

# *Senate Research Report*

*September 30, 2014*

## *News*

Dr. Randy Ellis (School of Computing; Mechanical and Materials Engineering; Surgery) has been honoured with the Maurice E. Müller Award, a lifetime achievement award from the International Society for Computer Assisted Orthopaedic Surgery.

Queen's University has placed 277<sup>th</sup> in the Center for World University Rankings (CWUR) 2014 rankings of the top 1,000 universities around the globe. This places Queen's in the top 1.3 per cent of the world's 22,000 degree granting institutions. CWUR's rankings are based on a number of factors, including the number of faculty and alumni who have won prestigious international awards, and the number of alumni who hold CEO positions at the world's top 2000 companies.

Drs. David Berman and Paul Park (Pathology and Molecular Medicine) are part of a national cancer research collaboration that has been awarded the \$5 million 2014 Movember Team Grant from Prostate Cancer Canada (PCC). The Prostate Cancer Program Project in Rapid Development of Novel Diagnostic Markers for Early Prostate Cancer (PRONTO) aims to determine the type of treatment needed when men are diagnosed with prostate cancer.

Dr. Ian Janssen (School of Kinesiology and Health Studies; Public Health Sciences) has earned a place on Thomson Reuters' Highly Cited Researchers list. He is the only Queen's professor to make the list and one of only 88 researchers working in Canada on the 3,215 member list.

Dr. Nigel Smith (Physics, Engineering Physics and Astronomy) has been reappointed to a second term as the director of SNOLAB, the deep underground science laboratory specializing in neutrino and dark matter physics.

The Canada Excellence Research Chairs (CERC) Program is poised to announce the results of its most recent competition, including the appointment of a new chair to Queen's. The CERC program supports Canadian universities in their efforts to build on Canada's growing reputation as a global leader in research and innovation. The program awards world-renowned researchers and their teams up to \$10 million over seven years to establish ambitious research programs at Canadian universities.

Graduate student Michael Kottelenberg and Professor Steven Lehrer (Economics) were selected for the John Vanderkamp Prize for the best article in *Canadian Public Policy* for their paper "New Evidence on the Impacts of Access to and Attending Universal Child-Care in Canada." Professor Ian Keay (Economics) received the Harry Johnson Prize for the best article in the *Canadian Journal of Economics* for his paper "Trade policy and industrial development: iron and steel in a small open economy." The trio received their awards at the 48th annual Conference of the Canadian Economics Association (CEA) at Simon Fraser University.

Dr. Nikolaus Troje (Psychology), Dr. Doug Munoz and Dr. Gunnar Blohm (Biomedical and Molecular Sciences) are members of The Brain in Action research group headed by Dr. Doug Crawford (York University) that received \$1.65 million from the Natural Sciences and Engineering Research Council of Canada (NSERC) through its Collaborative Research and Training Experience (CREATE) grants program.. The funding will support trans-Atlantic supervision and exchanges of graduate students and research fellows as well as non-academic collaborations and internships. The Brain in Action team includes 11 researchers at Queen's, York and Western University and 11 primary investigators from Justus-Liebig-Universitat Giessen and Philipps-Universitat Marburg in Germany.

Dr. James Low (Emeritus, Obstetrics and Gynecology) has been named a member of the Order of Canada for his contributions as an academic and as the founder of the Museum of Health Care.

Queen's alumnus Mario Pinto has been named the new president of the Natural Sciences and Engineering Research Council of Canada (NSERC). The appointment comes into effect this fall.

Dr. Chandrakant Tayade (Biomedical and Molecular Sciences) has received the Mihran and Mary Basmajian Award for Excellence in Health Research for his work on women's health. His most recent work has primarily focused on endometriosis, a painful gynecological disorder. The award was established by Dr. John Basmajian, former head of the Department of Anatomy at Queen's, in memory of his parents.

