

# Foresight through Knowledge

$$\frac{W}{W_0} = \exp\left[-\frac{k}{\beta^2} R^2 T^2 \text{Ln}^2\left(\frac{P^0}{P}\right)\right]$$



2009 ACTIVITY REPORT



# Declaration of Data Reliability

As president and CEO of the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST), I am responsible for the information contained in this activity report. I hereby attest to its accuracy and the reliability of the controls carried out.

Recommended by the IRSST's Scientific Advisory Board and approved by its Board of Directors, this 2009 activity report faithfully describes the Institute's mission, vision, and main achievements. It presents the indicators used to assess production and provides accurate and reliable data on the results obtained.

I therefore declare that I have every reason to believe that the observable facts and measurable data presented in this activity report correspond to the situation as at December 31, 2009.



Marie Larue  
President and CEO  
IRSST

# Table of Contents

2	Message from the <b>President</b> and <b>CEO</b>
4	<b>2009</b> in Numbers
6	Quality <b>Knowledge</b>
7	Reality-Based <b>Knowledge</b>
8	<b>Knowledge</b> Watch
9	Generating <b>Knowledge</b>
	The Most Frequently Downloaded <b>2009</b> Publications
10	<b>Knowledge</b> by Research Field
13	<b>Knowledge</b> as a Driving Force
14	Interdisciplinary <b>Expertise</b>
Insert	<b>Knowledge</b> Gains by the Month
15	<b>Knowledge</b> Translation
16	<b>Knowledge</b> Partnerships
17	Laboratory <b>Expertise</b>
18	Disseminating <b>Knowledge</b>
19	Human Resources (HR): A Font of <b>Knowledge</b>
20	Financing <b>Knowledge</b>
21	Organizational Chart
22	Committees
23	List of <b>2009</b> Publications

$$\frac{W}{W_0} = \exp\left[-\frac{k}{\beta^2} R^2 T^2 L n^2 \left(\frac{P^0}{P}\right)\right]$$



Knowledge encompasses all the facts and information developed by scientists on the basis of rigorous processes. The personnel of the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST) form part of this science brigade. Knowledge also involves the ability to grasp what the future holds in store for us. In 2009, this concern was a driving force for the occupational health and safety research community around the globe. What challenges will the working world be facing? What will the next decade look like in terms of risk prevention? These and many other questions were raised by the heads of some ten OHS research institutes and centres (of which the IRSST was one) who gathered together to exchange ideas and information on emerging and recurring problems.



# Message from the President and CEO

## The Face of Tomorrow Here

In Québec, demographic indicators, employment injury statistics, socio-economic changes, and data on the work environment are all used to define scenarios that foreshadow some of the transformations likely to be witnessed in the workplace in the years ahead.

First, demographic forecasts indicate that the aging of the workforce could intensify faster in Québec than elsewhere in Canada. This raises a number of issues, and points to possible research avenues, while confirming the timeliness of the research projects defined by the Institute in its Work Context and OHS field. Not only is the workforce aging, but its composition is diversifying with the increasing numbers of migrant and immigrant workers. Their growing presence could have an impact on OHS training needs.

Looking ahead, the preservation of workers' mental health will occupy a bigger place than ever on the agenda of the working world. Mental health injuries are becoming a major concern for both public and private insurers, which see them as one of the leading causes of disability. The mental health issue in no

way overshadows the other prevention challenges, such as primary prevention of occupational cancers, the specific needs of small and medium-sized enterprises (SMEs) in the area of OHS management, or the integration of comprehensive prevention strategies as opposed to resorting to "risk-by-risk" or "case-by-case" approaches.

The IRSST's laboratories will have to be constantly poised to respond to their clients' new needs, while continuing to offer the prevention-inspection network the analysis and expertise services it requires.

Furthermore, although three out of every four workers in Québec are employed in the service sector, the physical constraints of work persist. These constraints have a clear impact on musculoskeletal disorders (MSDs), which are costly in both human and financial terms. Despite all the headway being made through research, energy must still be focused on the etiology of MSDs, workplace interventions, the follow-up of affected workers, and their occupational rehabilitation.



## Attuned to Our Partners

In keeping with its mission, the IRSST contributes, through research, to both occupational injury prevention and worker rehabilitation. However, research alone is not a panacea for all ills. In order for knowledge to be translated into concrete results and applied in the workplace, the partners who act as intermediaries must assimilate this new knowledge, which was developed with their input and ultimately for their use.

To promote worker and employer involvement, the IRSST calls upon follow-up committees comprising members from workplaces, the prevention-inspection network, employer associations, labour organizations, and professional associations. These committees are active during all phases of the research cycle, including that of knowledge transfer. The Institute is equally rigorous with regard to the quality of the research projects and the results obtained, and therefore submits all results to peer review.

Being attuned to our partners by giving them the opportunity to express their needs and opinions during projects is the surest guarantee that our projects will truly address their needs. The IRSST thus seeks to maximize the likelihood that the results will be put to use and positively influence the occupational injury toll. The IRSST has been conducting and funding research for nearly 30 years to ensure that this knowledge contributes to the prevention of occupational accidents, injuries, and diseases.

That is our mission, and judging from the evidence, we are right on track.

A handwritten signature in black ink, which appears to read "Marie Larue". The signature is fluid and cursive.

Marie Larue



2009

# in Numbers

## Research

- 175 projects and activities were active<sup>1</sup>
  - 45 projects began (20 joint, 16 external, 9 internal)
  - 39 projects were completed
  - 91 projects were in progress
- 51 projects were being developed
- 138 partner organizations in the network were involved in active projects
- 109 new requests for expertise were received
- 64 committees included at least one IRSST representative
  - 21 committees of the CSST and its network, including regulatory committees
  - 16 national and international standards committees
  - 27 other local, national, and international committees
- 48 scholarships were awarded, for a total of \$434,525

## Dissemination

- 49 publications, including
  - 34 research reports, technical fact sheets, and guides published by the IRSST
  - 8 technical fact sheets and guides published in collaboration with partners
  - 7 laboratory methods
- 156 scientific publications (peer-reviewed) related to projects carried out or funded by the IRSST:
  - 63 journal articles
  - 83 articles published in conference proceedings
  - 10 other publications, such as book chapters, master's theses, and doctoral dissertations
- 62 other presentations given by IRSST personnel or IRSST-funded researchers at scientific conferences or events organized by partners
- 22 popularized articles in *Prévention au travail*, the magazine published by the CSST and IRSST

<sup>1</sup> Summaries of all the projects funded or carried out by the IRSST and a complete list of all scholarship recipients are available on its Web site at [www.irsst.qc.ca](http://www.irsst.qc.ca).

5,047

publications distributed in response to requests

397,102

downloads of research reports from the IRSST's Web site

957,218

visits to the Institute's Web site

16,540

subscribers periodically received news regarding the IRSST's laboratory activities, new research projects, and the latest publications, via the electronic newsletter *Info IRSST*, prepared by the Communications Division.

61,343

environmental, toxicological, and microbiological analyses were performed, 81% of which were for our partners in the prevention-inspection network: the CSST, local health and social services network development agencies, and joint sector-based associations

8,233

hours were devoted to the calibration, maintenance, and repair of direct-reading and sampling instruments, with 82% of these hours dedicated to the prevention-inspection network; this 15% increase in the total number of hours compared to 2008 is mainly attributable to the implementation of new ISO-prescribed sampling methods

## Laboratory Services and Expertise



One of the fundamental requirements of the scientific research process is that projects and their results must be submitted to peer review. Though demanding, peer review is also essential because it provides assurance of the quality of the results on which OHS professionals base their prevention and rehabilitation efforts. The IRSST's projects too are subject to this requirement.



Ginette Denicourt  
and Marc Baril,  
Scientific Advisors,  
IRSST.

# Quality KNOWLEDGE

Evaluation is one of the responsibilities that falls under the Strategic Watch and Quality Management Department, which meets this responsibility through the rigorous application of scientific criteria and taking into account the many schools of disciplinary thought. The process is long and involves several steps. The Department therefore analyzes the documents pertaining to all projects submitted for evaluation during the year; recruits qualified reviewers; studies and forwards the evaluations to the authors; examines the authors' responses to the reviewers' comments and analyzes the revised document; and prepares a synopsis used by the Scientific Advisory Board as the basis for recommending the project's continuation or not, or for recommending the publication of a final report.

In 2009, some 60 reviewers, usually three per project, assessed the protocols for new IRSST research projects prior to start-up. The same number of reviewers was required to ascertain the quality of the project results before the Institute authorized their publication.

The IRSST is generally supported by over 130 reviewers from around the world, with half coming from Europe, slightly over one-third from Québec, 15% from the rest of Canada, and the remainder from a number of other countries.







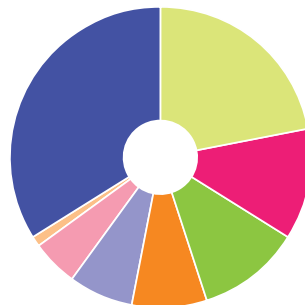
It is not only the quality of the projects and results that is important. They must also meet partners' needs and reflect workplace realities. To ensure a good fit between needs and the scope of the research projects, the IRSST forms follow-up committees even before the projects begin.

# Reality-Based Knowledge

## Ensuring Usefulness

Comprising researchers, OHS professionals, and representatives of workplaces and professional associations, the follow-up committees are charged first with ensuring the relevance of carrying out a given research project, validating workplaces' interest in participating, and identifying which workplaces are most likely to benefit from the results. The committee members then support the researchers throughout the project. Not only do they assist the scientists in solving problems that can arise in the field, but they also ensure that the results obtained are useful and usable, and help the workplaces concerned assimilate the results. In addition, committee members may participate in the evaluation of concrete OHS spin-offs derived from the results.

The data compiled by the Knowledge Transfer and Partner Relations Department indicate that three-quarters of the active projects in 2009 had a follow-up committee made up of individuals with field or scientific expertise. In other words, nearly 300 people with field or scientific expertise from 138 organizations sat on these committees. This practice, which is specific to the IRSST, facilitates research projects, guarantees project relevance, and promotes knowledge transfer and partner relations with the workplace community.



### 138 organizations involved in the follow-up committees

- 34% Public organizations – mainly ministries, sector-based committees, health services, educational establishments
- 22% Private enterprises
- 12% OHS professionals
- 11% Labour organizations
- 8% Universities and research centres
- 7% Employer associations
- 5% Professional orders and associations
- 1% IRSST

Among the highlights of 2009, the IRSST made the scientific information documented by its Strategic Watch and Quality Management Department accessible in blog form. Culled through the daily monitoring of over 650 OHS-related Web pages and of the information collected by its personnel, the blog content is selected on the basis of the scientific interest and pertinence of the information it provides.



## KNOWLEDGE Watch

The information, which is classified under nine themes covering the IRSST's seven fields of research, statistics, and OHS in general, is useful to both the scientific community and workplace stakeholders. Web surfers can sign up to receive e-mail alerts regarding one or more themes, subscribe to RSS feeds, or submit comments for inclusion on the site. It is one of few OHS blogs posting material that has been published in either French or English.

### Knowledge Mapping

In 2009, the Occupational Rehabilitation research field carried out its own mapping process to highlight "who was doing what" in this area. This mapping provided an overview of rehabilitation research in nine leading research centres around the world. It involved documenting over 200 research projects carried out between 2002 and 2008, for the purpose of determining the importance of occupational rehabilitation work for each institute and the type of research underway.

The first observation made was that Canada invests more in research on this theme than do other countries. The IRSST alone conducts approximately 20% of the projects carried out by these research centres. Moreover, nearly half of the 200 projects documented focus on musculoskeletal disorders (MSDs), but few studies deal with the lower limbs, specifically, the knee, as an injury site responsible for disability. This mapping of research in the occupational rehabilitation field revealed that the work focuses mainly on the determinants of long-term disability.

The Strategic Watch and Quality Management Department produced situational assessments of several topics of interest:

- road accidents;
- OHS integration into design processes;
- manual load handling and MSDs;
- wood dust;
- silica;
- intervention methods for cases involving low back pain and cervicodynia (neck pain) in the return-to-work context.

$$|\hat{p}(M)|^2 = \frac{|\hat{A}|^2}{16\pi^2 r^2} + \sum_{i=1}^N |\hat{r}_i|^2 \frac{|\hat{A}|^2}{16\pi^2 r_i^2} + \Theta_{N+1}$$



Every year, the IRSST develops new projects and activities, while completing others that culminate in the publication of reports, guides, technical fact sheets, and analytical methods.

## Generating Knowledge

Work was initiated on 45 new projects during 2009. These projects and publications, which are the output of IRSST personnel, funded researchers, and collaborative teams of internal and external scientific personnel, are essentially divided up into the IRSST's seven priority research fields. Thematic programs are also designed by the research field personnel. One such program focusing on occupational asthma was added to the 30 or so existing programs, while two other new programs were being developed on bioaerosols and MSDs associated with office automation.

### The Most Frequently Downloaded 2009 Publications

*Best Practices Guide to Synthetic Nanoparticle Risk Management*, **Claude Ostiguy** et al.

*Guide pour une démarche stratégique de prévention des problèmes de santé psychologique au travail*, Jean-Pierre Brun et al. (in French only)

*Donner un sens au travail – Promouvoir le bien-être psychologique*, Estelle M. Morin et coll. (in French only)

*Maux de dos – Évaluation de la spécificité de différents exercices d'endurance des muscles para-vertébraux*, **Christian Larivière** et al. (in French only)

*Substances chimiques et effets sur l'audition – Revue de littérature*, Adolf Vyskocil et al. (in French only)

*Chariots élévateurs – Étude ergonomique et analyse des stratégies de conduite des caristes*, Steve Vezeau et al. (in French only)

*Relation entre la teneur en amiante dans les matériaux et la concentration de fibres dans l'air ambiant lors de travaux de démantèlement*, André Dufresne et al. (in French only)

*Comparaison de deux modèles biomécaniques articulaires dans l'évaluation du chargement lombaire*, **André Plamondon** et al. (in French only)

*Verifying the content of lockout programs*, **Damien Burlet-Vienney** et al.

