



nano ontario

**ANNUAL
REPORT
2015**





International
Ontario-Jiangsu
Nanotech
Innovation Centre
安大略-江苏纳米技术创新中心
established in
2015

6 ANNUAL CONFERENCES

750 participants
250 posters

from Ontario, Canada and abroad
(2010 - 2015 conferences)



166

nanotechnology
companies in
10 sectors



26

nano facilities
and centres in
in **10** institutes

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NanoCanada



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ABOUT NANOONTARIO

nano ontario is a not-for-profit organization that represents the interests of academic, government, industrial, and finance community members in the development of nanotechnologies in Ontario.

nano ontario members work together to raise the profile, increase the research, build the investment and drive economic returns from nanotechnology in the province & across Canada.

Vision

Trusted source of information for nanoscience and nanotechnology activity in Ontario.

Advise government organizations on economic opportunities, policy, standards & regulations that nanotechnology can offer, to enable Ontario to benefit and capitalize on its nano research, development and commercial capacity.

Objectives

Maps Ontario's capacity in nanotechnology research, development and commercialization.

Serves as the main point of contact for Ontario's community of practice in nanoscience & nanotechnology.

Builds and facilitates new connections between nanotechnology groups in universities, government organizations and industries within Ontario, across Canada, and internationally.

Coordinates public outreach activities to advocate societal benefits enabled by nanoscience and nanotechnology.

MESSAGE FROM CHAIR OF NANOONTARIO



In January 2010, the first steps were taken to establish NanoOntario and the inaugural meeting of the Interim Board of Directors was held on January 26th of that year. NanoOntario is therefore celebrating its 6th year of operations in 2016.

Looking back at 2015, NanoOntario held its Annual General Meeting on March 27th and elected a new slate of 15 Board Members. The Chair thanked Gabriel Devenyi of McMaster University for his valuable services to the Board as lead Director for Communications and wished him well in his new position at McGill University. Rina Carlini, now CEO & President of HalTech Regional Innovation Centre, was reelected to the Board late in the year.

In 2015, NanoOntario launched two major new initiatives. The first, a Nanofacilities for Emerging Technologies: Industry-University Showcase (pg.8), highlighted state-of-the-art nanofacilities in Ontario universities. Attended by more than 100 participants, 58 from industry and 3 government funding agencies, the event was a significant success. A follow-up event is planned for Spring 2016.

Another milestone was the signing of an Agreement between NanoOntario and Nanopolis in Suzhou, China to establish and operate a Nanotech Innovation Centre (NIC) (pg.5) in the Nanopolis complex in Suzhou. The Centre, which is an element of an Ontario (Ministry of Research and Innovation) – Jiangsu (Department of Science and Technology) Memorandum of Understanding (MOU) will actively encourage bilateral cooperation among nanotechnology companies and institutions, helping Canadian companies to find partners and do business in China. A plaque to the joint NIC was unveiled in Nanjing, China during Premier Wynne's visit. The NIC is managed by Wayne Song, a Canadian and industrial member of NanoOntario. A website for the NIC is being developed. Alain Francq and Arthur Carty attended the CHINano Conference and Expo and NanoOntario had a prominent presence in the Canada Booth at the Expo. This initiative puts NanoOntario at the center of a new partnership with China in nanotechnology. Look for further developments on this in the months ahead.

On March 4-5, 2015 a Workshop on "Commercialising Nanotechnology in Canada" served as the launch pad for NanoCanada (pg.10). Six NanoOntario Board members attended the workshop. NanoOntario is a founding partner in NanoCanada.

Dr. Arthur J. Carty, PhD, FRSC, FCAE, FAAAS, OC
Chair, NanoOntario Board of Directors

Officers

Arthur Carty
Chair, Board of Directors
Peter Mascher
Vice-Chair, Board of Directors
Alain Francq
Treasurer
Kuyler Neable
Secretary

Committees

Alain Francq
Communications
Robert Crawhall,
Kuyler Neable
Industry Relations
Roman Maev
Government Liaison
Brian Haydon
Standards and Regulations Committee
François Lagugné-Labarthe,
Gilbert Walker
Academic Liaison
Maike Luiken
Education and Training

Board of Directors

Private Sector Members

Robert Crawhall
Innoxec Consulting Inc.
Kuyler Neable
Bereskin & Parr
Peter Van Ballegooie
EcoSynthetix Inc.

