	Canada Research Chair in Spectral Theory
	RIVEST, Louis-Paul	Canada Research Chair in Statistical Sampling and Data Analysis
	RIVEST, Serge	Canada Research Chair in Neuroimmunology
	ROY, Denis	Canada Research Chair in Lactic Culture Biotechnology for Dairy and Probiotic Industries
	SAGHATELYAN, Armen	Canada Research Chair on Postnatal Neurogenesis
	SIMARD, Jacques	Canada Research Chair in Oncogenetics
	SIRARD, Marc-André	Canada Research Chair in Animal Reproductive Applied Functional Genomics
	ST-ARNAUD, Louise	Canada Research Chair on Occupational Integration and the Psychosocial Environment of Work
	SUBIRADE, Muriel	Canada Research Chair in Protein, Biosystem and Functional Food Physical Chemistry
	TREMBLAY, Angelo	Canada Research Chair in Physical Activity, Nutrition and Energy Balance
	TREMBLAY, Michel J.	Canada Research Chair in Human Immunetrovirology
	TURGEON, Laurier	Canada Research Chair in Heritage
	VANROLLEGHEM, Peter	Canada Research Chair in the Modelling of Water Quality
	VIGER, Robert	Canada Research Chair in Reproduction and Sex Development
	VINCENT, Warwick F.	Canada Research Chair in Aquatic Ecosystem Studies
	VOHL, Marie-Claude	Canada Research Chair in Genomics Applied to Nutrition and Health

Canada Research Chair

IN GENOMICS APPLIED TO NUTRITION AND HEALTH



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**Chairholder: Marie-Claude Vohl, Professor,
Faculty of Agriculture and Food Sciences**

This financing will enable my team and I to reach different research goals in the field of nutrigenomics, the science that studies how genes and nutritional factors interact in order to modulate the risk of chronic diseases. Before we received the good news of the granting of this chair, we spent many hours preparing the application, revise the documents, etc.

During this whole period, I could count on the very dynamic and professional help of the Office of Research Chairs. This support is still available, and will be for the seven-year term of this chair. Many thanks for this precious and facilitating accompaniment available to the chairholders. It makes easier for us to concentrate on our research program.

NSERC INDUSTRIAL RESEARCH CHAIRS

	BÉDARD, Yvan	NSERC Industrial Research Chair in Geospatial Databases for Decision Support
	CHOUNARD, Yvan	NSERC-Valacta-DFC-FPLQ-MAPAQ-Valacta Industrial Research Chair on Nutritional Control of the Production of Milk Components in Dairy Cows
	CÔTÉ, Steeve	NSERC-Produits forestiers Anticosti Industrial Research Chair in Integrated Management of Anticosti Island Biological Forest Resources
	D'AMOURS, Sophie	NSERC Industrial Research Chair in Collaborative Integration and Synchronization of the Forest Products Supply Chain
	DORÉ, Guy	NSERC Industrial Research Chair in Heavy Load, Weather and Pavement Interaction (i3C)
	FAFARD, Mario	NSERC-Alcoa Industrial Research Chair Modelling of Aluminium Cells and Electrical Energy Efficiency (MACE3)
	FORTIN, André	NSERC Research Chair in High Performance Scientific Computing
	GHAZZALI, Nadia	NSERC Chair for Women in Science and Engineering in Quebec
	KONRAD, Jean-Marie	NSERC-Hydro-Québec Industrial Research Chair in Life Cycle Optimisation for Embankment Dams
	MARCHAND, Jacques	NSERC Industrial Chair on Durable Repair and Optimized Maintenance of Concrete Infrastructures
	PAYETTE, Serge	NSERC Northern Research Chair on Disturbance Ecology
	POTHIER, David	NSERC-Université Laval Industrial Research Chair in Boreal Forest Silviculture and Wildlife
	ROCHFORT, Line	NSERC Industrial Research Chair on Peatland Management
	ROY, Denis	NSERC-Dairy Sector Industrial Research Chair in Cheese Technology and Typicity
	THIBAUT, Simon	NSERC Industrial Research Chair in Optical Design