*Développement d'un outil d'aide à la conception acoustique d'encoffrements de machines*, **Franck Sgard** et al. (in French only)

In addition to ongoing projects, approximately 40 new projects were approved in 2009.

# Knowledge by Research Field



## Noise and Vibration

1. Evaluation of the whole-body vibration exposure of soil compactor operators
2. Evaluation of the apparent mass of human subjects in a sitting position on actual seats
3. Infrastructures in acoustics
4. Development of a system for acoustical interference mapping and transfer to the workplace
5. Development of tools and methods for better evaluating and improving workers' personal hearing protection
6. Evaluation of broadband backup alarms

## Protective Equipment

1. Optimization of the tool for calculating the service life of organic vapour respirator cartridges

## Occupational Rehabilitation

1. REPAR-IRSST Program: Evaluation of the effects of a postural training program on the neck-shoulder biomechanics of a group of MSD professionals
2. REPAR-IRSST Program: Evaluation of the intra- and inter-evaluator reliability of ultrasound measurements of the deep muscles of the trunk in healthy and chronic low back pain subjects
3. The factors affecting the return to work of people suffering from depression: union representatives' component
4. Biomechanical assessment of lumbar stability determinants: an exploratory study
5. Pain and work status: a retrospective cohort study
6. Development of radiological indices for predicting the chronicity of work-related shoulder problems
7. Development of a guide for evaluating the margin of manoeuvre in a work situation for clients with prolonged disability of a musculoskeletal origin
8. Pilot project for the development of a sentinel process allowing for a shift from an individual-based rehabilitation approach to an organizational approach to preventing mental health problems in the workplace
9. Analysis of a post-traumatic intervention protocol and of management measures associated with the Centre jeunesse de Montréal-Institut universitaire



## Musculoskeletal Disorders

1. Review of knowledge on the design, use, evaluation and impacts of guides, and organization of a database on the main OHS guides
2. Analysis of the handling activities of a population of day workers in a large municipality: diagnostic step and validation of an analytical grid of the handling contexts
3. Integration of a sustainable MSD prevention culture in a large manufacturing company: step 1, systemic portrait of the company
4. Handling and women: from a biomechanical and ergonomic perspective
5. Development of an ambulatory method for estimating back loading: integration of back kinetics and surface electromyography

## Special Projects

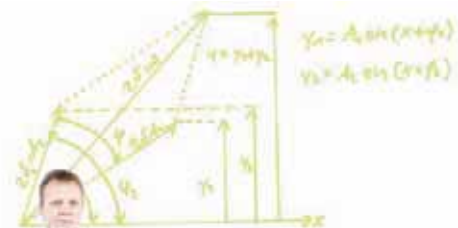
1. The costs of occupational injuries: a literature review
2. Indicators of compensated occupational injuries: analysis by industry and occupational category, Québec, 2005–2007
3. Mental health among teachers

## Work Context and OHS

1. Project on the teaching and integration of workplace health and safety situation management knowledge: development of case studies
2. Work-related road accidents in Québec, 2000–2006
3. Conditions for the safe and effective integration of young workers into the mining sector

## Safety of Industrial Tools, Machines, and Processes

1. Occupational health and safety risks, recommendations for preventive strategies for involved workers and companies in the wind energy sector
2. Multi-agent systems for supporting heavy-crane operators using real-time construction site data



## Chemical Substances and Biological Agents

1. Development of expertise in metrology and in the generation of nanoparticles and ultrafine particles
2. Occupational exposures and reproductive functions of males: state of knowledge
3. Development of a generating chamber, a method for the metrology and measurement of the nanoparticle collection efficiency of filters
4. Development of a method for analyzing quartz in different matrices by X-ray diffraction
5. Development of a method for analyzing nitrosamines in the air by liquid chromatography coupled with mass spectrometry
6. Pulmonary toxicity of inhaled titanium dioxide nanoparticles: importance of the state of agglomeration of nanoparticles (pilot project)
7. Reevaluation of the reference values of biological exposure indicators in relation to the workload
8. Preliminary study on the promotion of data on the occupational exposure to chemical substances measured by the Québec public occupational health network teams
9. Characterization of dust exposure in the food industry
10. Is the absence of bronchial eosinophil a factor for a poor prognosis for occupational asthma?
11. The impact of adjacent buildings on the dispersion of emissions from buildings: a numerical (CFD) and experimental approach in a wind tunnel
12. Methods alternative and/or complementary to BeLPT
13. Development of a method for detecting Legionella pneumophila in liquid processes by means of the polymerization chain reaction
14. Evaluation of mycological biomass on surfaces of the aeraulic networks of ventilation systems
15. Evaluation of the role of archaeobacteria in pulmonary inflammation in farm workers
16. Management of the risks related to the transportation and storage of hazardous materials
17. Selective review of the literature (1995–2009) on the carcinogenicity of trichloroethylene (TCE)

Paul-Émile Boileau,  
scientific director  
and Esther Cloutier,  
researcher, IRSST



The sharing of knowledge is at the heart of the scientific activities organized by each of the research fields. Whether in the form of colloquia, workshops, work meetings specifically for IRSST researchers, or sessions that are open, upon invitation, to members of the scientific community and to professionals from the prevention-inspection network, these activities serve as a forum for exchanging knowledge on a given theme. In addition to promoting the pooling of expertise and networking, these scientific activities also provide an opportunity to identify new research needs.

## Knowledge as a Driving Force

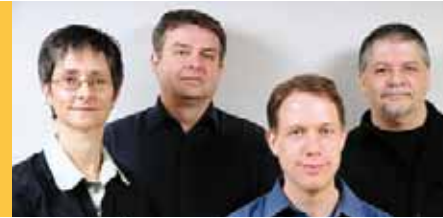
The following subjects were some of those broached in 2009:

- communication in a noisy environment;
- small enterprises and OHS;
- road accidents;
- the chemical resistance of gloves or protective equipment;
- occupational asthma;
- aging.

The theme of the aging workforce and OHS formed the backdrop to the Institute's annual colloquium, which was attended by 150 people in October. The various program lectures touched on the demographic analysis of aging over the past 25 years, future projections, occupational injury statistics by age group and gender, aging-related issues confronting the workplace, aging-related occupational rehabilitation, interdependence, aging, employment, and retirement in Canada.



The project involving the integrated design of a driver's cab for subway operators provides a perfect example of interdisciplinary research and collaboration between the research and workplace communities and designers.



The interdisciplinary research team associated with the project on the development of a prototype of a subway operator's seat: Sylvie Beaugrand, Jérôme Boutin, Pierre Marcotte and Christian Larue.

# Interdisciplinary Expertise

Obligated to work in very narrow cabs and to sit on rudimentary seats with no suspension, subway operators working for the Société de transport de Montréal (STM) are exposed to whole-body vibrations and constraining postures that can cause discomfort and musculoskeletal disorders. Researchers faced the challenge of coming up with a seat prototype that would attenuate these constraints and fit into the confined space available.

The complexity of the problem required the input of various ergonomics, vibration, and engineering specialists. Scientists connected with the Musculoskeletal Disorders and Noise and Vibration research fields worked in collaboration with a joint working group made up of a maintenance supervisor, rolling stock engineer, a head of operations, an OHS coordinator, and three subway operators. A specialized company was contracted by the STM to design a seat prototype according to the criteria defined by the working group.

Simulations in a life-size mock-up cab and on a vibration simulator, verifications in a real cab, and in-depth tests in real work situations involving some 30 subway operators led to the development and testing of a seat prototype. Greatly appreciated by the operators, the seat designed generated less discomfort, attenuated vibrations, offered improved body support, and allowed for postures to be adapted according to whether the train was being driven manually or on automatic pilot.

The positive results obtained from this participatory process encouraged the STM to form a joint ergonomics committee to closely monitor the design of the new generation of trains. In addition, inspired by the research work, one of the requirements in the STM's call for tenders was that a life-size mock-up of an operator's cab be developed and tested by many operators during the process to ensure that the design of the operators' work station took their occupational health and safety into account.



$$\alpha_{i,j} = \frac{\int_0^{\theta_{\max}} a_{i,j}(\theta) \sin \theta \cos \theta d\theta}{\pi \sin^2 \theta_{\max}}$$



# Knowledge Gains by the Month

$s = 2\sqrt{2hr - h^2}$   
 $\sin \alpha = \frac{q}{c}$   
 $\cos \alpha = \frac{b}{c}$   
 $\tan \alpha = \frac{a}{b}$   
 $b = p^2 - q^2$   
 $y = y_1 + y_2$   
 $y_1 = A_1 \sin(x + \phi_1)$   
 $y_2 = A_2 \sin(x + \phi_2)$   
 $\vec{a} = a\vec{u} + b\vec{v}$   
 $a = 2\sqrt{2hr - h^2}$   
 $c = \frac{2\pi r \phi}{360^\circ} \times 0.01747 \text{ rad}$   
 $\tan \phi = \frac{A_1 \sin \phi_1 + A_2 \sin \phi_2}{A_1 \cos \phi_1 + A_2 \cos \phi_2}$   
 $l = \frac{pb - a}{3}$   
 $l = \sqrt{a^2 + \frac{16}{3}h^3}$   
 $h = r - \sqrt{r^2 - \frac{a^2}{4}}$   
 $A_0 = \frac{a^2}{2}$   
 $s = \frac{a+b+c+d}{2}$   
 $SM = \frac{1}{4}h$   
 $V = \frac{1}{3}\pi r^2 h$   
 $A = \pi r^2$   
 $A_0 = \pi \frac{d}{2}$

# 2009

JANUARY

Some 60 researchers, partners from the social services network, professionals, and managers convened in Montréal to attend the official launch of the Work Context and Occupational Health and Safety (OHS) research field, which has adopted the slogan *Des approches globales pour une prévention durable* (comprehensive approaches for sustainable prevention).

Around 40 scientists attended the lecture on the theme of “open access: why and how we should self-archive our work,” organized by **Maura Tomi** from the Communications Division. The participants received a summary document explaining the genesis of this movement, which advocates universal, open, and free access to the articles published in scholarly journals. The guest speaker, Stevan Harnad, has been regarded as one of the main architects of the movement.



1

MARCH

As part of a collaborative research project, two IRSST researchers, **Franck Sgard** and **Hugues Nélisse**, and two professors from the Université du Québec's École de technologie supérieure (school of engineering) co-supervised three doctoral theses on hearing protectors. The main objective of this project was to develop modeling tools and measurement methods for improving and more effectively evaluating the acoustic performances of hearing protectors, while integrating a number of comfort-related features.

**Charles Gagné**, a knowledge transfer advisor at the IRSST, hosted a plenary meeting aimed at publicizing OHS succession management practices, at a symposium organized by the IRSST and the *Chaire en gestion de la santé et de la sécurité dans les organisations* (CGSST) of Laval University. While most of the participants came from the health and education sectors, some also came from private enterprises, union associations, joint sector-based associations, and the CSST.



3

The IRSST was pleased to welcome Dr. Mary Trainor, Head of Science at the Health & Safety Laboratory, and Dr. David Fishwick of the Sheffield Occupational and Environmental Lung Injury Centre, both in the United Kingdom. Their visit was part of a European and North American tour of OHS research centres belonging to the Sheffield Group. The parties involved took the occasion to explore the possibility of new partnership endeavours.



2



Developed by the IRSST, the Test Kit™ for pumps and batteries made its way into the United States where it was purchased by a leading laboratory. It was a technological transfer from the IRSST to SCL Medtech that led to the development of these test kits. This innovative product tests the reliability of workplace air-quality sampling pumps, allowing users to minimize the risk of wasting time and resources in the process.

Given that the usual risk assessment processes are inadequate for the task of quantifying exposure to nanoparticles, the IRSST and NanoQuébec selected four research projects in the area of metrology and exposure measurement following a joint call for proposals. The main criterion was that the projects promote the development of new strategies to ensure worker health and safety.

Paul-Émile Boileau, Claude Ostiguy and Chantal Dion representing the IRSST, participated in a Canadian government trade and scientific mission to Japan, at which the JNIOOSH (National Institute of Occupational Health and Safety, Japan) and the IRSST held a workshop on the health impacts of nanoparticles.

The heads of the Réseau d'échanges sur la manutention, **Renée Liboiron** of the IRSST and Cécile Collinge of the CSST, held a second breakfast seminar on the theme of "ISO 11228 – 1, an important manual handling standard to know." It covered key aspects of the standard, such as maximum admissible loads, cumulative daily mass (tons/day), and recommended frequencies.

4



For the second year in a row, the IRSST partnered with three other organizations to stage INNO 09. The result of a collaborative effort by the IRSST, the Industrial Materials Institute of the National Research Council Canada (NRC-IMI), NanoQuébec, and the Association de la recherche industrielle du Québec (ADRIQ), this event provided an opportunity to promote research in the field of nanoparticles.

5



In her capacity as honorary president of the Association des professionnels en santé du travail convention (APST), IRSST president and CEO **Marie Larue** launched the event with her presentation outlining the Institute's role and achievements in the area of rehabilitation.



**T**he IRSST took part in the annual meeting of the Sheffield Group, which brings together the directors of the world's leading OHS research centres.

MAY

**T**he IRSST, the International Centre on Nanotechnology of Rice University (ICON), the British Columbia Nanotechnology Alliance, Industry Canada, and NanoQuébec joined forces to develop an international platform on nanotechnologies: [www.GoodNanoGuide.org](http://www.GoodNanoGuide.org). This practical tool is designed for workers and researchers who manufacture, synthesize, or use nanoparticles. Other partners from the United States, Canada, and Europe also participated in the project.

