

Join our Community

Membership in the Institute is open to anyone with an interest in science. As a member of NSIS you will:

- ✓ Receive advance access to new issues of the Proceedings of the NSIS
- ✓ Be informed about forthcoming meetings and special events through e-mail bulletins and mailings.
- ✓ Enjoy the opportunity of meeting scientists, educators and others whose interests cover a wide range of scientific topics.
- ✓ Receive a waiver of page charges, if your scholarly work is published in the Proceedings.

Membership fees:

Student member: \$10/Year
Regular member: \$30/Year
Life member: \$300

If you wish, you can make a voluntary donation to promote the activities of NSIS (tax receipt will be issued)

Name: _____
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PO Box 15000,
Halifax, Nova Scotia Canada B3H 4R2

About NSIS

The Nova Scotian Institute of Science (NSIS) is a membership organization that represents and promotes science to Nova Scotians - students, academics, and the general public.

We invite you to do the following:

- Attend free NSIS public lectures held at 7:30pm on the first Monday of each month between October and May. Unless otherwise indicated, all lectures will take place at the Museum of Natural History auditorium (1747 Summer St., Halifax).
- Read an issue of the Proceedings of the Nova Scotian Institute of Science, an online publication featuring a range of articles of relevance to Nova Scotia.
- Browse articles in the historical online archive of the Proceedings of the NSIS.
- Write an article for the peer reviewed NSIS Proceedings.
- Visit the NSIS Virtual Hall of Fame to learn more about influential Nova Scotia scientists.
- Submit an article to the annual NSIS Student Science Writing Competition.
- Explore our mentorship program, a great opportunity for future science leaders to shape their careers.
- Visit us online: nsis.chebucto.org or contact the President, Dr. Patrick Ryall at Patrick.Ryall@dal.ca

Upcoming Special Events

Public Lecture in the Annapolis Valley

November 2, 2015 | 7:30 PM | KC Irving Centre, Wolfville, NS

Hydraulic Fracturing 101: Fracture Stimulation Theory and Practice

Presented by Stephan MacLellan



This lecture is presented in partnership with the K. C. Irving Environmental Science Centre, Acadia University.

NSIS Annual General Meeting & Banquet

May 2, 2016 | 7:30 PM | Location: TBA

NSIS members and guests share a meal and enjoy the final lecture of the season, "What is in the Air we Breathe?"

Message from the President

Welcome to the free public lecture program for the Nova Scotian Institute of Science (NSIS), one of the oldest learned societies in Canada founded in 1862.

The objectives of NSIS are to represent and promote science through free public talks, publication of local scientific work in its *Proceedings*, a library of journals and databases, and a website including a Hall of Fame.

When issues arise that affect the conduct and quality of science in the province, NSIS takes as its responsibility a need to express its opinions.

NSIS encourages young people to get involved in science. We provide financial support to Regional Science Fairs and run an annual Science Writing Competition for university students. Finally, NSIS offers excursions for members to places of scientific interest in the province.

The *Proceedings of the Nova Scotian Institute of Science* is focused on science particular to Nova Scotia or the Atlantic Provinces. Next year there will be a special issue containing papers based on talks given at the Conference on the science and history of Sable Island, organized by the Friends of Sable Island with help from NSIS. We also help support other Conferences on topics of local interest.

I hope you will come to our lectures, where you will get a chance to learn about some of the leading-edge science relevant to Nova Scotia, talk to other people interested in science in Nova Scotia and question the speakers.

Dr. Patrick Ryall
NSIS President



Nova Scotian
Institute of Science



Lecture Series

2015-2016

Unless otherwise indicated all lectures will take place at 7:30 pm at the Museum of Natural History auditorium, 1747 Summer St. Halifax.

Submarine Glacial Landforms: The Imprint of Ice Sheets on the World's Continental Margins April 4, 2016 | 7:30 PM

In the last 20 years the development of detailed seafloor mapping technology and ice-breaking ships have advanced the study of submarine glacial landforms. Quite a number of these landforms can be found offshore of Atlantic Canada. Dr. Todd will speak about these landforms, and how interest in them is high in both academia and industry as they are likely to contain significant hydrocarbon resources.