Dr. Nikolaus Troje (Psychology) has received the Humboldt Research Award, an honour established by the German government to recognize a lifetime of achievement. Dr. Troje studies visual perception and cognition using motion capture technology.

Since the last meeting of Senate, five new experts have been selected to join the university as Queen's National Scholars:

- **Avena Ross**, Queen's National Scholar in chemical biology and medicinal chemistry, is a promising researcher in the area of peptide biosynthesis. She received her PhD at the University of Alberta and comes to Queen's from the Center for Marine Biotechnology and Biomedicine at the University of California, San Diego's Scripps Institution of Oceanography.
- **Armand Garnet Ruffo**, Queen's National Scholar in Indigenous literatures and languages, is a poet, playwright, writer and scholar of international stature. Professor Ruffo is the author of an award winning poetry collection, a play and a feature film, as well as other works of creative non-fiction and scholarly publications in the area of Aboriginal cultures and literatures. He comes to Queen's from Carleton University.
- **Awet Weldemichael**, Queen's National Scholar in African history, was born in the east African country of Eritrea and grew up in a Sudanese refugee camp. He received his PhD from the University of California, Los Angeles and is the author of the acclaimed book *Third World Colonialism and Strategies of Liberation: Eritrea and East Timor Compared*. He comes to Queen's from the University of Kentucky.

- **Heather Aldersey**, Queen's National Scholar in international community-based rehabilitation, will join the School of Rehabilitation Therapy. She brings significant international research and field experience, having undertaken extensive study of disability and support in African contexts. She holds an interdisciplinary PhD from the University of Kansas and is currently a post-doctoral researcher at McGill's Douglas Mental Health University Institute, where she is studying the experience of recovery from severe mental illness among Montreal's culturally diverse populations.
- **Norman Vorano**, Queen's National Scholar in Indigenous visual and material cultures of the Americas, will join both the Department of Art and the Agnes Etherington Art Centre. He earned a PhD from the University of Rochester's program in visual and cultural studies and brings an impressive track record of fieldwork, research, teaching and curatorial work with a focus on Inuit art. He is currently curator of contemporary Inuit art at the Canadian Museum of History (formerly the Canadian Museum of Civilization) where he has led major research projects resulting in scholarly publications, exhibits and public programming.

Dr. Gauvin Bailey (Art History), the Alfred and Isabel Bader Chair in Southern Baroque Art, was elected a "correspondant-étranger" (foreign correspondent) of the Académie des inscriptions et belles-lettres (Humanities) of the Institut de France, one of the most-respected and oldest learned institutions in the world (founded in 1663). Dr. Bailey is one of only six North American foreign correspondents.

Patrick Deutscher, Ontario's chief economist, is set to join Queen's School of Policy Studies this fall as the Ontario Public Service (OPS) Amethyst Fellow. The OPS Amethyst Fellowship, established in 2003, provides support for a senior OPS official to spend up to one year at Queen's School of Policy Studies. During that time, the Amethyst Fellow works with future policy leaders and raises the profile of the OPS as a centre of public policy excellence. The Amethyst Fellow teaches a course, participates as a guest speaker, and helps organize the annual Queen's Master of Public Administration Capital Briefings program in Toronto, among other activities.

Dr. Kathy Brock (School of Policy Studies) was recently elected the first female president of the Canadian Association of Programs in Public Administration (CAPPA), the leading national organization representing the schools of public administration, policy and management across Canada and academics engaged in research and teaching on all facets of government.

Dr. Julie Salverson (Drama) has recently opened her first full-length opera, *Shelter*, about a nuclear family that goes adrift. The opening was held in Toronto.

The NCIC Clinical Trials Group (CTG) at Queen's University has been awarded \$15 million in funding from the U.S. National Institutes of Health through the U.S. National Cancer Institute (NCI) to strengthen its work leading major cancer clinical trials in Canada. The funding allows the NCIC CTG to increase its collaborations with the U.S. NCI and its National Clinical Trials Network (NCTN).