CIHR RESEARCH CHAIRS

	LANDRY, Réjean	CHSRF/CIHR Research Chair on Knowledge Transfer and Innovation
	MALTAIS, François	GSK/CIHR Research Chair on Chronic Inflammatory Diseases of the Airways
	MARETTE, André	Pfizer Canada/CIHR Research Chair in the Pathogenesis of Insulin Resistance and Cardiovascular Diseases
	RICHARD, Denis	Merck Frosst/CIHR Research Chair in Obesity

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	ANCTIL, François	EDS Research Chair in Hydrological Forecasts and Actions
	AUBIN, Michèle	Université Laval Chair in Palliative Care
	BEAULIEU, Marie-Claude	Royal Bank of Canada Chair in Financial Innovation
	BERNIER, Gilles	Industrial-Alliance Chair in Insurance and Financial Services
	BOLDUC, Denis	Research Chair on Air Transportation
	BOULET, Louis-Philippe	Chair in Knowledge Transfer, Education and Prevention in Respiratory and Cardiovascular Health
	BUJOLD, Emmanuel	Jeanne-et-Jean-Louis-Levesque Chair in Perinatology
	Chairholder to be appointed	Université Laval-CHA Hôtel-Dieu de Lévis Research Chair in Emergency Medicine
	Chairholder to be appointed	Research Chair in Bariatric and Metabolic Surgery
	DE KONINCK, Thomas	Chair "Philosophy in Today's World"
	Dean, Faculty of medicine	Bertrand-Fradet Chair in Cardiology
		J.-D. Bégin Foundation Chair in Pneumology
	DEBAILLEUL, Guy	Chair in International Development
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	DOUCET, Laval	Multifaculty Chair in Research and Development for Gaspésie and Îles-de-la-Madeleine
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	FLEURY, Jean-Marc	Bell Globemedia Chair in Science Journalism
	GASSE, Yvon	Chair in Entrepreneurship and Innovation
	GOSELIN, Maurice	Investors Group Chair in Financial Planning
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	MATHIEU, Jacques	Chaire pour le développement de la recherche sur la culture d'expression française en Amérique du Nord (CEFAN)
	MAZIADE, Michel	Chair in Psychiatry
	MOISAN, Jocelyne	Chair on Adherence to Treatments
	MONTREUIL, Sylvie	Chair in Occupational Health and Safety Management
	PAQUIN, Paul	Lassonde Chair on Nutrition and Health
	PARENT, Claudine	Chaire Richelieu de recherche sur la jeunesse, l'enfance et la famille
	PELCHAT, Marc	Bishop Laval Research Chair in Theology
	RICHARDS, Carol L.	Research Chair in Cerebral Palsy
	SU, Zhan	Stephen A. Jarislowsky Chair in International Business Management
	TWEDDELL, Russell J.	W.-H. Perron Chair in Ornamental Horticulture
	VERREAULT, René	Chair in Geriatric Medicine

NSERC-Alcoa Industrial Research Chair

MODELLING OF ALUMINIUM CELLS AND ELECTRICAL ENERGY EFFICIENCY (MACE3)

Chairholder: Mario Fafard, Professor, Faculty of Science and Engineering

We are proud to be associated with the establishment of this chair, which is well attuned to an industry whose future depends more than ever before on innovation. This chair is ample proof of the fact that the province of Québec is one of the crossroads of the aluminum industry in the world, and supports Alcoa's philosophy in matters of sustainable development and energy efficiency. Thanks to the works of Mr. Fafard, whose expertise is recognized by all, and his team, we will reach new milestones in the already rich history of aluminum in this country, for the benefit of future generations.

Pierre Morin, President, Alcoa Canada



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From left to right:

Mr. François Sauvé, Assistant to the Vice President and Director, Office of Research Chairs, Vice-Rectorate for Research and Innovation

Mr. Denis Brière, Rector, Université Laval

Mr. Pierre Morin, President, Alcoa Canada

Mr. Mario Fafard, Chairholder

Mr. Houshang Darvishi Alamdari, Professor

Ms. Suzanne Fortier, President, National Science and Engineering Research Council (NSERC)

Mr. Moustapha Mbaye, Vice President for Technology, Innovation and Center of Excellence, Global Primary Products group, Alcoa Canada

Mr. Guy Gendron, Dean, Faculty of Science and Engineering



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Mr. Mario Fafard, Mr. Houshang Darvishi Alamdari and the many students of the chair.