Academic Members

Arthur Carty
Waterloo Institute for Nanotechnology
François Lagugné-Labarthe
Western University
Peter Mascher
McMaster University

At Large Members

Hind Al-Abadleh
Wilfrid Laurier University
Rina Carlini
HalTech Regional Innovation Centre
Sylvain Charbonneau
University of Ottawa
John Dutcher
University of Guelph
Alain Francq
Waterloo Institute for Nanotechnology
Brian Haydon
CSA Group
Rob Knobel
Queen's University
Maike Luiken
Lambton College
Roman Maev
University of Windsor
Gilbert Walker
University of Toronto

ONTARIO-JIANGSU NANOTECH INNOVATION CENTRE

安大略 - 江苏纳米技术创新中心



PREMIER OF ONTARIO PHOTOGRAPHY

Party Secretary of Jiangsu Province Luo Zhijun and Ontario Premier Kathleen Wynne

Agreement to establish and operate the Ontario-Jiangsu Nanotech Innovation Centre

The Ontario Ministry of Research and Innovation and Jiangsu Department of Science and Technology signed a Memorandum of Understanding (MOU) on October 8, 2015 to establish Ontario-Jiangsu Nanotech Innovation Centre.

This centre will connect Ontario and Jiangsu nanotechnology resources, strengthen bilateral collaboration in nanotechnology industries, integrate nanotechnology information databases, organize bilateral nanotechnology forums and expos, and actively promote mutual visits and collaboration among nanotechnology research organizations, innovation centres and businesses.

NanoOntario Inc. and Nanopolis Suzhou Co. Ltd. signed an agreement to implement and operate the Innovation Centre on behalf of Ontario and Jiangsu, respectively.

The Honorable Luo Zhijun, Party Secretary of the Jiangsu Province in China and the Premier of Ontario Kathleen Wynne participated in the launch of the Industrial Cooperation Forum and Signing Ceremony.

Unveiling of the 'Ontario-Jiangsu Nanotech Innovation Centre' plaque

Dr Arthur Carty, Chair of NanoOntario Board of Directors, attended the Ontario Business Mission to China event on November 13, 2015 and unveiled the plaque for the Ontario-Jiangsu Nanotech Innovation Centre with Dr Zhang Xijun, Chairman and President of Nanopolis.



NanoOntario Peter Mascher and Nanopolis Zhang Xijun



Nanopolis Zhang Xijun and NanoOntario Arthur Carty

Mission

To serve as a bridge to bring together nanotech communities in Ontario and Jiangsu.

To promote nanotech exchange and cooperation between universities and companies in Ontario and Jiangsu.

To build partnerships for innovation and commercialization of nanotech and beyond.

To bring economic and social benefits to both Ontario and Jiangsu.



NANOONTARIO CONFERENCE

The annual NanoOntario Conferences provide a venue for Ontario-based academic, industrial and governmental researchers to present the latest achievements in nano-science and nanotechnology.

The conferences serve as platforms for the exchange of ideas, the development of new collaborative projects, and the initiation of new industry-academia partnerships.

6th Annual NanoOntario Conference

The 6th Annual NanoOntario Conference was held on November 5-6, 2015 at the University of Ottawa and chaired by Dr. Sylvain Charbonneau, Associate Vice-President of Research at the University of Ottawa.

The theme was “Integrating Nanotechnology” and featured invited talks, a panel on building successful partnerships between university-government-industry, a poster session and industry exhibition.

The conference brought together more than 100 attendees, 4 keynote speakers and 40 posters, from the academic, industrial and government communities in Ontario, Canada and internationally.

The conference explored how nanotechnology research responds to industry needs and why some technologies succeed while others don't. More specifically, the conference discussed how research fosters innovation in four areas that are critical to the nanotechnology sector: bionanotechnology, nanophotonics, materials/ self-assembly, and sensor technology.



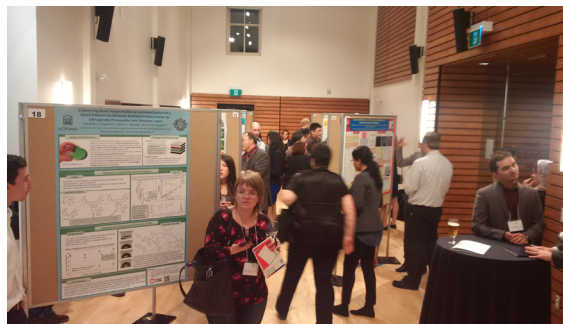
Sylvain Charbonneau



Attendees



Industry panel



Poster session



Sponsor and industry exhibition

Sponsors

Gold Sponsors



Silver Sponsors



Bronze Sponsors



NANOTECHNOLOGY INDUSTRY & FACILITIES IN ONTARIO



Ontario has significant public R&D infrastructure and a strong industrial and economic base, and plays an important role in the development and application of nanotechnology in Canada.