Dr. Amy Sun (Economics) was awarded the Governor's Award from the Bank of Canada for her research into real-world issues with monetary policy, asset distributions and wealth inequality. The Governor's Award recognizes outstanding academics at a relatively early stage in their careers who are working in areas of research critical to the Bank of Canada's mandate of promoting the economic and financial well-being of Canada.

Dr. Keith Poole (Biomedical and Molecular Sciences) has received the Canadian Society of Microbiologists Murray Award for Career Achievement, sponsored by NRC Research Press.

On September 9, nine Queen's University professors were named among the newest fellows of the Royal Society of Canada, more than in any other single year:

- Dr. Erwin Buncel (Chemistry)
- Dr. John Burge (School of Music)
- Dr. Roger Deeley (Pathology and Molecular Medicine)Cancer Research Institute)
- Dr. Myra J. Hird (School of Environmental Studies)
- Dr. Ian McKay (History)
- Mr. Peter Milliken (School of Policy Studies)
- Dr. François Rouget (French Studies)
- Dr. Wendy Craig (Psychology)
- Dr. W. George Lovell (Geography)

Dr. Wendy Craig (Psychology) has been named as one of three finalists for the Social Sciences and Humanities Research Council (SSHRC) Partnership Award. These awards are the highest achievements given annually by SSHRC. The winners will be announced at the annual award ceremony in Ottawa on Nov. 3.

Dr. William Leggett (Biology, Principal Emeritus) has received the H. Ahlstrom Lifetime Achievement Award from the Early Life History Section of the American Fisheries Society for his contributions to the fields of larval fish ecology.

## Research Funding

Researcher	Department	Project Title	Amount
<b>Canada Foundation for Innovation: JELF</b>			
Archer, Stephen	Medicine	Mitochondrial Dynamics in Pulmonary Hypertension and Lung Cancer	\$315,938
Hassan, Ahmed	School of Computing	Methods and Tools for Developing and Operating Ultra-Large-Scale (ULS) Software Services	\$50,000
Take, Andy	Civil Engineering	Development of innovative monitoring tools to capture the early warning signs of future landslide instability	\$97,500
<b>Canadian Hemophilia Society: Dream of a Cure</b>			
James, Paula	Medicine	Understanding Angiodysplasia in von Willebrand Disease; Studies using BOEC (Blood Outgrowth Endothelial Cells)	\$75,000
<b>Canadian Institutes of Health Research: Dr. James Rossiter Master's of Public Health Practicum Awards Program</b>			
Davison, Colleen	Public Health Sciences	Dr. James Rossiter MPH Practicum Awards	\$12,100
<b>Canadian Institutes of Health Research: Operating Grants New and Renewed</b>			
Amsden, Brian	Chemical Engineering	Biometric Scaffold for Ligament Tissue Engineering	\$409,478
Ferguson, Alastair	Biomedical and Molecular Sciences	The Subfornical Organ - A critical central nervous system sensor and integrator of metabolic, cardiovascular and immune signals in the circulation	\$722,622
Hanna, Timothy	Cancer Care and Epidemiology	A Population Study of the Toxicity and Effectiveness of High-Dose Interferon for High-Risk Melanoma	\$360,993
Heyland, Daren	Medicine	A RandomizEd trial of ENtERal Glutamine to minimIZE thermal injury: (The RE-ENERGIZE Study)	\$100,000
Holden, Rachel	Medicine	Inhibit the progression of arterial calcification in hemodialysis patients: A multi-center pilot study	\$100,000
Lillicrap, David	Pathology and Molecular Medicine	Molecular studies of von Willebrand factor biology and pathobiology	\$823,296