Brian Todd

Geological Survey of Canada - Atlantic
Natural Resources Canada (BIO)
Bedford Institute of Oceanography

Water for Our Changing Planet – Lessons from the Past Century and the Face of Our Future February 1, 2016 | 7:30 PM

Water determines the potential for life and how our planet functions. Dr. Sterling will show you how water flows and is stored through the global water cycle, and how these flows interact with our climate and plant systems. Drawing upon water crisis case studies, she will illustrate how we alter the global water cycle through human development and climate change. Finally, she will explore the implications of these changes for our planet's future.



Shannon Sterling

Department of Earth Sciences
Dalhousie University

Soil: Where Earth, Water, Fire and Air Meet December 7, 2015 | 7:30 PM

Dr. Burton's research examines how the soil environment is influencing the nature and extent of microbial metabolism in soil. He examines the production and consumption of greenhouse gases in natural and agricultural landscapes, influence of climate on soil biological processes, and the assessment of the quality of the soil biological environment and its influence on overall soil quality. His aim is to understand the factors that control microbial metabolism and to use this information to develop sustainable land management systems in a changing climate.



David Burton

Canadian Society of Soil Science
Environmental Sciences
Agricultural Campus
Dalhousie University

New Frontiers in Battery Chemistry October 5, 2015 | 7:30 PM

Recent years have seen advances in energy storage and innovative work on alternate battery chemistries. Battery materials with the potential to increase storage capacity of lithium-ion batteries could prolong the life of batteries powering electric cars. Magnesium- or sodium-ion batteries could result in lowered battery prices, and more energy storage capacity than lithium-ion batteries. Dr. Obrovac will present an overview of these new battery technologies and discuss their potential for commercialization.



Mark Obrovac

Department of Chemistry
Department of Physics &
Atmospheric Science
Dalhousie University

What is in the air we breathe? May 2, 2016 | 7:30 PM

SPECIAL EVENT | Location TBD

Presented at the NSIS Annual General Meeting & Banquet

Canadians have access to air quality reports that detail a small number of gases and aerosols, but the more complex chemical nature of our air environment is left unmonitored and poorly understood. Dr. Wiacek will review the Nova Scotian air quality context and describe her own research using a new remote sensing technique.



Aldona Wiacek

Department of Environmental Science
Department of Astronomy & Physics
Saint Mary's University

Large Asteroid and the Nova Scotian Continental Shelf March 7, 2016 | 7:30 PM

About 51 million years ago a large asteroid struck the continental shelf off of south-western Nova Scotia. The impact was catastrophic, leaving a 67 km wide crater and triggering one of the largest debris avalanches ever recorded. Dr. Deptuck will discuss this historical disaster in detail, and talk about how marine impact events such as this affect the area around them.



Mark Deptuck

Canada-Nova Scotia Offshore
Petroleum Board

Essential Fatty Acids from the Sea: Connections Between Marine Plants and Human Health January 4, 2016 | 7:30 PM

Marine organisms obtain their essential fatty acids solely from phytoplankton. The distribution, amount, and rate of synthesis of these fatty acids have not been well studied. Dr. Budge will discuss her work on mapping the distribution of the essential fatty acid eicosapentaenoic acid (EPA) in the Northwestern Atlantic, and how it is leading to a model of EPA flux in the sea and connections with human health.



Suzanne M. Budge

Department of Process Engineering
and Applied Science
Dalhousie University

Hydraulic Fracturing 101: Fracture Stimulation Theory & Practice November 2, 2015 | 7:30 PM

SPECIAL EVENT | Location: KC Irving Centre, Wolfville, NS

Hydraulic fracturing, or "fracking", widely used in regions of Canada, as well as all over the world, is a technique used to extract fossil fuels from deep below the Earth's surface. Mr. MacLellan will outline a history of oil and gas in New Brunswick, focusing in particular on that involving Corridor Resources, and discuss the science and theory behind the practice of hydraulic fracturing.



Stephan MacLellan, P.Eng

Corridor Resources INC