JUNE

**N**o fewer than 150 participants from some 15 countries attended the 4th International Seminar on Training in Occupational Health and Safety of the ISSA (International Social Security Association) Section on Education and Training for Prevention. Held in Lisbon, Portugal, and co-organized by the IRSST, this seminar saw the adoption of the Lisbon Charter, which put forward a strategy for orienting and assisting young workers with regard to occupational health and safety matters.

**T**he Institute met with the executive directors of the joint sector-based associations to present its 2009-2011 three-year plan, after prior consultations with them in this regard. The joint sector-based associations, which rank among the IRSST's prevention partners, are also important intermediaries that pass on research results to enterprises operating in their activity sector.

JULY

**D**iane Hamelin-Bourassa, who holds a doctorate in immunology and microbiology, was appointed director of the IRSST's Research and Expertise Division. Well-known for her management skills, she brings with her a 17-year track record in the pharmaceutical industry in connection with the health networks. The new director also completed a postdoctoral fellowship on the role of heredity in resistance to infection.



**A**t the request of the Canadian Standards Association (CSA), demographer **Patrice Duguay** was appointed a member of the technical committee mandated to review CSA Standard Z795 *Coding of Work Injury or Disease Information*. CSA Standard Z795 proposes a consistent method for recording and classifying information on work-related injuries and occupational diseases in Canada.

9



NOVEMBER

**T**he Institute's Scientific Advisory Board held its special annual meeting featuring a variety of presentations. In one of these presentations, researchers **Christian Larivière** and **André Plamondon** illustrated the usefulness of biomechanical modeling as a tool for enhancing understanding of low back injuries and ensuring more effective prevention.



**T**he REPAR/FRSQ published the *États généraux de la recherche en adaptation-réadaptation 2009 – Rapport et stratégie de suivi*. The objective of the preliminary consultation process was to portray the current status of research and share a common vision of its future and spin-offs. Ten partner organizations, including the IRSST, took part.

**T**he IRSST handed Mr. Jacek Mlynarek, CEO of CTT Group, the Builder – Innovation System award at the Innovation Prize tribute evening of the Association de la recherche industrielle du Québec (ADRIQ). Starting next year, the IRSST will be awarding a new prize to a company with innovative OHS practices.



One hundred twenty-five individuals from 16 countries participated in the 4th International Conference on Whole-Body Vibration Injuries, held in Montréal. Organized by the **Paul-Émile Boileau** of the IRSST and Subash Rakheja of Concordia University, for the first time this conference was held in North America. It also stood apart from the previous conferences in that it welcomed practitioners, including physicians, ergonomists, hygienists, and preventionists, all of whom had an opportunity to exchange ideas with the researchers present.



6

The IRSST welcomed a visit from Roberto Ocon, a specialist in the Programme on Safety and Health at Work and the Environment at the International Labour Office (ILO). Exploring opportunities for collaborative undertakings with OHS-specialized organizations, he had expressed interest in learning more about the IRSST's mission.

SEPTEMBER

DECEMBER

A full professor in the Department of Environmental Science and Occupational Health at the Université de Montréal, **Joseph Zayed** was named research leader in the IRSST's Chemical Substances and Biological Agents field. He holds a doctorate in public health with a specialization in environmental toxicology and has authored numerous scientific publications. Dr. Zayed was also the director of the Centre interuniversitaire de toxicologie and chaired the steering committee of the Canadian Network of Toxicology Centres.



11

At the International Economic Forum of the Americas, held in Montréal, the IRSST organized and led a workshop on the theme of sustainable development and mental health in the workplace. A number of speakers talked about the challenges this type of injury poses for research and prevention, including John Howard, director of the National Institute for Occupational Safety and Health (NIOSH) in the United States, Karen Russ, director of the Human Factors Group and Technical Programmes of the Health and Safety Laboratory (HSL) in the United Kingdom, and **Marie Larue**, IRSST president and CEO.

During work sessions held in Montréal, the IRSST received visits from several representatives of the International Social Security Association (ISSA), including Olaf Petermann and Martina Hesse-Spötter, president and secretary-general respectively of ISSA's Special Commission on Prevention.

The IRSST's Board of Directors unanimously ratified the 2010 scientific and technical production plan.

After winning a 3M Award at the annual conference of the Association québécoise pour l'hygiène, la santé et la sécurité du travail, chemist **Simon Aubin** received the award for the best presentation at the *Chemical Vapor Sampling and Analysis* session of the American Industrial Hygiene Conference and Exposition in Toronto. In both cases, he presented a paper on a new method for analyzing airborne nitrosamines, a paper that he co-authored with **Lucie Locas** and **Suzanne Paradis**.



7

The IRSST organized *Les jeunes et la SST dans une société en mouvement... quatre ans plus tard* symposium. Researchers, OHS professionals, labour and employer representatives, students, and members of youth organizations worked together to take stock of activities organized and alliances forged as part of the Opération JeuneSST initiative. Also on the agenda were new strategies for raising awareness of working, employment, and OHS conditions among young people and their employers.

The year 2009 saw the winding up of a five-year international cooperation project carried out by the Institute's **Jean-Claude Martin** and **François Hébert**, together with various Canadian partners, with the goal of enhancing Brazil's capacity to improve OHS conditions in its industries.



12

AUGUST

OCTOBER



Research does much more than simply enrich knowledge. Promoted and presented in a simple form, the evidence obtained through research generates its own concrete spin-offs. They take the form of guides, technical fact sheets, and brochures, and are used to fuel discussion at forums, colloquia, and training sessions, and on Web sites. Combined with partners' expertise, mainly that of joint sector-based associations, this knowledge is first and foremost intended for use by workplaces and OHS professionals.

# Knowledge Translation

## The Spin-Offs of Knowledge



Designed along the lines of a self-diagnostic checklist, this fact sheet established the main themes for a lockout program. Referring to the *Act respecting occupational health and safety*, the *Regulation respecting occupational health and safety*, and

CAN/CSA Standard Z460-05, it is designed to serve as a tool for verifying the content of lockout programs.



Lift trucks, ice surfacers, and other similar equipment (such as mechanical street sweepers and aerial platforms) activated by propane-powered combustion engines can expose workers to toxic gases. This technical fact sheet deals mainly with means of prevention, preventive maintenance,

and the technological developments taking place in these machines.



Developed for manufacturers, potential purchasers, and garbage truck operators, this technical fact sheet describes the criteria for outfitting trucks with articulated arms and proposes improvements, taking into account requirements for the new tasks performed by waste collectors.



Workers who spray polyurethane foam run the risk of exposure to 4,4'-diphenylmethane diisocyanate (MDI) in aerosol form, particularly when performing this work indoors. This best practices guide describes the dangers and risk factors associated with the application of thermal insulation, as well as means for controlling them.



In a context of a workforce shortage, offering meaningful work in a stimulating environment represents a major plus for both employers and workers. This document, designed for managers and OHS professionals and to serve as a tool for sparking reflection on psychological health, including mental health, in the workplace, describes the characteristics that make work meaningful. It proposes avenues for reflection on possible ways to implement strategies for reinforcing the meaning that employees attribute to their work, as it constitutes a determining factor in their mental health, attitude, and performance.

Twenty-two contractual agreements were signed with various partners, giving the IRSST's added research capacities. The sharing of human and physical resources, exchange of expertise, and knowledge brokering and transfer are all multiplier effects that generate positive spin-offs for the signatories to these agreements.

## Knowledge Partnerships

A five-year partnership framework agreement between Japan's National Institute of Occupational Safety and Health (JNIOSH) and the IRSST set forth the principles for OHS research and expertise collaboration, particularly in the area of nanotechnologies and vibrations. It gave rise to a first specific agreement allowing the JNIOSH to translate and disseminate the IRSST-developed *Best Practices Guide to Synthetic Nanoparticle Risk Management*.

An agreement was clinched with the Groupe d'acoustique de l'Université de Sherbrooke (GAUS) that allows IRSST researchers to use GAUS instruments in the context of joint research projects.

A memorandum of understanding regarding collaboration in the form of eventual joint funding of projects was signed with Agrivita Canada Inc. in the context of the Canadian AgriSafety Applied Research Program.

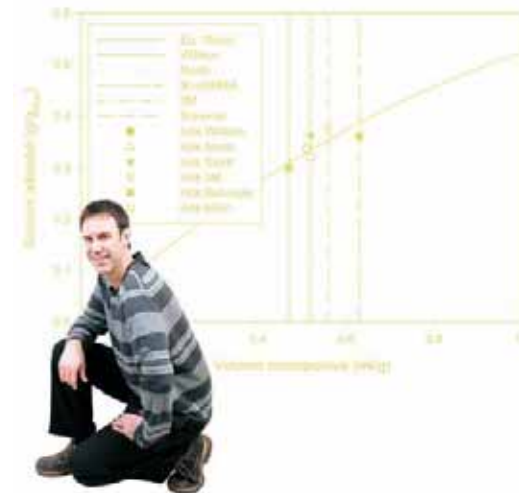
Machine safety was the focal point of a specific agreement between the IRSST and the Institut national de recherche et de sécurité (INRS France). It allows researchers from Québec and France to participate in studies of common interest and provides them with priority access to the results and data emerging from studies carried out by either of the signatories.

An agreement ratified with the Université du Québec's École de technologie supérieure (ÉTS) gave IRSST personnel the green light, for a period of ten years, to use the anechoic chamber and related equipment in the ÉTS's new acoustic laboratory.

A cooperation agreement was reached with the Health and Safety Laboratory (HSL) of the United Kingdom regarding the theoretical analysis of tools for estimating the risks associated with industrial machines.

The IRSST and the Workplace Health, Safety and Compensation Commission (WHSCC) of Newfoundland and Labrador signed an agreement to conduct a review of the scientific literature on the risks of occupational cancer for shipyard workers.

Working as partners, the IRSST and the REPAR/FRSQ launched a call for proposals for research projects that support the production of a state-of-the-knowledge review of knee osteoarthritis in workers aged 15 to 65. The review was required to cover (a) clinical assessments/measurements whose validity, reliability, and responsiveness to change have been documented; (b) front-line medical and rehabilitation interventions whose effectiveness and efficiency have been documented; and (c) decision-making processes involved in a safe and sustainable return to work.





Every year, the CSST, the Ministère de la Santé et des Services sociaux, joint sector-based associations, and companies send tens of thousands of samples to the IRSST's Laboratory Services and Expertise Department for environmental, toxicological or microbiological analyses. To respond effectively to the needs of the stakeholders in this network, the laboratories offer them services whose quality is certified through both national and international accreditations. They also develop new analytical methods.

# Laboratory *Expertise*

## Nitrosamines

For the IRSST's laboratories, 2009 was further marked by the rendering of the nitrosamine analysis method available for use. This method sparked the curiosity of several American laboratories and of a large sampling equipment company that expressed interest in marketing an alternative to the Thermosorb/N adsorbent tube currently used for nitrosamine sampling. The new sampling device, which was developed by INRS France, was adapted and validated by the IRSST in the field.

## Agreements

The IRSST's laboratories signed two agreements with an agency of Québec's Ministère du Développement durable, de l'Environnement et des Parcs, specifically, the Centre d'expertise en analyse environnementale (CEAEQ). The first agreement, which dealt with air microbiology, paved the way for development of an accreditation program to be offered on a voluntary basis to public and private laboratories wishing to offer their clients this service. The second agreement concerned the transfer, to the IRSST, of CEAEQ expertise that would enable IRSST's laboratories to obtain accreditation for the development of proficiency testing schemes by laboratory intercomparisons.



To promote the emergence of social networks of OHS professionals, the IRSST has integrated applications such as Facebook, Twitter, YouTube, and RSS feeds into its strategies for disseminating research results. The Communications Division is making unprecedented use of Web-based opportunities in its efforts to reach a younger public that has particular interests in OHS research. Complementing the IRSST Web site and its electronic newsletter, *Info IRSST*, these various technological applications open up new possibilities for spreading the word about the Institute's scientific and technical production.

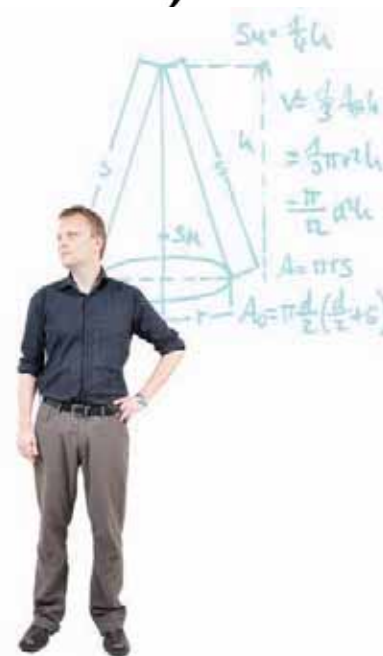
# Disseminating Knowledge

## Entering the Blogosphere

A specific forum for dialogue on research was created on the Web to foster interactivity: *l'IRSST en lien avec vous*. On this page, the Institute posts an institutional blog hosted by the CEO, the nine blogs run by the Strategic Watch and Quality Management Department, and the research section of the *Prévention au travail* blog, which, with its satellite Web site, is designed to complement the magazine. The launching of a forum for dialogue on manual handling completes the list of the different interactive tools offered in 2009.

The use of these various applications gives greater visibility to research reports, particularly scientific documents published during the year. It also increases the number of document downloads, which continue to rise from one year to the next, reaching 397,000 in 2009.

Lastly, a business plan was drawn up for the purpose of developing a third-generation Web site for the IRSST.



## SIGPI: Knowledge Nerve Centre



SIGPI collaborators: Abdelhaq Sari and Jacques Roy of the Information Technologies Division, and Christina Maria Raneburger and Diane Hamelin-Bourassa of the Research and Expertise Division.

Supported by the Information Technologies Department, the Research and Expertise Division worked all year long on a project vital to its operations: the Système d'information et de gestion des projets de l'IRSST (SIGPI). This project involved equipping the Institute with a modern database to replace a tool that was no longer adequate for its current business processes and that did not reflect the new institutional structure.