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Researcher	Department	Project Title	Amount
Munoz, Doug	Centre for Neuroscience Studies	Neural mechanisms of saliency and orienting	\$617,690
<b>Canadian Institutes of Health Research: Partnerships for Health System Improvement (PHSI)</b>			
Heyland, Daren	Medicine	Improving general practice advance care planning The i-GAP Study	\$399,942
<b>Canadian Vascular Network: Seed Funding</b>			
Bennett, Brian	DBMS	Mechanisms of cerebral vascular pathology and potential reversal in a new animal model of age-related cognitive impairment	\$74,854
<b>Crohn's and Colitis Canada: Grant-in-Aid</b>			
Tripp, Dean	Department of Psychology	Understanding and Remediating the Psychosocial Risk Factors of IBD Pain and Poor Quality of Life	\$268,620
<b>Ministry of Research and Innovation (MRI): Early Researcher Award</b>			
Hoult, Neil	Civil Engineering	Infrastructure deterioration: detection and assessment	\$140,000
Woo, Kevin	School of Nursing	Online social support program for people with diabetes and foot ulcers	\$140,000
<b>Ministry of Research and Innovation (MRI): ORF-RI LIF</b>			
Fam, Amir (PI) Green, Mark Hoult, Neil MacDougall, Colin	Civil Engineering	Moving Load Facility for Assessment of Bridge Strength and Durability	\$1,390,000
McDonald, Art (PI) Boulay, Mark Chen, Mark Noble, Anthony	Physics	Leading the Search for Dark Matter and Double Beta Decay: Improved Discovery Potential for DEAP-3600 and SNO+ Experiments	\$1,345,285
Moore, Ian (PI) Brachman, Richard Filion, Yves Hoult, Neil	Civil Engineering	Deterioration and long term performance of buried infrastructure	\$1,220,000

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Researcher	Department	Project Title	Amount
Munoz, Douglas (PI) Flanagan, Randy Johnsrude, Ingrid Reynolds, James Scott, Stephen Stroman, Patrick Troje, Nikolaus	Biomedical and Molecular Sciences	Enhancement and development of new assessment tools for evaluation of brain function and dysfunction	\$1,768,662
Rau, Wolfgang (PI) Di Stefano, Philippe	Physics	SuperCDMS at SNOLAB: Uncovering the Mysteries of the Universe	\$1,709,500
Vanner, Stephen (PI) Beyak, Michael Blennerhasset, Michael Heyland, Daren Hookey, Lawrence Justinich, Christopher Paterson, William Petrof, Elaine Ropelski, Mark	Medicine	Human Laboratory for the Study and Treatment of Gastrointestinal Disorders	\$1,197,245
<b>Ministry of Research and Innovation (MRI): ORF-RI SIF</b>			
Allingham, John	Biomedical and Molecular Sciences	Applying the power of molecular biophysics approaches to characterize the functions of natural actin-binding cytotoxins and the molecular performance of novel kinesin motors	\$55,786
Archer, Stephen	Medicine	Mitochondrial Dynamics in Pulmonary Hypertension and Lung Cancer	\$315,938
Barz, Dominik	Chemical Engineering	Miniaturized Power Sources for MEMS Applications: Novel Microfluidic Rechargeable Batteries	\$128,000
Booij, Linda	Psychology	The relevance of DNA methylation processes in serotonin genes for the diagnosis and treatment of mental illness	\$60,319
Cook, Douglas	Surgery	The Translational Stroke Research Program	\$480,000
Escobedo, Carlos	Chemical Engineering	Optofluidic-based technology for biomedical diagnostics and cell studies	\$125,000
Evans, Andy	Chemistry	New Metal-Catalyzed Allylic Substitution and Higher-Order Carbocyclization Reactions	\$400,000