166

nanotechnology
companies in
10 sectors



26

nano facilities
and centres in
10 institutes

Nanotechnology Industry

Industry Canada and Environment Canada commissioned NanoOntario to conduct a study and prepare a report on Nanotechnology Industry in Ontario. The purpose is to gain a better understanding of industry involvement and intentions in nanotechnology development and application in Ontario.

The study found 103 nanotechnology companies in 10 different sectors with applications that touch many aspects of everyday life. A recent survey in 2015 identified additional 63 companies, totaling to 166 nanotechnology companies in Ontario.

Industry sectors

electrophotonics
 medical devices & clinical diagnostics
 consumer products
 construction
industrial materials
 drug delivery & agro-chemical
energy storage & fuel cells
 tools & instruments
 automotive
 environmental & clean tech

Nanotechnology Facilities

McMaster University

Brockhouse Institute for Materials Research
 Canadian Centre for Electron Microscopy
 Centre for Emerging Device Technologies
 Centre for Research in Micro and Nano Systems

Queen's University

Innovation Park
 Queen's Surface Analysis Facility
 Kingston Nanofabrication Facility

Ryerson University

Ryerson University Analytical Centre

Trent University

Trent Institute for Materials Research

University of Guelph

Advanced Analysis Centre

University of Ottawa

Centre for Catalysis Research and Innovation
 Centre for Interdisciplinary Nanophysics and Surface Nanoengineering Laboratory

University of Toronto

Centre for Nanostructured Polymeric and Inorganic Materials
 Emerging Communications Technology Institute
 Energenius Centre for Advanced Nanotechnology
 Toronto Nano Fabrication Centre
 UT NANOnetwork

University of Waterloo

Centre for Advanced Photovoltaic Systems
 Giga-to-Nanoelectronics Centre
 Mike & Ophelia Lazaridis Quantum-Nano Centre
 Waterloo Advanced Technology Laboratory
 Waterloo Institute for Nanotechnology

University of Windsor

Institute for Diagnostic Imaging Research

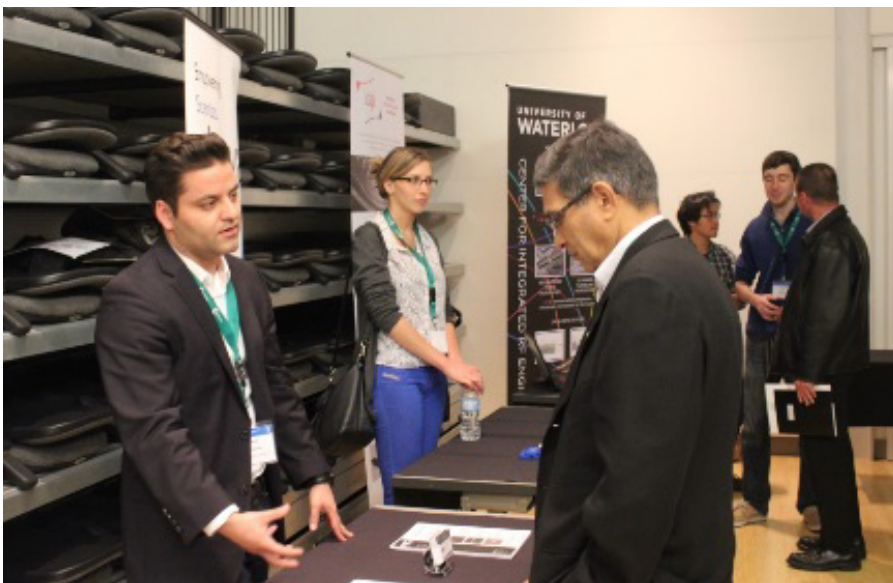
Western University

Centre for Advanced Materials and Biomaterials Research
 Interface Science Western Nanofabrication Facility
 Surface Science Western



NANOFACILITIES FOR EMERGING TECHNOLOGIES INDUSTRY-UNIVERSITY SHOWCASE

Mike & Ophelia Lazaridis Quantum-Nano Centre, University of Waterloo, May 13, 2015



NanoOntario organized the first Industry-University Showcase highlighting Ontario Nanofacilities for Emerging Technologies, at the Mike & Ophelia Lazaridis Quantum-Nano Centre, University of Waterloo on May 13, 2015.