Flexible, reliable, modular, and designed to evolve in tandem with future developments, SIGPI constitutes the nervous system of the entire organization. This tool serves strategic and operational purposes, and above all ensures efficient research project management. It is used both to carry out financial monitoring of the research grants paid to external researchers and to track internal projects. Generating monthly, annual, or ad hoc management indicators, this system also supports the development of the annual research plan. Moreover, SIGPI feeds the IRSST's Web site with a wide range of data and is used to extract reliable management indicators.

In addition to hosting 39 trainees and collaborators, the IRSST expanded its human resources (HR) in 2009 with the hiring of 19 new employees, including six in regular positions. The new employees included an epidemiologist and an economist, whose expertise added two disciplines to the many others covered by the scientific personnel already on staff. The IRSST has 142 employees, 113 of whom are researchers, professionals, and technicians.

## HR: A Font of KNOWLEDGE

### Knowledge for Tomorrow

As part of its efforts to groom the next generation of scientists, the IRSST awarded 48 scholarships to students from among the 82 applicants. Eighteen new scholarships were thus granted and 30 applications for renewal were accepted. The scholarship program underwent an in-depth revision. Its regulations, procedures, application forms, and calendar were modified taking into account primarily the practices of other granting agencies. The scientific merit of scholarship applications is evaluated by a multi-disciplinary committee. This formula was retained after an extremely positive testing experience in a pilot project. In addition, the specific program designed as an incentive to the next generation to undertake postdoctoral fellowships is currently being enhanced. This program will require them to integrate a knowledge transfer component into their reports.

### Occupational Health and Safety Committee

In 2009, nine reports were logged in the accident, incident, and first-aid register. Two accidents were the subject of investigation. As part of a training program, 33 individuals participated in mask adjustment tests for respiratory protection masks.

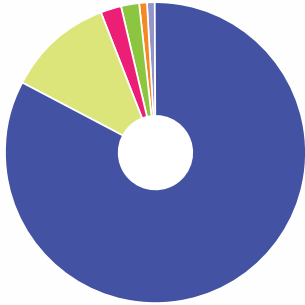
# Financing Knowledge

Breakdown (in %) of revenues and expenditures as at December 31, 2009

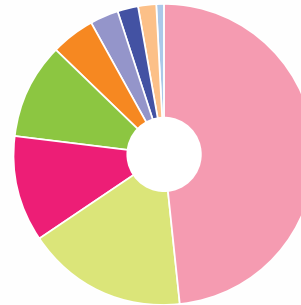


REVENUES: \$22,167,132

EXPENDITURES: \$22,680,344



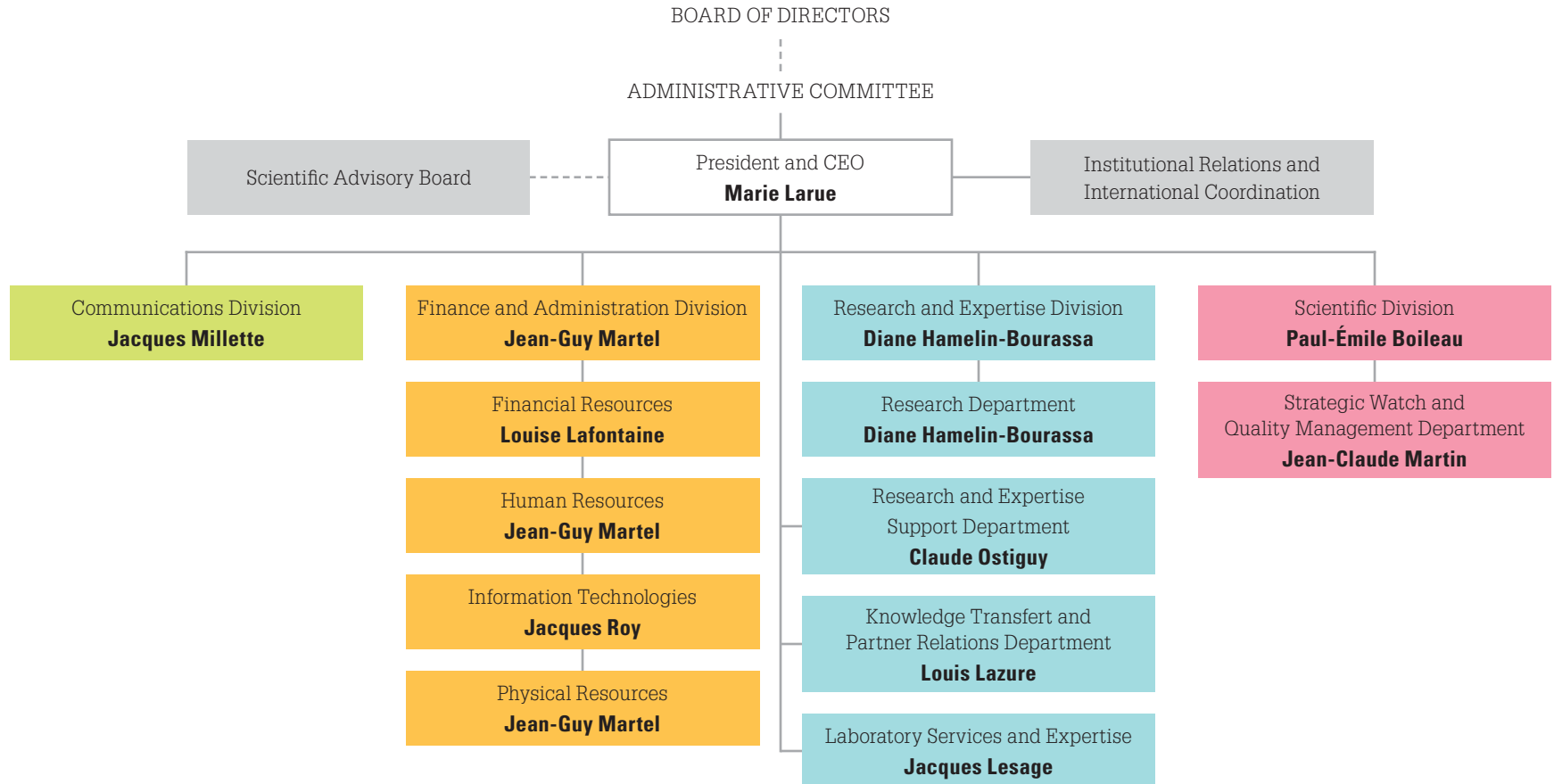
- 83.96% ■ CSST
- 11.53% ■ Laboratory services
- 2.05% ■ Contracts
- 1.98% ■ Special projects
- 0.25% ■ Beryllium project
- 0.23% ■ Other



- 48.93% ■ Internal research
- 17.31% ■ External research
- 11.23% ■ Laboratory services
- 10.36% ■ Finance and administration
- 4.64% ■ Communications
- 3.24% ■ Management
- 2.07% ■ Special projects
- 1.97% ■ External contracts
- 0.25% ■ Beryllium project

# Organizational Chart

As at December 31, 2009



In 2009, the members of the Management Committee met 19 times, while those of the expanded Management Committee met seven times.

# Committees

as at December 31, 2009

On behalf of the IRSST and its personnel, the president and CEO welcomes the new members of the board and committees and offers her sincerest thanks to outgoing members for jobs well done.

## Board of Directors

In 2009, the members of the Board of Directors met nine times while the Administrative Committee\* held seven work sessions.

### Chair

\*Luc Meunier

### Employer Representatives

Françoise Bertrand  
Bernard Brassard  
François Cliche  
\*Yves-Thomas Dorval  
France Dupéré  
\*Michel Kelly-Gagnon  
Dominique Malo  
Simon Prévost

### Worker Representatives

\*Michel Arsenault  
Andrée Bouchard  
Claude Faucher  
Richard Goyette  
Jean Lavallée  
Michel Poirier  
Daniel Roy  
Roger Valois

### Observer

Suzanne Thérien

### IRSST Management

Marie Larue

### Departures

François Cliche  
Michel Kelly-Gagnon  
Jean Lavallée  
Simon Prévost  
Michel Poirier

### Appointments

Yves-Thomas Dorval  
Richard Goyette  
Dominique Malo

## Scientific Advisory Board

The members of the Scientific Advisory Board met nine times.

### Chair

Marie Larue

### Employer Representatives

Pascale Gauthier  
Richard Lapointe  
Roger M. Laporte  
Alain Neveu

### Worker Representatives

Micheline Boucher  
Jean Dussault  
Daniel Flynn  
Denis Mailloux

### Members of the Scientific and Technical Communities

Jean-Marc Brodeur  
Christine Colin  
Pierre Galarneau  
Camille Limoges  
Mireille Mathieu  
Yves Rousseau  
André Van Neste

### Observers

Guylaine Rioux  
Diane Hamelin-Bourassa  
Paul-Émile Boileau

### Departures

Mireille Mathieu

### Appointment

Pierre Galarneau

### Appointment Renewals

Richard Lapointe  
Alain Neveu  
Yves Rousseau

# List of 2009 Publications

## IRSSST Publications

BEAUGRAND S., MARCOTTE P., LARUE C., BOUTIN J., BELLEMARE M., *Développement d'un prototype de siège pour opérateur de métro dans un contexte où l'espace est très restreint*, R-631, 2009, 171 pages.

BELEM T., AUBERTIN M., LI L., FALL M., *Développement d'une méthode intégrée d'analyse de stabilité des chantiers miniers remblayés*, R-622, IRSSST, 2009, 99 pages.

BOUSQUET L., LAVOIE J., *Bioaerosols in Dental Offices - Choosing the right mask*, Technical Data Sheet RF-570, IRSSST, 2009, 2 pages.

BURLET-VIENNEY D., JOCELYN S., CHINNIH Y., DAIGLE R., MASSÉ S., *Vérification du contenu d'un programme de cadenassage*, RF-617, IRSSST, 2009, 48 pages.

CHINNIH Y., BOUKAS E.-K., PIZARRO-CHONG A., EL ABOUDI M., BURLET-VIENNEY D., SIRARD C., DAIGLE R., *Développement d'un outil d'observation et de suivi des procédures de cadenassage sur une presse à injection - Étude de faisabilité*, R-615, IRSSST, 2009, 91 pages.

COUTU M.-F., BARIL R., DURAND M.-J., ROULEAU A., CÔTÉ D., CADIEUX G., CHARPENTIER N., *Exploring Differences in the Representations Held by Clinicians and Those Held by Workers Suffering from Musculoskeletal Disorders, during the Occupational Rehabilitation Process*, R-616, IRSSST, 2009, 43 pages.

DE MARCELLIS WARIN N., PEIGNIER I., ALZAREZ P., LEROUX M.-H., TRÉPANIER M., *Les enjeux de la santé et de la sécurité du travail pour les entreprises utilisant des matières dangereuses au Québec - Réglementations, accidents et coûts*, R-611, IRSSST, 2009, 133 pages.

DUCHAINE C., LÉTOURNEAU V., NEHMÉ B., MÉRIEAUX A., GILBERT Y., VEILLETTE M., *Caractérisation des bioaérosols par écologie microbienne moléculaire*, R-595, IRSSST, 2009, 49 pages.

DUFRESNE A., DROLET D., PERRAULT G., LEMAY F., VIAU S., DION C., *Relation entre la teneur en amiante dans les matériaux et la concentration de fibres dans l'air ambiant lors de travaux de démantèlement*, R-600, IRSSST, 2009, 83 pages.

GIGUÈRE D., *Feux et phares - Utilisation et installation sur chariots élévateurs*, Fiche technique RF-626, Montréal, IRSSST, 2009, 6 pages.

GIGUÈRE D., *Rétroviseurs - Utilisation et installation sur chariots élévateurs*, Fiche technique RF-625, Montréal, IRSSST, 2009, 4 pages.

GIRAUD L., *Machine Safety - Prevention of mechanical hazards - Fixed guards and safety distances*, Technical Guide RG-597, IRSSST, 2009, 71 pages.

GODIN J.-F., LAPLANTE B., LEDOUX É., VULTUR M., TSAIA DIMBUENE Z., *Étude exploratoire des parcours d'emploi en lien avec l'apparition des premières lésions chez les jeunes de 16 à 24 ans*, R-630, IRSSST, 2009, 74 pages.

IMBEAU D., RENÉ F., FARBOS B., *Travail de nettoyage au jet d'eau HP : astreinte cardiaque et organisation du travail*, R-539, IRSSST, 2009, 40 pages.

IMBEAU D., DUBÉ P.-A., WADDELL O., *Validation du step-test de Meyer et Flenghi (1995) à l'aide d'un test maximal sur tapis roulant*, R-621, IRSSST, 2009, 34 pages.

IRSSST - 4<sup>th</sup> International Conference on Whole Body Vibration Injuries - Conference Proceedings, IRSSST, 2009, 157 pages.

IRSSST, Colloque IRSSST 2009 - *Le vieillissement de la main-d'œuvre et la SST*, Recueil des présentations 2009, 107 pages.

LABRECQUE M., CARTIER A., MALO J.-L., TURCOT J., *Comparaison de deux approches différentes pour identifier les sujets atteints d'asthme professionnel aux isocyanates*, R-603, IRSSST, 2009, 35 pages.

LARIVIÈRE C., DA SILVA JR. R. A., ARSENAULT B., NADEAU S., PLAMONDON A., *Maux de dos - Évaluation de la spécificité de différents exercices d'endurance des muscles para-vertébraux*, R-596, IRSSST, 2009, 84 pages.

LEDoux É., CLOUTIER E., OUELLET F., GAGNON I., THUILIER C., ROSS J., *Occupational Risks in the Performing Arts - An Exploratory Study*, R-607, IRSSST, 2009, 92 pages.

