

Communiqué

For immediate release

Eight Canadian scientists and scholars garner over \$1 million in Killam Research Fellowships

Ottawa, March 15, 2010 – Eight outstanding Canadian researchers have been awarded a total of \$1.12 million in the 43rd annual competition for Killam Research Fellowships, administered by the Canada Council for the Arts. The Fellowships provide \$70,000 a year for two years to each of the researchers.



The fellowships are awarded to the individual recipients to devote time to full-time research, but the funds are paid to and administered by universities or research institutes. The awards support scholars engaged in research projects of outstanding merit in the humanities, social sciences, natural sciences, health sciences, engineering and interdisciplinary studies within these fields.

Among Canada's most distinguished research awards, the Canada Council for the Arts Killam Research Fellowships are made possible by a bequest of Mrs. Dorothy J. Killam and a gift she made before her death in 1965.

The recipients are chosen by the Killam Selection Committee, which comprises 15 eminent scientists and scholars representing a broad range of disciplines. After considering 83 applications, the Killam Selection Committee chose the following individuals:

Engineering – Electrical/Computer

Frank Kschischang, University of Toronto, *Coding for Efficient Information Transmission in Long-Haul Fiber-Optic Systems and Radio Relay Networks*

The research will develop approaches to improve transmission rate and reliability of communications through wireless relay networks and fiber-optic communications channels. A significant focus is on self-organizing radio networks that may be useful in public safety and disaster recovery efforts.

Engineering – Mechanical

Andreas Mandelis, University of Toronto, *Research and development of two analytical instrumentation techniques for early osteoporotic bone loss and density variation diagnosis*

This research is expected to lead to the development of a portable laser-radar-based instrument that can be used for early detection and monitoring of osteoporosis. It will enable preventive, quantitative measurement of bone density and would be available to people living in areas with little access to hospital facilities and to astronauts on long-duration space flight missions.

Humanities – Linguistics

Marie-Odile Junker, Carleton University, *Ontologies for Cree and Innu Dictionaries*

The project will enable her to research the word formations used for Cree and Innu, two Eastern Canada Aboriginal languages, with particular emphasis on understanding traditional ecological knowledge and human cognition. The work will be used to produce online specialized topical

dictionaries in these two endangered languages as well as contribute to the advancement of knowledge in linguistics.

Health Sciences - Medicine

Donald F. Weaver, Dalhousie University, *Design and Discovery of a Curative Drug for Alzheimer's Disease*
The research will build on work already underway to develop a drug to halt the progression of Alzheimer's disease. This would go beyond current drugs which are used to relieve the symptoms of the disease.

Natural Sciences – Chemistry

Philip Jessop, Queen's University, *Switchable Chemistry*

The project will examine the design of switchable materials (materials that change their properties on command) in order to reduce the environmental impact of human activities. The research will explore a number of areas including a method to remove contaminants from water, switchable solvents to extract vegetable oils from seeds instead of using the current energy-intensive distillation process, and switchable paints that would harden on the wall, not in the can.

Natural Sciences – Chemistry

Eugenia Kumacheva, University of Toronto, *Combining microfluidics and polymer science to create biological environments for cell studies*

The research will enable the use of microfluidics (the flow of liquids through micro channels) to create biological microenvironments where they can study the behaviours of cells. A second component would create a 3D microenvironment to study stem cell growth.

Natural Sciences – Earth Sciences

Brendan Murphy, St. Francis Xavier University, *The origin of Pangea*

The research will focus on examining the tectonic history of key rock formations in two distinct types of ancient oceans that existed over 400 million years ago remnants of which are preserved in Iberia and eastern Australia. The examination of the geodynamic forces that created the formation of new oceans at that time will help better understand the natural pace of long-term global change.

Natural Sciences – Physics/Space Science

Victoria M. Kaspi, McGill University, *A New Window on the High Energy Universe*

The project will focus on the study of magnetars, a small group of known neutron stars with the highest magnetic fields known in the universe that retain and occasionally release high amounts of energy. The research will form a component of the observing schedule of a new x-ray telescope, NuSTAR to be launched by NASA in 2011.

For a list of the 15 members of the selection committee, which included scholars, researchers and experts, please [click here](#). The list also includes the Killam Trustees who monitored the selection process.

General information

In addition to its principal role of promoting and fostering the arts in Canada, the Canada Council for the Arts administers and awards a number of distinguished prizes in the arts, humanities, social sciences, natural sciences, health sciences and engineering. These prizes and fellowships recognize the achievements of outstanding Canadian artists, scholars, and administrators. The Canada Council for the Arts is committed to raising public awareness and celebration of these exceptional people and organizations on both a national and international level.

Please visit our website (www.canadacouncil.ca) for a complete listing of these [awards](#).

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