Attended by 100 participants, the event brought together industry, academia and government representatives to showcase state-of-the-art nanofacilities in Ontario, facilitate academic-industry partnerships and explore funding opportunities.

The event featured talks from the industry, academia and government, an exhibition and a discussion panel on collaboration as a key to technological success.

100
attendees

58 industry
38 academia
4 government

4

nanofacilities
featured:

McMaster University
CCEM Imaging Facility & CEDT
University of Ottawa
Centre for Research in Photonics
University of Waterloo
Quantum-Nano Centre
Western University
Nanofab Facility & Surface Science

5

industry talks:
3M
IGNIS
Iridian
Ranovus
Raymor

3

government
funding agencies
NSERC | MITACS | OCE

ISO/TC229 NANOTECHNOLOGY STANDARDS

18th Plenary Meeting of ISO/TC229, Nanotechnologies

National Institute for Nanotechnology (NINT), Edmonton, September 29 - October 2, 2015

For the first time in Canada, the Standards Council of Canada (SCC) and Canadian Standards Association (CSA Group) co-hosted the 18th Plenary Meetings of the ISO/TC229 Nanotechnology Standards at the National Institute for Nanotechnology (NINT) in Edmonton.



There were 144 participants, 18 of which are delegates/experts from Canada's SCC Mirror Committee to ISO/TC229.

NanoOntario provided financial support to its founding member, CSA Group, to ensure the success of the meetings.

ISO/TC229, IEC/TC113 Nanotechnology Standards

ISO and IEC, the two major, globally-relevant standards development organizations have been developing international standards for safe and responsible use of nanotechnologies since 2005.

The Technical Committees (TCs) are ISO/TC229 and IEC/TC113 with 47 member countries, including Canada.

Canada, as a member ISO/IEC country, participates through two mirror committees of volunteers, which are SCC Mirror Committees (SMC) for each of ISO/TC229 and IEC/TC113. These committees are facilitated by SCC and CSA Group.

ISO/TC229 Objectives:

Support the sustainable and responsible development of nanotechnology.

Facilitate global trade in nanotechnology-enabled products and systems.

Improve quality, safety, security, consumer and environmental protection, together with the rational use of natural resources.

Promote good practice in production, use & disposal of nanomaterials or nano-enabled products.

IEC/TC113 Scope:

Standardization of the technologies relevant to electrical and electronic products and systems in the field of nanotechnology in close cooperation with other committees of IEC and ISO/TC229.

For more information on the ISO/TC229 and IEC/TC113, visit: www.nanoontario.ca

Acronyms:

ISO: International Organization for Standardization

IEC: International Electrotechnical Commission

TC: Technical Committee



ISO/TC 229 international delegates



CSA Group Brian Haydon

NANOCANADA

NanoOntario is a founding member and signatory to the agreement on creating NanoCanada, a national initiative that brings together the community and presents a unified vision for nanotechnology across Canada. NanoCanada will stimulate innovation, enhance R&D capacity and facilitate the development of nanotechnology applications in collaboration with industry in Canada.



NanoOntario participated in the ribbon cutting ceremony on March 4-5, 2015, to officiate the launch of NanoCanada.



4th Brazil-Canada Nanotechnology Workshop & Brazil-Nano Tradeshow

Brazil, October 13-16, 2015

A group of 16 Canadian nanotechnology researchers participated in a 4th Brazil-Canada Nanotechnology Workshop to explore collaboration opportunities. NanoCanada made a presentation on the nanohubs in Canada, including NanoOntario. The Waterloo Institute for Nanotechnology (WIN) played a major role in planning and organizing the workshop.



CHINano Conference and Expo

China, October 28-30, 2015

NanoOntario, in cooperation with the Province of Ontario, set up a booth in the Canadian pavilion to promote Ontario nanotechnology capabilities and the newly established Ontario-Jiangsu Nanotech Innovation Centre. The CHINano Conference and Expo is the largest annual event in nanotech industry in China.



NANOONTARIO FOUNDING MEMBERS

Bereskin & Parr
INTELLECTUAL PROPERTY LAW



Lambton
College