LEDoux É., BERNIER J., THUILIER C., LABERGE M., PAQUIN-COLLINS S., *Approche terrain pour rejoindre et sensibiliser les jeunes travailleurs à la SST*, R-588, IRSSST, 2009, 130 pages.

MARCHANT G., CLOUTIER Y., PÉPIN C., DROLET D., *Validation d'une méthode d'analyse exploratoire de la population mycologique par utilisation de trappes à spores*, R-605, IRSSST, 2009, 22 pages.

MORIN E., GAGNÉ C., *Donner un sens au travail - Promouvoir le bien-être psychologique*, R-624, IRSSST, 2009, 20 pages.

OSTIGUY C., ROBERGE B., MÉNARD L., ENDO C.-A., *Best Practices Guide to Synthetic Nanoparticle Risk Management*, R-599, IRSSST, 2009, 67 pages.

PLAMONDON A., ARJMAND N., GAGNON D., ABOULFAZL S.-A., SALAZAR E., *Comparaison de deux modèles biomécaniques articulaires dans l'évaluation du chargement lombaire*, R-620, IRSSST, 2009, 48 pages.

ROBERGE B., GRAVEL R., DROLET D., *4,4'-Diphenylmethane diisocyanate (MDI) Safety practices and concentration during polyurethane foam spraying*, R-629, 2009, 79 pages.

ROBERGE B., GRAVEL R., DANIEL D., *Diisocyanate-4,4' de diphenylméthane (MDI) - Pratiques de sécurité et concentration lors de pulvérisation de mousse polyuréthane*, R-606, IRSSST, 2009, 71 pages.

SGARD F., NÉLISSE H., ATALLA N., TROMPETTE N., BARBRY J.-L., *Développement d'un outil d'aide à la conception acoustique d'encoffrements de machines*, R-619, IRSSST, 2009, 113 pages.

SIMON R., DENG D., *Développement d'une approche pour estimer la résistance des roches dures à l'échelle du bloc unitaire*, R-594, IRSSST, 2009, 66 pages.

ST-VINCENT M., IMBEAU D., DENIS D., GONELLA M., AUBRY K., *Suivi de huit interventions de prévention des TMS initiées par des inspecteurs de la CSST - Étude exploratoire*, R-610, IRSSST, 2009, 127 pages.

VEZEAU S., HASTEY P., GIGUÈRE D., GAGNÉ N., LARUE C., RICHARD J.-G., DENIS D., *Chariots élévateurs - Étude ergonomique et analyse des stratégies de conduite des caristes*, R-601, IRSSST, 2009, 133 pages.

VIAU S., DION C., PERRAULT G., DUFRESNE A., TURCOTTE V., GOLSHAHI H., CAMPBELL B., MOCANU T., OUELLET A., DÉSORMEAUX P.-J., *Cleaning and decontamination of workplaces containing beryllium - Techniques and cleaning solutions*, R-614, IRSSST, 2009, 74 pages.

VIAU S., DION C., PERRAULT G., DUFRESNE A., TURCOTTE V., GOLSHAHI H., CAMPBELL B., MOCANU T., OUELLET A., DÉSORMEAUX P.-J., *Nettoyage et décontamination des lieux de travail où il y a présence de béryllium - Techniques et solutions nettoyantes*, R-613, IRSSST, 2009, 76 pages.

VYSKOCIL A., LEROUX T., TRUCHON G., LEMAY F., GENDRON M., LIM S., GAGNON F., EL MAJIDI N., BOTEZ S., EMOND C., VIAU C., *Substances chimiques et effet sur l'audition - Revue de la littérature*, R-604, IRSSST, 2009, 71 pages.

## Laboratory Methods

BARRETTE M.-C., LESAGE J., MARCHAND G., *Méthode d'échantillonnage et d'identification de bactéries et de moisissures par la méthode de prélèvements de surface*, MA-343, IRSST, 2009, 8 pages.

LARIVIÈRE P., RICHARD L., LESAGE J., *Détermination des composés inorganiques du chrome hexavalent hydrosolubles et hydro insolubles dans l'air des lieux de travail*, MA-365-fr, IRSST, 2009, 24 pages.

LARIVIÈRE P., RICHARD L., LESAGE J., *Determination of water-soluble and water-insoluble inorganic compounds of hexavalent chromium in workplace air*, MA-365-en, IRSST, 2009, 21 pages.

MARCHAND G., BARRETTE M.-C., LESAGE J., *Analyse des endotoxines*, MA-332, IRSST, 2009, 15 pages.

MARCHAND G., BARRETTE M.-C., LESAGE J., *Endotoxin analysis*, MA-332-en, IRSST, 2009, 15 pages.

MARCHAND G., BARRETTE M.-C., LESAGE J., *Evaluation of mycological structures by microscopic examination - Revision N° 2*, Analytical Methods MA-360-en, IRSST, 2009, 11 pages.

MARCHAND G., BARRETTE M.-C., LESAGE J., *Identification des bactéries cultivables*, MA-341, IRSST, 2009, 10 pages.

## Reports Published in Collaboration with Partners

ASTE - IRSST, *Chariot élévateur et surfaceuse à glace au propane. Un entretien préventif pour une performance sécuritaire*, Fiche technique RF-627, 2009, 16 pages.

ASTE - IRSST, *Propane-Powered Lift Trucks and Ice Resurfacers*, Technical data sheet RF-628, 2009, 16 pages.

BENOIT R., LAFRANCE L., MALO D., BARON J., *Tire blowout and explosion*, Technical Data Sheet R-590, IRSST, 2009, 12 pages.

LAVOIE J., GRATTON L., TRUDEL M., GUERTIN S., *Collecte d'ordures ménagères - Le choix d'un camion avec bras assisté*, Fiche technique R-608, IRSST, 2009, 8 pages.

LAVOIE J., GRATTON L., TRUDEL M., GUERTIN S., *Garbage Collection - Choosing a Truck with an Articulated Arm*, Technical Data Sheet R-609, IRSST, 2009, 8 pages.

ROBERGE B., TEASDALE B., *La pulvérisation de mousse de polyuréthane - Guide de bonnes pratiques*, RG-623, IRSST, 2009, 34 pages.

ROBERGE B., TEASDALE B., *Polyurethane foam spraying - Good practices*, RG-632, IRSST, 2009, 34 pages.

BRUN J.-P., BIRON C., ST-HILAIRE F., *Guide pour une démarche stratégique de prévention des problèmes de santé psychologique au travail*, RG-618, IRSST, 2009, 76 pages.

## Scientific Publications

ARJMAND A., GAGNON D., PLAMONDON A., SHIRAZI-ADL A., LARIVIÈRE C., *Comparison of trunk muscles forces and spinal loads estimated by two biomechanical models*. Clinical Biomechanics, vol. 24, n° 7, 2009, p. 533-541.

BAHLOUL A., GRAVEL R., ROBERGE B., GOYER N., CHAVEZ M., REGGIO M., *Modélisation du temps de ventilation par soufflage dans les silos-tours à fourrage*. Travail et santé, vol. 25, n° 3, 2009, p. S18-S21.

BAZRGARI B., SHIRAZI-ADL A., LARIVIÈRE C., *Trunk response analysis under sudden forward perturbations using a kinematics-driven model*. Journal of Biomechanics, vol. 42, n° 9, 2009, p.1193-1200.

BELLAVANCE F., DIONNE G., LEBEAU M., *The value of a statistical life: a meta-analysis with a mixed effects regression model*. Journal of Health Economics, vol. 28, n° 2, 2009, p. 444-464.

BELLEMARE M., BEAUGRAND S., LARUE C., CHAMPOUX D., *Improving a workstation in an existing cab by means of a participatory approach: the case of subway operators' workstations*. Work : A Journal of Prevention, Assessment & Rehabilitation, vol. 33, n° 3, 2009, p. 355-361.

CHENG P. L., MARTIN P., SMITH J. T., DUMAS G. A., LÉGER A., PLAMONDON A., MCGRATH M. J., TRANMER J. E., *Back pain of working pregnant women: identification of associated occupational factors*. Applied Ergonomics, vol. 40, n° 3, 2009, p. 419-423.

CHINNIAH Y., *Machine safety: some commonly observed problems in the manufacturing sector in Quebec*. Journal of Occupational Health and Safety, vol. 25, n° 5, 2009, p. 405-410.

CHINNIAH Y., BURLET-VIENNEY D., DAIGLE R., *Étude comparative des règlements, normes et documents d'entreprises québécoises sur le cadenasage*. Travail et santé, vol. 25, n° 4, 2009, p. S23-S27.

CÔTÉ D., *Penser la douleur à la rencontre du biologique et du culturel : repères anthropologiques*. Altérités, vol. 6, n° 2, 2009, p. 26-47.

CÔTÉ D., *Review: Empathy and healing: essays in medical and narrative anthropology by Vieda Skultans*. Ethos, vol. 37, n° 3, 2009, p. 1-3.

DA SILVA R. A., LARIVIÈRE C., ARSENAULT B., NADEAU S., PLAMONDON A., *Effect of pelvic stabilization and hip position on trunk extensors activity during dynamic prone back extension exercises on a roman chair*. Journal of Rehabilitation Medicine, vol. 41, n° 3, 2009, p. 136-142.

DA SILVA R. A., LARIVIÈRE C., ARSENAULT B., NADEAU S., PLAMONDON A., *Pelvic stabilization and semisitting position increase the specificity of back exercises*. Medicine & Science in Sports & Exercise, vol. 41, n° 2, 2009, p. 435-443.

DEBIA M., BÉGIN D., GÉRIN M., *Comparative evaluation of overexposure potential indices used in solvent substitution*. Annals of Occupational Hygiene, vol. 53, n° 4, 2009, p. 391-401.

DELISLE A., LARIVIÈRE C., PLAMONDON A., PENA SALAZAR E., *Reliability of different thresholds for defining muscular rest of the trapezius muscles in computer office workers*. Ergonomics, vol. 52, n° 7, 2009, p. 860-871.

DEMANCHE A., BONLOKKE J., BEAULIEU M.-J., ISRAËL-ASSAYAG E., CORMIER Y., *Swine confinement buildings: effects of airborne particles and dust on airway smooth muscles*. Annals of Agricultural and Environmental Medicine, vol. 16, n° 2, 2009, p. 233-238.

DION C., BEAUCHAMP A. L., ROCHON F. D., *Multinuclear magnetic resonance studies of the hydrolyzed and aqated species of the antitumor complexes cis-Pt(cyclobutylamine)2X2 cis-Pt(NH3)(cyclobutylamine)X2 and antitumor testing of mixed-amine Pt(II) compounds*. Inorganica Chimica Acta, vol. 362, n° 6, 2009, p. 1887-1894.

DOLEZ P., VU-KHANH T., *Recent developments and needs in materials used for personal protective equipment and their testing*. International Journal of Occupational Safety and Ergonomics, vol. 15, n° 4, 2009, p. 347-362.

DONG R. G., MCDOWELL T. W., WELCOME D. E., WARREN C., WU J. Z., RAKHEJA S., *Analysis of anti-vibration gloves mechanism and evaluation methods*. Journal of Sound and Vibration, vol. 321, n° 1-2, 2009, p. 435-453.

DROLET-VIVES K., ZAYED J., SAUVÉ S., *Assessment of hair and bone accumulation of beryllium by mice exposed to contaminated dusts*. Journal of Applied Toxicology, vol. 29, n° 7, 2009, p. 638-642.

DUFRESNE A., DION C., VIAU S., PERRAULT G., *Beryllium decontamination with different solvents on different structures*. Annals of Occupational Hygiene, vol. 53, n° 7, 2009, p. 669-675.

DUFRESNE A., DION C., VIAU S., CLOUTIER Y., PERRAULT G., *Beryllium aerosol characteristics in the magnesium and aluminum transformation industry in Québec: a comparison of four different sampling methodologies*. Journal of Occupational and Environmental Hygiene, vol. 6, n° 11, 2009, p. 687-697.

DUFRESNE A., TURCOTTE V., GOLSHAIH H., VIAU S., PERRAULT G., DION C., *Solvent removal of beryllium from surfaces of equipment made of beryllium copper*. Annals of Occupational Hygiene, vol. 53, n° 4, 2009, p. 353-362.

DUFRESNE A., DION C., FRIELAENDER A., AUDET E., PERRAULT G., *Personal and static samples measurement of asbestos fibres during two abatement projects*. Bulletin of Environmental Contamination and Toxicology, vol. 82, n° 4, 2009, p. 440-443.

DURAND M.-J., VÉZINA N., BARIL R., LOISEL P., RICHARD M.-C., NGOMO S., *Margin of manoeuvre indicators in the workplace during the rehabilitation process: a qualitative analysis*. Journal of Occupational Rehabilitation, vol. 19, n° 2, 2009, p. 194-202.

DUTIL S., VEILLETTE M., MÉRIAUX A., DE LATRÉMOUILLE C., LAZURE L., BARBEAU J., DUCHAINE C., *Measurement of airborne bacteria and endotoxin generated during dental cleaning*. Journal of Occupational and Environmental Hygiene, vol. 6, n° 2, 2009, p. 121-131.