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Researcher	Department	Project Title	Amount
Fischer, Steven	School of Kinesiology & Health Studies	Movement for Performance Biomechanics and Ergonomics Laboratory	\$150,000
Hassan, Ahmed	School of Computing	Methods and Tools for Developing and Operating Ultra-Large-Scale (ULS) Software Services	\$50,000
Jia, Zongchao	Biomedical and Molecular Sciences	An integrated crystallization robot imaging system for structural studies of protein phosphorylation systems	\$179,774
Johri, Amer	Medicine	Parametric imaging Program: 3D Strain and Stress for the Detection of Cardiovascular Disease	\$128,402
Levy, Ron	Centre for Neuroscience Studies	Monkey models of movement disorders: Electrophysiology and neuromodulation therapies	\$320,000
Mulligan, Ryan	Civil Engineering	Dynamics of coupled wave-current-sediment processes in coastal environments	\$150,000
Mumford, Kevin	Civil Engineering	Laboratory for multiphase flow and mass transfer in porous media	\$116,586
Neder, Alberto	Medicine	A Laboratory of Clinical Exercise Physiology in Chronic Cardiopulmonary Diseases (LACEP)	\$200,000
Nunzi, Jean-Michel Stotz, James Barz, Dominik	Chemistry	Research on portable multidimensional micro-nano biological sensing devices	\$400,000
Ozolins, Terence	Pharmacology & Toxicology	Chemically-induced Ventricular Septation Defects: Mechanisms and Long-term Health Consequences	\$120,000
Rauh, Michael	Pathology and Molecular Medicine	A Translational Research Pipeline for Personalized Diagnostics in Myelodysplastic Syndromes	\$206,000
Spronk, Ron	Art	Creating QU-MOLTAH: Queen's University Mobile Laboratory for Technical Art History	\$154,224
Take, Andy	Civil Engineering	Development of innovative monitoring tools to capture the early warning signs of future landslide instability	\$97,500
Upitis, Rena	Education	Digital Tools for Music Education	\$168,994
Wright, Alex	Physics	A Tellurium Upgrade for the SNO+ Neutrinoless Double Beta Decay Search	\$400,000

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Researcher	Department	Project Title	Amount
Zou, Ying (Jenny)	Electrical and Computer Engineering	Techniques and Tools for the Development and Evolution of Service Oriented Architecture Applications	\$50,000
Zulkernine, Mohammad	School of Computing	Methods and Tools for Building and Monitoring Reliable and Secure Software Systems	\$50,000
<b>Mitacs: Accelerate Graduate Research Internship Program</b>			
Adams, Michael	Biomedical and Molecular Sciences	Prolonged Rat Heart Storage Using Sub-Zero Temperatures and Antifreeze Proteins: Feasibility Assessments Industrial Partner: CryoStasis Ltd.	\$30,000
Dean, Tom	Electrical and Computer Engineering	Re-engineering business process of an insurance broker group. Industrial Partner: Upper Canada Commercial Insurance Group	\$15,000
Dean, Tom	Electrical and Computer Engineering	Security in Ultra Large Software Systems. Industrial Partner: Iredto Canada	\$173,333
Dean, Tom	Electrical and Computer Engineering	Centralized Reporting System of an Organization. Industrial Partner: Sunray Groups	\$15,000
Kim, Il Yong	Mechanical and Materials Engineering	Design and Optimization of Crankshaft Vibration Dampers	\$30,000
Kim, Il Yong	Mechanical and Materials Engineering	Design and Optimization of Crankshaft Vibration Dampers. Industrial Partner: Magna Powertrain	\$30,000
Zulkernine, Mohammad	School of Computing	Security in Ultra Large Software Systems. Industrial Partner: Iredto Canada.	\$106,667
<b>NSERC: Banting Postdoctoral Fellowships</b>			
Scott, Stephen	Centre for Neuroscience Studies	(Dr. Tyler Cluff) Human Brain Areas Involved in the Adaptation of Feedback Responses for Rapid, Task-Dependent Movement Control	\$140,000