- FILION G., LAFLAMME C., TURGEON N., HO J., DUCHAINE C. *Permeabilization and hybridization protocols for rapid detection of Bacillus spores using fluorescent in situ hybridization*. Journal of Microbial Methods, vol. 77, n° 1, 2009, p. 29-36.
- KHETTABI R., SONGMENÉ V. *Particle emission during orthogonal and oblique cutting*. International Journal of Advances in Machining and Forming Operations, vol. 1, n° 1, 2009, p. 1-10.
- LAN A., DAIGLE R. *Review of regulations and guides for excavation and trenches - Comparison with the Québec safety code for the construction industry*. Practice Periodical on Structural Design and Construction, vol. 14, n° 4, 2009, p. 201-209.
- LAN A., DAIGLE R. *Development and validation of a method for evaluating temporary wooden guardrails built and installed on construction sites*. Safety Science, vol. 47, n° 2, 2009, p. 215-226.
- LANGLOIS L. *Une éthique à deux vitesses : dangers et répercussions sur l'identité professionnelle*. Revue Pyramides, vol. 16, n° 2, 2009, 1 p., (<http://www.cerap.be/spip.php?article149>).
- LARIVIÈRE C., GRAVEL D., GARDINER P., ARSENAULT A. B., GAGNON D., LOISEL P. A. *Submaximal test to assess back muscle capacity: evaluation of construct validity*. Journal of Electromyography and Kinesiology, vol. 19, n° 6, 2009, p. e422-e429.
- LARIVIÈRE C., GAGNON D., GENEST K. *Offering proper feedback to control for out-of-plane lumbar moments influences the activity of trunk muscles during unidirectional isometric trunk exertions*. Journal of Biomechanics, vol. 42, n° 10, 2009, p. 1498-1505.
- LARIVIÈRE C., GRAVEL D., GAGNON D., ARSENAULT B. *Toward the development of predictive equations of back muscle capacity based on frequency- and temporal-domain electromyographic indices computed from intermittent static contractions*. Spine Journal, vol. 9, n° 1, 2009, p. 87-95.
- LAVOIE J., GODBOUT S., LEMAY S. P., BELZILE M. *Impact of in-barn manure separation on the biological air quality of swine buildings*. Journal of Agricultural Safety and Health, vol. 15, n° 3, 2009, p. 225-240.
- LAVOIE K. L., JOSEPH M., BACON S. L. *Psychological distress and occupational asthma*. Current Opinion in Allergy and Clinical Immunology, vol. 9, n° 2, 2009, p. 103-109.
- LEDOUX É., LABERGE L., THUILIER C., PRUD'HOMME P., MARTIN J. S., GAUDREAU M., VEILLETTE S. *Portrait des conditions d'emploi ainsi que de santé et de sécurité au travail de jeunes étudiants de 17-18 ans*. Reg@rds sur le travail, vol. 5, n° 2, 2009, p. 27-30, (<http://www.travail.gouv.qc.ca/actualite/regardstravail/regardstravail-vol05-02.pdf>).
- LI L., AUBERTIN M. *Influence of water pressure on the stress state in stopes with cohesionless backfill*. Geotechnical and Geological Engineering, vol. 27, n° 1, 2009, p. 1-11.
- LI L., AUBERTIN M. *An elastoplastic evaluation of the stress state around cylindrical openings based on a closed multiaxial yield surface*. International Journal for Numerical and Analytical Methods in Geomechanics, vol. 33, n° 2, 2009, p. 193-213.
- LI L., AUBERTIN M. *Horizontal pressure on barricades for backfilled stopes: Part I. Fully drained conditions*. Canadian Geotechnical Journal, vol. 46, n° 1, 2009, p. 37-46.
- LI L., AUBERTIN M. *Horizontal pressure on barricades for backfilled stopes: Part II. Submerged conditions*. Canadian Geotechnical Journal, vol. 46, n° 1, 2009, p. 47-56.
- MCDOWELL T. W., MARCOTTE P., WARREN C., WELCOME D. E., DONG R. G. *Comparing three methods for evaluating impact wrench vibration emissions*. Annals of Occupational Hygiene, vol. 53, n° 6, 2009, p. 617-626.
- MESSING K., STOCK S., TISSOT F. *Should studies of risk factors for MSDs be stratified by gender? Lessons from analyses of musculoskeletal disorders among respondents to the 1998 Québec Health Survey*. Scandinavian Journal of Work, Environment & Health, vol. 35, n° 2, 2009, p. 96-112.
- MESSING K., VÉZINA N., MAJOR M.-E., OUELLET S., TISSOT F., COUTURE V., RIEL J. *Body maps: an indicator of physical pain for worker-oriented ergonomic interventions*. Policy and Practice in Health and Safety, vol. 6, n° 2, 2009, p. 31-49.
- NGUYEN C. T., VU-KHANH T. *Mechanics and mechanisms of puncture by medical needles*. Procedia Engineering, vol. 1, n° 1, 2009, p. 139-142.
- NGUYEN C. T., VU-KHANH T., DOLEZ P., LARA J. *Puncture of elastomers membranes by medical needles. Part I: Mechanics*. International Journal of Fracture, vol. 155, n° 1, 2009, p. 75-81.
- NGUYEN C. T., VU-KHANH T., DOLEZ P., LARA J. *Puncture of elastomers membranes by medical needles. Part II: Mechanics*. International Journal of Fracture, vol. 155, n° 1, 2009, p. 83-91.
- OUELLET S., VÉZINA N. *Savoirs professionnels et prévention des TMS : portrait de leur transmission durant la formation et perspectives d'intervention*. Pistes (Perspectives interdisciplinaires sur le travail et la santé), vol. 11, n° 2, 2009, 37 p., <http://www.pistes.uqam.ca/v11n2/articles/v11n2a4.htm>.
- PIROOZFAR H., LARA J. *Failure prediction of polychloroprene in contact with various solvents*. Iranian Polymer Journal, vol. 18, n° 7, 2009, p. 543-550.
- RAKHEJA S., AHMED A. K. W. *Biodynamic response analysis of a seated human occupant with back support under vertical vibration*. Advances in Vibration, vol. 8, n° 2, 2009, p. 165-182.
- ROCHON F. D., BEAUCHAMP A. L., DION C. *Multinuclear magnetic resonance studies of the reactions of the antitumor complexes cis-Pt(L)2X2 and cis-Pt(NH3)(L)X2 (L=cyclobutylamine and cyclopentylamine) with guanosine and other bases and crystal structures of Pt(cyclopentylamine)2I2*. Inorganica Chimica Acta, vol. 362, n° 11, 2009, p. 3885-3895.
- SAATHOFF P., GUPTA A., STATHOPOULOS T., LAZURE L. *Contamination of fresh air intakes due to downwash from a rooftop structure*. Journal of the Air Waste Management Association, vol. 59, n° 3, 2009, p. 343-353.
- SALEHI F., ZAYED J., AUDUSSEAU S., MÜLLER C., TRUCHON G., PLAMONDON P., L'ESPÉRANCE G., CHEVALIER G., MAZER B. *Immunological responses in C3H/HeJ mice following nose-only inhalation exposure to different sizes of beryllium metal particles*. Journal of Applied Toxicology, vol. 29, n° 1, 2009, p. 61-68.
- SARI-MINODIER I., TRUCHON G., CHAREST-TARDIF G., BÉRUBÉ A., TARDIF R. *The effect of workload on biological monitoring of occupational exposure to toluene and n-hexane: contribution of physiologically based toxicokinetic modeling*. Journal of Occupational and Environmental Hygiene, vol. 6, n° 7, 2009, p. 415-432.
- STACEY P., KAUFFER E., MOULUT J.-C., DION C., BEAUPARLANT M., FERNANDEZ P., KEY-SCHWARTZ R., FRIEDE B., WAKE D. *An international comparison of the crystallinity of calibration materials for the analysis of respirable alpha-quartz using x-ray diffraction and a comparison with results from the infrared KBr disc method*. Annals of Occupational Hygiene, vol. 53, n° 6, 2009, p. 639-649.
- SULLIVAN M. J. L., THIBAUT P., ANDRIKONYTE J., BUTLER H., CATCHLOVE R., LARIVIÈRE C. *Psychological influences on repetition-induced summation of activity-related pain in patients with chronic low back pain*. Pain, vol. 141, n° 1-2, 2009, p. 70-78.
- TISSOT F., MESSING K., STOCK S. *Studying the relationship between low back pain and working postures among those who stand and those who sit most of the work day*. Ergonomics, vol. 52, n° 11, 2009, p. 1402-1418.
- TOULOUSE G., ST-ARNAUD L., BOURBONNAIS R., DELISLE A., CHICOINE D. *Troubles musculo-squelettiques chez les téléopérateurs des centres d'urgence 911, des contraintes physiques aux contraintes psychosociales*. Pistes (Perspectives interdisciplinaires sur le travail et la santé), vol. 11, n° 2, 2009, 21 p. (<http://www.pistes.uqam.ca/v11n2/pdf/v11n2a7.pdf>).
- TRÉPANIER M., LEROUX M.-H., DE MARCELLIS-WARIN N. *Cross-analysis of hazmat road accidents using multiple databases*. Journal of Accident Analysis & Prevention, vol. 41, n° 6, 2009, p. 1192-1198.
- TROMPETTE N., BARBRY J. L., SGARD F., NÉLISSE H. *Sound transmission loss of rectangular and slit-shaped apertures: Experimental results and correlation with a modal model*. Journal of the Acoustical Society of America, vol. 125, n° 1, 2009, p. 31-41.
- TRUCHON G., BROCHU M., TARDIF R. *Effect of physical exertion on the biological monitoring of exposure to various solvents following exposure by inhalation in human volunteers: III. Styrene*. Journal of Occupational and Environmental Hygiene, vol. 6, n° 8, 2009, p. 460-467.
- VÉZINA N., OUELLET S., MAJOR M.-E. *Quel schéma corporel pour la prévention des troubles musculo-squelettiques*. Corps, n° 6, 2009, p. 61-68.
- VU THI B. N., VU-KHANH T., LARA J. *Mechanics and mechanism of cut resistance of protective materials*. Theoretical and Applied Fracture Mechanics, vol. 52, n° 1, 2009, p. 7-13.
- ZAGHBANI I., SONGMENÉ V., KHETTABI R. *Fine and ultra fine particle characterisation and modeling in high speed milling of 6061-T6 aluminium alloy*. Journal of Materials Engineering and Performance, vol. 18, n° 1, 2009, p.38-48.

## Peer-Reviewed Articles Published in Conference Proceedings

BAHLOUL A., STATHOPOULOS T., HAJRA B. *Estimation of pollutant concentrations from building roof stacks: comparison of various models.* In Healthy Buildings 2009: 9<sup>th</sup> International Conference & Exhibition, (9<sup>th</sup>: September 13-17, 2009: Syracuse, USA), 2009.

BEAUGRAND S., BELLEMARE M., MARCOTTE P., LARUE C., BOUTIN J., GINGRAS A. *Quand ergonomes et spécialistes en vibration se rencontrent : l'expérience du développement d'un prototype de siège de véhicule.* In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup>: 14-17 septembre, 2009 : Québec, Canada), 2009.

BÉCOT F. X., JAOUEN L., SGARD F., AMIROUCHE N. *Enclosure noise control strategies using multiscale poroelastic materials: numerical predictions and experimental validations.* In InterNoise 2009: Innovations in Practical Noise Control, (38<sup>th</sup>: August 23-26, 2009: Ottawa, Canada), 2009.

BELLEMARE M., LEDOUX É., TRUDEL L., MONTREUIL S. *Optimiser les situations de travail lors de projets architecturaux : le rôle du contexte.* In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup>: 14-17 septembre, 2009 : Québec, Canada), 2009.

BÉRUBÉ A., CHAREST-TARDIF G., SARI-MINODIER I., TRUCHON G., TARDIF R. *Contribution of toxicokinetic modeling for the study of the impact of physical exertion on the assessment of occupational exposure to acetone.* In Society of Toxicology Annual Meeting and ToxExpo (48<sup>th</sup>: March 15-19, 2009: Baltimore, United States), 2009.

BOURBONNAIS R., VÉZINA M., JAUVIN N., DUSSAULT J. *Long-term evaluation of an intervention to prevent mental health problems among correctional officers.* In Work, Stress, and Health 2009: Global Concerns and Approaches, (8<sup>th</sup>: November 5-8, 2009: San Jan, Puerto Rico), 2009.

BUSQUE M.-A. *Les besoins non comblés de services à domicile chez les aînés canadiens.* In 4<sup>e</sup> colloque jeunes chercheurs / CIQSS, (4<sup>e</sup>: 13 mars, 2009 : Montréal, Canada), 2009, ([http://www.ciqss.umontreal.ca/Docs/Colloques/JeunesChercheurs/2009/2009\\_JC\\_Presentation\\_Busque.pdf](http://www.ciqss.umontreal.ca/Docs/Colloques/JeunesChercheurs/2009/2009_JC_Presentation_Busque.pdf)).

CHAMPOUX D., BRUN J.-P. *Effect of policy, politics and structures on intervention for sustainable prevention in small businesses.* In USE2009: Understanding Small Enterprises - A healthy working life in a healthy business, (October 20-23, 2009: Elsinore, Denmark), 2009.

CHAMPOUX D. *Multiple rationalities in OHS practices of SB actors and intervention experts in Québec.* In USE2009: Understanding Small Enterprises - A healthy working life in a healthy business, (October 20-23, 2009: Elsinore, Denmark), 2009.

CHATIGNY C., LÉVESQUE S., RIEL J. *Training while training: the challenge of vocational training teachers.* In Changes, Challenges and Opportunities: World Congress on Ergonomics / IEA (17<sup>th</sup>: August 9-14, 2009: Beijing, China), 2009.

CHIASSE M.-È., IMBEAU D. *Fiabilité intra-observateur de la méthode RULA pour évaluer l'exposition aux facteurs de risques de TMS.* In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup>: 14-17 septembre, 2009 : Québec, Canada), 2009.

CHINNIH Y., BURLET-VIENNEY D., CHAMPOUX M., DAIGLE R. *Analyse comparative des programmes et procédures de cadenassage (consignation) appliqués aux machines industrielles.* In 8<sup>e</sup> Congrès international de génie industriel : L'interopérabilité et l'intégration / CIGI (8<sup>e</sup>: 10-12 juin, 2009 : Bagnières de Bigorre, France), 2009.

CÔTÉ J., LEMAY F., VYSKOCIL A., VIAU C. A computer tool for the assessment of potential combined acute effects of chemicals in mixtures. In Toxicology Letters - Eurotox 2009: 46<sup>th</sup> Congress of The European Societies of Toxicology (46<sup>th</sup>: September 13-16, 2009: Dresden, Germany), vol. 189, suppl. 1, 2009, p. S262.