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<b>NSERC: Collaborative Research and Development Grant</b>			
Birk, Mike	Mechanical and Materials Engineering	Energy efficient exhaust components for gas turbine engines for environmentally sound propulsion and power generation applications. Industrial Partner: W.R. Davis Engineering Ltd. \$425,000	\$700,000
Mechefske, Chris	Mechanical and Materials Engineering	Computational vibro-acoustic modeling for aircraft fuselage design optimization. Industrial Partner: Bombardier Aerospace, \$40,000	\$79,970
Liu, Yan Fei	Electrical and Computer Engineering	Technology Development for DC - DC integrated Point of Load (POL) Power Supply. Industrial Partner: Sumida Technologies Inc., \$120,000	\$239,940
McKinnon, Steve	The Robert M Buchan Department of Mining	Drift Destressing in Deep Mines	\$127,761
<b>NSERC: Discovery Grants</b>			
Aarssen, Lonnie	Biology	Mechanisms of species assembly and coexistence in vegetation under a changing climate: Plant traits, contested resources, and ecosystem services	\$170,000
Alajaji, Fady	Mathematics and Statistics	Joint Source-Channel Coding Theory with Applications to Wireless Communication Networks	\$200,000
Arnott, Shelley	Biology	Community response to environmental change: the role of dispersal, local adaptation, and species interactions	\$170,000
Blostein, Dorothea	School of Computing	Pattern Recognition Models for Bioinspired Computing and Document Analysis	\$95,000
Blostein, Steven	Electrical and Computer Engineering	Avoidance or Alignment: Interference Mitigation Strategies for Wireless Communications	\$145,000
Bonier, Frances	Biology	Linking current and future environment, physiology, behaviour, and life history in birds	\$135,000
Carrington, Tucker	Chemistry	Development and application of new methods for computing rovibrational spectra and rate constants	\$420,000
Champagne, Pascale	Civil Engineering	Integrated Wastewater Treatment for Bioresource and Bioenergy Recovery	\$30,000

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Chen, Bingshu	Community Health and Epidemiology	Statistical models for clustered survival data and multivariate recurrent events	\$70, 000
Chunfang, Lin	Mathematics and Statistics	Topics on Design of Experiments and Computer Experiments	\$50, 000
Ciccarelli, Gabriel	Mechanical and Materials Engineering	Study of explosion physics	\$130, 000
Courteau, Stephane	Physics, Engineering Physics & Astronomy	Towards and understanding of galaxy structure and evolution	\$22, 000
Eckert, Christopher	Biology	The Ecology & Evolution of Species Range Limits	\$395, 000
Escobedo, Carlos	Chemical Engineering	Optofluidics-based sensing platforms	\$125, 000
Filion, Yves	Civil Engineering	Sustainable Water Main Asset Rehabilitation & Replacement Planning	\$105, 000
Fotopoulos	Geological Sciences and Geological Engineering	Uncertainty models of reference surfaces derived from multi-platform geodetic observations	\$95, 000
Freundorfer, Alois	Electrical and Computer Engineering	3D Ceramic Sensors and Circus	\$120, 000
Gharesifard, Bahman	Mathematics and Statistics	Continuous-time distributed optimization and tradeoffs of optimality and heterogeneity	\$145, 000
Godin, Laurent	Geological Sciences and Geological Engineering	Cross-strike discontinuities and along-strike variability in continental collision zones	\$205, 000
Guay, Martin	Chemical Engineering	Control and optimization of large-scale uncertain systems	\$220, 000
Hassanein, Hossam	School of Computing	Ubiquitous Global Sensing	\$190, 000
Horton, Joseph	Chemistry	Interfacial Forces and Novel Self-Assembled Surface Structures	\$170, 000
James, Noel	Geological Sciences and Geological Engineering	Facies anatomy and early diagenesis of carbonate rocks	\$350, 000

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James, Noel	Geological Sciences and Geological Engineering	Facies anatomy and early diagenesis of carbonate rocks	\$120,000
Jarrell, Ken	Biomedical and Molecular Sciences	Genetics and regulation of surface structures in the Domain Archaea	\$265, 000
Kim, Il Min	Electrical and Computer Engineering	Revolutionizing Physical Layer Security for Wireless Communications	\$175, 000
Kyser, Kurtis	Geological Sciences and Geological Engineering	Tracing element migration in the geosphere and biosphere	\$350, 000
Kyser, Kurtis	Geological Sciences and Geological Engineering	Tracing element migration in the geosphere and biosphere	\$120,000
Lafreniere, Melissa	Geography	The biochemical response of High Arctic surface waters to changing permafrost and hydrology	\$260, 000
Liss, Steven	School of Environmental Studies	Dynamics of the Morphological Features of Microbial Structures in Engineered Environmental Systems	\$130, 000
Liu, Yan Fei	Electrical and Computer Engineering	A New Power Architecture with Wireless Feedback Control for Next Generation Server Power System	\$200, 000
Liu, Yan Fei	Electrical and Computer Engineering	A New Power Architecture with Wireless Feedback Control for Next Generation Server Power System	\$120,000
Lomax, Alan	Biomedical and Molecular Sciences	Neurotransmitter modulation of neurogenesis in the adult enteric nervous system	\$165, 000
Loock, Hans-Peter	Chemistry	Instruments and Applications for Absorption and Fluorescence Spectroscopy	\$420, 000
Lougheed, Stephen	Biology	Roles of isolation, secondary contact and gene flow in diversification and speciation	\$210, 000
Mabee, Warren	Geography	Combining simulation and life cycle modelling to identify opportunities for advanced biorefineries	\$105, 000
Massey, Thomas	Biomedical and Molecular Sciences	Modification of DNA Repair Activities by the Nutraceutical Sulforaphane	\$165,000

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Mechefske, Christopher	Mechanical and Materials Engineering	Characterization and Control of Non-Steady State Machine Vibration	\$190,000
Montgomerie, Robert	Biology	Sexual selection and the perception of colour	\$210,000
Moore, Ian	Civil Engineering	Testing, analysis and performance of new and existing buried pipes installed using conventional and trenchless technologies	\$225,000
Munhall, Kevin	Psychology	Audiovisual speech perception	\$165,000
Narbonne, Guy	Geological Sciences and Geological Engineering	When Life Got Big: The Ediacaran emergence of biological complexity	\$145,000
Olivo, Gema	Geological Sciences and Geological Engineering	Source-Transport-Trap Models for Base and Precious Metals in Basins	\$145,000
Ramsay, Juliana	Engineering	Biological treatment of naphthenic acids in oil sands process waters	\$145,000
Spekkens, Kristine	Physics, Engineering Physics & Astronomy	Towards a Cosmological View of Disk Galaxy Structure	\$205,000
Stotz, James	Physics, Engineering Physics & Astronomy	Controlling Quantum States using Phononic Crystals	\$135,000
Takahara, Glen	Mathematics and Statistics	Nonparametric Methods for Temporally Correlated and High Dimensional Data	\$50,000
Thorley, Ursula	Mining Engineering	Classification of oil sands ore and waste on the basis of technical and economic criteria	\$65,860
Treitz, Paul	Geography	Remote sensing of biophysical variables at multiple spatial scales along a latitudinal gradient in the Canadian Arctic	\$175,000
Vertegaal, Roel	School of Computing	The Design and Evaluation of 3D Haptic Organic User Interfaces	\$270,000
Yui, Noriko	Mathematics and Statistics	Calabi-Yau Varieties: Arithmetic, Geometry and Physics	\$70,000
Zulkernine, Mohammad	School of Computing	Build and Watch: Towards Intrusion-Aware Software Systems	\$125,000