COU M.-F., DURAND M.-J., CORBIÈRE M., LOISEL P., NASTASIA I. *Psychological distress evaluation of Canadian governmental employees: implementation of recommendations.* In Annual Canadian Congress for Research on Mental Health and Addiction in the Workplace, (4<sup>th</sup>: October 28-30, 2009: Toronto, Canada), 2009.

DEMANCHE A., GIRARD M., ISRAËL-ASSAYAG E., CORMIER Y. *Phenotypical changes of dendritic cells exposed to saccharopolyspora rectivirgula.* In American Thoracic Society 2009 International Conference, (May 15-20, 2009: San Diego, USA), American Journal of Respiratory and Critical Care Medicine, vol. 179, 2009, p. A5631.

DENIS D., PLAMONDON A. *The methods used by experienced handlers: can they serve as inspiration in developing the content of handling training?* In Proceedings of the 29<sup>th</sup> International Congress on Occupational Health / ICOH, (29<sup>th</sup>: March 22-27, 2009: Cape Town, South Africa), 2009.

DION C., NOËL A., BOUCHER J., CLOUTIER Y., OUELLET A., TRUCHON G. *Implementation of sampling and characterization methods for nanoparticles (Poster).* In EAC 2009: European Aerosol Conference, (September 6-11, 2009: Karlsruhe, Germany), 2009.

DOLEZ P., RENAUD J.-B., VU-KHANH T., GAUVIN C., LARA J. *Effect of industrial contaminants on the resistance of protective gloves to mechanical risks.* In European Conference on Protective Clothing (EPC) and Nokobetef 9, Protective Clothing: Performance and Protection, (4<sup>th</sup>: June 10-12, 2009: Papendal, Arnhem, The Netherlands), 2009.

DOUCET N., LACHANCE L., LEDOUX É., CLOUTIER E., VEILLETTE S., LABERGE L. *Fatigue et santé psychologique des jeunes exerçant un emploi durant l'année académique.* In 70<sup>e</sup> Congrès annuel de la Société Canadienne de Psychologie (70<sup>e</sup>: 11-13 juin, 2009 : Montréal, Québec), 2009.

DURAND M.-J., COU M.-F., ST-ARNAUD L., CORBIÈRE M. *Therapeutic return-to-work program: can it be adapted for common mental disorders?* In Annual Canadian Congress for Research on Mental Health and Addiction in the Workplace, (4<sup>th</sup>: October 28-30, 2009: Toronto, Canada), 2009.

DURAND M.-J., ST-ARNAUD L., BRIAND C., COU M.-F., CORBIÈRE M., ROULEAU A. *Work disability diagnostic interview (WoDDI) first step for use with individuals on a long-term work absence for mental health reasons.* In European Congress of Work and Organisational Psychology, (14<sup>th</sup>: May 13-16, 2009: Spain), 2009.

DUSSAULT J., JAUVIN N., VÉZINA M., BOURBONNAIS R. *Harcèlement psychologique chez les agents correctionnels québécois : contexte social d'émergence.* In Annual Canadian Congress for Research on Mental Health and Addiction in the Workplace, (4<sup>th</sup>: October 28-30, 2009: Toronto, Canada), 2009.

EAKIN J. M., CHAMPOUX D., MACEACHEN E. *Health and safety in small workplaces: Refocusing Upstream.* In USE2009: Understanding Small Enterprises - A healthy working life in a healthy business, (October 20-23, 2009: Elsinore, Denmark), 2009.

FARBOS B., IMBEAU D., DROLET C. *Études des activités de production des pépinières publiques du Québec : Application d'une stratégie de prévention aux facteurs de risques de TMS.* In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup>: 14-17 septembre, 2009 : Québec, Canada), 2009.

FILLION L., TRUCHON M., DUVAL S., ROBITAILLE M.-A., GIGUÈRE A. *Meaning at work in the context of end-of-life/palliative care: conceptual and measurement issues (Poster).* In Work, Stress, and Health 2009: Global Concerns and Approaches, (8<sup>th</sup>: November 5-8, 2009: San Jan, Puerto Rico), 2009.

FOURNIER P.-S., BILODEAU C., MONTREUIL S., BRUN J.-P. *Les dimensions de la charge de travail pour les préposés à la clientèle : Surabondance d'information, rythme soutenu et autonomie.* In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup>: 14-17 septembre, 2009 : Québec, Canada), 2009.

FOURNIER P.-S., MONTREUIL S., BRUN J.-P., BILODEAU C. *Workload determinants in a customer service center: activity analysis in real work situations.* In Work, Stress, and Health 2009: Global Concerns and Approaches, (8<sup>th</sup>: November 5-8, 2009: San Jan, Puerto Rico), 2009.

FOURNIER P.-S., CLOUTIER E., GAGNON I., LEDOUX É., BEAUVAIS A. *L'analyse de l'activité pour aider à la transmission intergénérationnelle du savoir de métier et de pratiques des infirmières et des auxiliaires familiales et sociales.* In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup>: 14-17 septembre, 2009 : Québec, Canada), 2009.

GAUDREAU M.-A., LAVILLE F., NÉLISSE H., VOIX J., BOUTIN J. *L'atténuation effective des protecteurs auditifs au cours d'une journée de travail.* In 2<sup>e</sup> congrès international sur l'ingénierie des risques industriels / CIRI 2009 (2<sup>e</sup>: 13-15 mai 2009 : Reims, France), 2009.

GÉLINAS C., ROBITAILLE M.-A., FILLION L., TRUCHON M., BLAIS M.-C., BRISEBOIS A., DALLAIRE C., BROCHU J., THIFFAULT N., FULLERTON L., BELLEMARE M. *Improving end-of-life care and services in the Intensive Care Unit (ICU): to better understand stress factors linked to satisfaction and well-being of nurses.* In Psycho-Oncology - IOS 11<sup>th</sup> World congress of Psycho-Oncology, (11<sup>th</sup>: June 21-25, 2009: Vienna, Austria), vol. 18, suppl. 2, 2009, S302.

- GÉRIN M., BÉGIN D., DIALLO F., DEBIA M. *Substances cancérigènes. Recension des outils d'aide à la substitution*. In Colloque «Prévenons les cancers professionnels», (18-20 novembre, 2009 : Paris), 2009.
- GILBERT Y., VEILLETTE M., LAVOIE J., CORMIER Y., DUCHAINE C. *Soluble metalworking fluid related aerosols in machining plants*. In American Thoracic Society International Conference: ATS 2009 (May 15-20, 2009, San Diego, USA), 2009, p. A2196.
- GIRARD M., DEMANCHE A., ISRAËL-ASSAYAG E., CORMIER Y. *Function of T regulatory cells are inhibited in a virus-induced mouse model of hypersensitivity pneumonitis*. In American Thoracic Society 2009 International Conference, (May 15-20, 2009: San Diego, USA), American Journal of Respiratory and Critical Care Medicine, vol. 179, 2009, p. A5175.
- GIRAUD L., AUCCOURT B. *Les normes «machines» et l'ergonomie. Évolution et questionnements*. In 8<sup>e</sup> Congrès international de génie industriel : L'interopérabilité et l'intégration / CIGI (8<sup>e</sup> : 10-12 juin, 2009 : Bagnères de Bigorre, France), 2009, 8 p.
- GONELLA M., ST-VINCENT M., LORTIE D., DENIS D. *Utiliser un outil d'analyse des contextes de manutention pour aider au développement d'une formation adaptée et à la transformation des situations*. In Penser et agir avec l'ergonomie: Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.
- HALLÉ S., MORENY F., DUFRESNE L., TARDIF R. *Modeling nanoparticles transport in an animal exposure chamber: comparison with experimental measurements*. In 2<sup>e</sup> congrès international sur l'ingénierie des risques industriels / CIRI 2009 (2<sup>e</sup>: 13-15 mai 2009: Reims, France), 2009.
- JAUVIN N., DUSSAULT J., BOURBONNAIS R., VÉZINA M. *Prévention et promotion dans le milieu de travail*. In Annual Canadian Congress for Research on Mental Health and Addiction in the Workplace, (4<sup>th</sup>: October 28-30, 2009: Toronto, Canada), 2009.
- LABERGE M., VÉZINA N., LÉVESQUE S., LEDOUX É. *L'accueil et l'intégration différenciés des jeunes garçons et filles inscrits à la formation menant à un métier semi-spécialisé*. In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.
- LABERGE L., MARTIN J.-S., HÉBERT M., LEDOUX É., LACHANCE L., ARBOUR N., CLOUTIER E., VEILLETTE S. *Morningness-eveningness, sleep, and health risk factors among students who work during the school year: preliminary results*. In Sleep 2009: 23<sup>rd</sup> Annual Meeting of the Associated Professional Sleep Societies, (23<sup>rd</sup>: June 6-11, 2009: Seattle, U.S.A.), Supplement to Sleep, vol. 32, 2009, p. A80.
- LABERGE L., MARTIN J.-S., LEDOUX É., HÉBERT M. *Relation entre la somnolence diurne excessive et l'exposition à la lumière chez des étudiants exerçant un travail rémunéré durant l'année scolaire : résultats préliminaires*. In Congrès de la Société française de recherche et de médecine sur le sommeil (24<sup>e</sup> : 19-21 novembre, 2009 : Marseille, France), 2009.
- LABRECQUE M., MALO J., CARTIER A., RABHI K., MAMOUNI K., TURCOT J. *Costs for compensating functional impairment are lower in workers with isocyanate-induced occupational asthma included in a medical surveillance program*. In American Thoracic Society 2009 International Conference, (May 15-20, 2009: San Diego, USA), American Journal of Respiratory and Critical Care Medicine, vol. 179, 2009, p. A1659.
- LAMONDE F., RICHARD J.-G. *L'ergonomie des situations de travail : une aide à l'activité des concepteurs et des gestionnaires de projet*. In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.
- LAMONDE F., RICHARD J.-G. *Intégration de l'ergonomie dans les projets de conception : les enjeux liés au rôle des opérations*. In Penser et agir avec l'ergonomie: Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.
- LARA J., GAUVIN C., ROBINSON D. *Improvements to the ISO 13997 cut test method*. In European Conference on Protective Clothing (EPC) and Nokobetef 9, Protective Clothing: Performance and Protection, (4<sup>th</sup>: June 10-12, 2009: Papendal, Arnhem, The Netherlands), 2009, p. 28.
- LARIVIÈRE C., BILODEAU M., FORGET R., VADEBONCOEUR R. *Poor back muscle endurance is mediated by pain catastrophizing in chronic low back pain patients*. In XXII Congress of the International Society of Biomechanics, (22<sup>nd</sup>: July 5-9, 2009: Cape Town, South Africa), 2009.
- LARUE M. *Forecast on future challenges in the work environment in Québec, Canada*. In Seminar Proceedings Working Environment Challenges for the Future: International Expert Seminar, (September 24-25, 2009: Copenhagen), 2009, p. 44-52.
- LARUE C., DESJARDINS P., PLAMONDON A., DELISLE A. *Mechanism to link two inertial measurement units to a potentiometer: improvements of measurements between pelvis and trunk motion*. In XXII Congress of the International Society of Biomechanics, (22<sup>nd</sup>: July 5-9, 2009: Cape Town, South Africa), 2009.
- LAVOIE J. *Respiratory protection against bioaerosols in dentistry settings (Poster)*. In Proceedings of the 29<sup>th</sup> International Congress on Occupational Health / ICOH, (29<sup>th</sup>: March 22-27, 2009: Cape Town, South Africa), 2009.
- LAVOIÉ J., GÉRIN M., VINCENT R. *Comparison of formaldehyde exposure levels in two multi-industry occupational exposure databanks using multimodel averaging*. In X2009: Sixth International Conference on Innovations in Exposure Assessment, (6<sup>th</sup>: August 17-20, 2009: Boston, USA), 2009.
- LAZURE L. *Knowledge translation, from theory to practice*. In Rural Life, Health, Environment - The Full Spectrum: 8<sup>th</sup> conference Canadian Rural Health Research Society, (8<sup>th</sup>: October 15-17, 2009: Kingston, Canada), 2009.
- LEROUX M.-H., DE MARCELLIS-WARIN N., TRÉPANIÉ M. *Safety management in hazardous materials logistics: a survey of firms' practices*. In IESM'2009: International Conference on Industrial Engineering and Systems Management, (May 13-15, 2009: Montréal, Canada), 2009.
- LEROUX M.-H., TRÉPANIÉ M., DE MARCELLIS-WARIN N. *Modélisation des choix logistiques reliés aux matières dangereuses*. In 8<sup>e</sup> Congrès international de génie industriel : L'interopérabilité et l'intégration / CIGI (8<sup>e</sup> : 10-12 juin, 2009 : Bagnères de Bigorre, France), 2009.
- LÉTOURNEAU V., MÉRIAUX A., MASSÉ D., CORMIER C., DUCHAINE C. *Presence of zoonotic pathogens and tetracycline resistance genes in the nasopharyngeal flora of hog producers*. In American Thoracic Society International Conference: ATS 2009 (May 15-20, 2009, San Diego, USA), 2009.
- LÉVESQUE S., CHATIGNY C., RIEL J. *L'insertion en emploi et les situations rencontrées par les enseignants de la formation professionnelle : quelle est la réalité ?* In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.
- MANDAPURAM S., RAKHEJA S., BOILEAU P.-É., MAEDA S., SHIBATA N. *Apparent mass and seat-to-head transmissibility responses of seated occupant to single and dual-axis horizontal vibration*. In International Conference on Whole Body Vibration Injuries, (4<sup>th</sup>: June 2-4, 2009: Montréal, Canada), 2009.
- MARCOTTE P., BOUTIN J., BEAUGRAND S., LARUE C. *Validation of a suspension seat to reduce vibration exposure of subway operators*. In International Conference on Whole Body Vibration Injuries, (4<sup>th</sup>: June 2-4, 2009: Montréal, Canada), 2009.
- MARTIN J.-S., HÉBERT M., LEDOUX É., LABERGE L. *The relationship between chronotype, sleep, natural light exposure, and occupational health indicators in young student workers*. In Congrès de la Société canadienne de sommeil, (4<sup>e</sup>: 26-28 avril, 2009: Toronto, Canada), 2009.
- MULLER C., AUDUSSEAU S., SALEHI F., TRUCHON G., CHEVALIER G., MAZER B., ZAYED J. *Evaluation of a methodology for controlling beryllium exposure in laboratory setting*. In Society of Toxicology Annual Meeting and ToxExpo (48<sup>th</sup>: March 15-19, 2009: Baltimore, United States), 2009.
- NASTASIA I., TOULOUSE G., IMBEAU D. *Les conditions à l'intégration de la conduite de projet ergonomique dans les programmes d'amélioration continue ou «lean» production*. In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.
- NASTASIA I., TOULOUSE G., IMBEAU D. *Kaizen and ergonomics: Modalities and conditions for successful integration of productivity, quality and health and safety preoccupations*. In Proceedings of the XXI<sup>st</sup> Annual International Occupational Ergonomics and Safety Conference, (21<sup>st</sup>: June 11-12, 2009: Dallas, Texas, USA), Marley, R.J.; Kumar, A.R.; Ware, B.F.; Lockhart, T.E. (éds), 2009, p. 217-223.
- NÉLISSE H., GAUDREAU M.-A., LAVILLE F., BOUTIN J., VOIX J. *Measurement of effective hearing protection device attenuation during a workshift in industrial plants*. In InterNoise 2009: Innovations in Practical Noise Control, (38<sup>th</sup>: August 23-26, 2009: Ottawa, Canada), 2009.
- NOËL A., CLOUTIER Y., DION C., TARDIF R., TRUCHON G. *Generation and characterization of TiO<sub>2</sub> nano-aerosols of different agglomeration states (Poster)*. In Toxicologie des mélanges de médicaments et de contaminants chimiques : des mécanismes à l'évaluation du risque : 41<sup>e</sup> symposium annuel de la Société de toxicologie du Canada, (41<sup>e</sup> : 29 novembre - 1<sup>er</sup> décembre, 2009 : Montréal, Canada), 2009.

OSTIGUY C. *Occupational health and safety issues with nanoparticles*. in Atelier nano-safety: Institut canadien pour les innovations en photonique, (21 janvier, 2009 : Montréal, Canada), 2009.

OSTIGUY C., ROBERGE B., MÉNARD L., ENDO C. A. *A good practices guide for safe work with nanoparticles: the Québec approach*. In Inhaled Particles X, (September 23-25, 2008: Sheffield, UK), Journal of Physics: Conference Series, vol. 151, 2009, 5 p., [http://www.iop.org/EJ/article/1742-6596/151/1/012037/jpconf9\\_151\\_012037.pdf?request-id=ad45d67a-9\\*d6-4c50-9cd2-9034cb57db30](http://www.iop.org/EJ/article/1742-6596/151/1/012037/jpconf9_151_012037.pdf?request-id=ad45d67a-9*d6-4c50-9cd2-9034cb57db30).

OSTIGUY C., ROBERGE B., MÉNARD L., ENDO C.-A. *Working safely with nanoparticles: the Québec good practices guide*. In International Conference on Nanotechnology - Occupational and Environmental Health, (4<sup>th</sup>: August, 26-29, 2009: Helsinki, Finland), 2009.

PLAMONDON A., DENIS D. *Expert ou novice en manutention, existe-t-il des différences ?* in Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.

PLAMONDON A. *Un site internet spécifique à la manutention disponible à l'IRSSST*. In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.

PRANESH A., RAKHEJA S., DEMONT R., SAUCIER M. *Influence of support conditions on vertical whole-body vibration transmission properties of the seated human body*. In International Conference on Whole Body Vibration Injuries, (4<sup>th</sup>: June 2-4, 2009: Montréal, Canada), 2009.

ROULEAU A., MARCHAND D., GIGUÈRE D. *Évaluation de stratégies, par électromyographie, visant à réduire les contraintes physiques aux membres supérieurs lors de l'utilisation d'une clé à chocs pneumatique, dans le secteur des services à l'automobile sur le plan horizontal*. In Penser et agir avec l'ergonomie: Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.

ROY S., DURAND M.-J., CORRIVEAU H. *Development of a clinical practice guideline on work-related assessment*. In S'engager dans la réalisation d'occupations saines : Partenaires pour le changement : Congrès de l'Association canadienne des ergothérapeutes (3-6 juin, 2009 : Ottawa, Canada), 2009.

SARI-MINODIER I., TRUCHON G., CHAREST-TARDIF G., BÉRUBÉ A., TARDIF R. *Toxicokinetic modeling to assess the impact of workload on exposure indicators of toluene and n-hexane*. In Proceedings of the 29<sup>th</sup> International Congress on Occupational Health / ICOH, (29<sup>th</sup>: March 22-27, 2009: Cape Town, South Africa), 2009.

SGARD F., NÉLISSE H., ATALLA N., KAFUI-AMEDIN C., ODDO R. *Prediction of the insertion loss of large enclosures using a combined SEA/image sources approach*. In InterNoise 2009: Innovations in Practical Noise Control, (38<sup>th</sup>: August 23-26, 2009: Ottawa, Canada), 2009, 9 p.

SGARD F., NÉLISSE H., LAVILLE F., VOIX J., BOUTIN J., GAUDREAU M.-A. *Finite element modeling for evaluating the sound attenuation of hearing protectors*. In EuroNoise 2009, (8<sup>th</sup>: October 26-28, 2009: Edinburgh, Écosse), 2009, 9 p.

STOCK S., TISSOT F., MESSING K. *Are there health effects of sexual harassment in the workplace? A study of the relationships between unwanted sexual attention and neck pain and low back pain*. In Proceedings of the 29<sup>th</sup> International Congress on Occupational Health / ICOH, (29<sup>th</sup>: March 22-27, 2009: Cape Town, South Africa), 2009.

ST-VINCENT M. *Un ouvrage collectif québécois sur l'intervention ergonomique : Pourquoi et comment*. In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.

ST-VINCENT M. *Programmation de recherche sur la manutention à l'IRSSST*. In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.

THEBAULT J., GAUDART C., CLOUTIER E., VOLKOFF S. *Skills transfer between experienced and new hospital workers*. In Changes, Challenges and Opportunities: World Congress on Ergonomics / IEA (17<sup>th</sup>: August 9-14, 2009: Beijing, China), 2009.

TOULOUSE G. *Formation en ergonomie et intervention dans le domaine de la santé psychologique au travail*. In Penser et agir avec l'ergonomie : Congrès annuel de l'ACE-Québec, (40<sup>e</sup> : 14-17 septembre, 2009 : Québec, Canada), 2009.

TOULOUSE G., ST-ARNAUD L., LÉVESQUE J., DUHALDE D., PAILLE A., DELISLE A., COMTOIS A.-S. *At the heart of training, the recognition of professional competence: The situation of dispatchers in public security communication centres*. In Changes, Challenges and Opportunities: World Congress on Ergonomics / IEA (17<sup>th</sup>: August 9-14, 2009: Beijing, China), 2009.

TRUCHON M., POULIOT M., FILION L., SCHMOUTH M. E., GOUIN M. M., D'AMOURS B. *Role of immunological and endocrine systems in low-back pain related long-term disability: an exploratory study*. In Work, Stress, and Health 2009: Global Concerns and Approaches, (November 5-8, 2009: San Jan, Puerto Rico), 2009.

VYSKOCIL A., LEROUX T., TRUCHON G., LEMAY F., GENDRON M., GAGNON F., EL MAJIDI N., VIAU C. *The assessment of the ototoxic potential of ethyl benzene*. In Toxicology Letters - Eurotox 2009: 46<sup>th</sup> Congress of The European Societies of Toxicology (46<sup>th</sup>: September 13-16, 2009: Dresden, Germany), vol. 189, suppl. 1, 2009, p. S257.

VYSKOCIL A., LEROUX T., TRUCHON G., LEMAY F., GAGNON F., EL MAJIDI N., VIAU C. *Occupational ototoxicity of ethyl benzene (Poster)*. In Proceedings of the 29<sup>th</sup> International Congress on Occupational Health / ICOH, (29<sup>th</sup>: March 22-27, 2009: Cape Town, South Africa), 2009.

WANG W., BAZARGARI B., SHIRAZI-ADL S., RAKHEJA S., BOILEAU P.-É. *Biodynamic response and spinal load estimation of seated body in vibration using finite element modeling*. In International Conference on Whole Body Vibration Injuries, (4<sup>th</sup>: June 2-4, 2009: Montréal, Canada), 2009.

## Master's Theses and Doctoral Dissertations

ADEWUSI S. *Distributed biodynamic characteristics of the human hand-arm system coupled with vibrating handles and power tools*. Thèse de doctorat, Montréal, Université Concordia, 2009.

CHEBLI R. *Simulation numérique d'un système multi-fentes de captage à la source des contaminants émis en zone de travail*. Mémoire de maîtrise, France, Université de Paris, 2009, 41 p.

KHETTABI R. *Modélisation des émissions de particules microniques et nanométriques en usinage*. Thèse, Montréal, École de technologie supérieure, 2009.

QUELLET S. *Acquisition d'habiletés motrices à la découpe de viande et prévention des troubles musculo-squelettiques : apport de l'analyse ergonomique à la conception de formation*. Thèse de doctorat, Montréal, Département des sciences biologiques, Université du Québec à Montréal, 2009, 588 p.

ZAGHBANI I. *Usinage à haute vitesse et à sec des alliages d'aluminium : aspects thermomécaniques, dynamiques et écologiques*. Thèse, Montréal, École de technologie supérieure, 2009.

## Book Chapters

CHARNEY W., LANGE J. H., MASTRANGELO G., LAVOIE J., CLOUTIER Y., LARA J., MARCHAND G., ANDERSEN J., GEESLIN A., STREIFEL A. Chapter 4: *Emerging infectious diseases*. In Handbook of Modern Hospital Safety, 2<sup>e</sup> éd., Charney, W. (éd.), Boca Raton, FL, CRC Press, 2009, p. 4.1-4.45.

DOLEZ P., VU-KHANH T. Chapter 17: *Gloves for protection from cool weather*. In Textiles for cold weather apparel, Williams, J.T. (éd.), Woodhead Publishing Ltd, Cambridge, UK, 2009.

LEDOUX É. *Prévention des traumatismes liés au travail : le plan d'action jeunesse de la Commission de la santé et de la sécurité du travail*. In Les traumatismes chez les enfants et les jeunes québécois âgés de 18 ans et moins : état de la situation, Gagné, M., Leduc, S., Maurice, P., Patry, P. (éds), INSPQ, 2009, p. 83-84, ([http://www.inspq.qc.ca/pdf/publications/934\\_TraumaEnfants.pdf](http://www.inspq.qc.ca/pdf/publications/934_TraumaEnfants.pdf)).

MALO J. L., LEMIERRE C., GAUTRIN D., LAVOIE K. L., LABRECQUE M. *Asthma and the Workplace*. In Asthma, Health, and Society: From the Clinic to the Public, Harver, A.; Kotses, H. (éds), Springer-Verlag, 2009.

PARIS C., ALLARD C., BILLON-GALLAND M. A., DION C., JAURAND M.-C., LEROYER A., ROOS F., SOBASZEK A., AMEILLE J., BARTSCH P., BLANCHARD O., BRÔCHARD P., DEWITTE J.-D., DUMORTIER P. *Les fibres courtes et les fibres fines d'amiante : Prise en compte du critère dimensionnel pour la caractérisation des risques sanitaires liés à l'inhalation d'amiante : Réévaluation des données toxicologiques, métrologiques et épidémiologiques dans l'optique d'une évaluation des risques sanitaires en population générale et professionnelle*. France, AFSSET, 2009, 379 p.



## Mission Vision

To contribute, through research, to the prevention of industrial accidents and occupational diseases, and to the rehabilitation of affected workers.

To disseminate knowledge and serve as a scientific reference centre and expert.

To provide the laboratory services and expertise required to support the public occupational health and safety prevention network.

Through its leadership in occupational health and safety research, the IRSST seeks:

- To consolidate its role as a reference centre vital to the operations and strategies of the CSST and its network;
- To be used by all its partners in a spirit of joint collaboration;
- To win recognition at the national and international levels;
- To derive maximum benefit from a well-established network of research and development collaborators.

Production: Communications Division  
Coordination: Linda Savoie  
Editor: Jacques Millette  
Collaboration: François Hébert, Marjolaine Thibeault, Maura Tomi  
Graphic Design: Samarkand  
Photos: Jacques Millette, Dominique Desjardins, Adam Sofineti, Roch Leconte  
Translation: Leslie Macdonald

ISBN (Print format): 978-2-89631-446-1 • ISBN (PDF): 978-2-89631-447-8 • ISSN: 0820-8409

Printed on Era paper containing 50% recycled fibre from post-consumer sources.



**Mixed Sources**  
Product grown from well-managed forests, controlled sources and recycled wood or fiber

Cert no. XXX-XXX-XXXX  
www.fsc.org  
© 1996 Forest Stewardship Council



Thanks to:

Sabrina Jocelyn, Research Assistant, Safety of Industrial Tools, Machines and Processes, IRSST

Hugues Nélisse, Researcher, Noise and Vibration, IRSST

François Ouellet, Research Field Coordinator, Work Context and OHS, IRSST

Note: In this document, names in **boldface** indicate IRSST staff members.

## IRSST

505, De Maisonneuve Blvd. West  
Montréal (Québec) H3A 3C2  
Telephone: 514 288-1551  
Fax: 514 288-7636