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<b>NSERC: Discovery Grants - Northern Research Supplement</b>			
Lafrenière, Melissa	Geography	Field studies investigating the response of water quality and biogeochemistry of High Arctic watersheds to changing permafrost and hydrology	\$80,000
Lafrenière, Melissa	Geography	Field studies investigating the response of water quality and biogeochemistry of High Arctic watersheds to changing permafrost and hydrology	\$20,000
<b>NSERC: Discovery Grants Program - Accelerator Supplements</b>			
Eckert, Christopher	Biology	The Ecology & Evolution of Species Range Limits	\$120, 000
James, Noel	Geological Sciences and Geological Engineering	Facies anatomy and early diagenesis of carbonate rocks	\$120, 000
Kyser, Kurtis	Geological Sciences and Geological Engineering	Tracing element migration in the geosphere and biosphere	\$120, 000
Liu, Yan Fei	Electrical and Computer Engineering	A New Power Architecture with Wireless Feedback Control for Next Generation Server Power System	\$120, 000
Vertegaal, Roel	School of Computing	The Design and Evaluation of 3D Haptic Organic User Interfaces	\$120, 000
<b>NSERC: Engage Grant</b>			
Blohm, Gunnar	Biomedical and Molecular Sciences	Implementing dual quaternions as a basis for sensor fusion	\$25,000
Cicarelli, Gabriel	Mechanical and Materials Engineering	Reduction of methane emissions in natural gas compression ignition engines	\$25,000
Hassanein, Hossam	School of Computing	Seamless Intelligent Parking System (SIPS)	\$25,000
Kan, Frederick	Biomedical and Molecular Sciences	Bioengineering of liquid media for hypothermic storage of germplasm and enhancement of mammalian fertility	\$25,000
Kim, Il Yong	Mechanical and Materials Engineering	Lightweight Topology Optimization of Aircraft Interior Structures	\$25,000

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Peppley, Brant	Chemical Engineering	Comprehensive Numerical Model for a Dry Reforming Process	\$24,600
Pharoah, Jon	Mechanical and Materials Engineering	Catalyst Coated Membrane Conditioning	\$15,000
Qingguo, Li	Mechanical and Materials Engineering	Inertial sensor for 3D joint kinematics estimation: Calibration and protocol development Industrial Partner: HAS Motion	\$25,000
Regan, Sharon	Biology	Identification of Beneficial Mycorrhizal Fungi for the Remediation of the Kam Kotia Mine Site	\$25,000
Tayade, Chandrakant	Biomedical and Molecular Sciences	Development of a Disposable Bioreactor for Cell Expansion	\$25,000
<b>NSERC: Engage Plus</b>			
Cunningham, Michael	Chemical Engineering	Development and Mechanistic Studies of Core-Shell Hybrid Nanoparticles Based on Modified EcoSphere Starch-based Nanoparticles. Industrial Partner: EcoSynthetix Inc., \$12,500	\$12,500
<b>NSERC: Idea to Innovation</b>			
Krstic, Vladimir	Mechanical and Materials Engineering	Process optimization of high toughness, high strength zirconia ceramics for resistance welding	\$116,656
<b>NSERC: Interaction Grant</b>			
Kim, Il Yong	Department of Mechanical and Materials Engineering	Topology Optimization for Lightweight Design	\$4,000
<b>NSERC: Major Resources Support Program</b>			
Noble, Anthony	Physics, Engineering Physics & Astronomy	Queen's University Infrastructure support for the development of SNOLAB experiments	\$145,000
<b>NSERC: Research Tools and Instruments</b>			
Amsden, Brian	Chemical Engineering	Peptide Synthesizer for Biomaterial Preparation	\$71,525

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Cumming, Brian	Biology	Sub-bottom Profiling System (SBPS) for Advancing Research in Environmental Change from Remote Lakes	\$54,960
Diederichs, Mark	Geological Sciences and Geological Engineering	Servo Controlled Shear Actuator for high accuracy determination of interlayer, fracture and vein stiffness and strength for waste and deep mining applications	\$147,997
Kunz, Manuela	School of Computing	A system for real-time, portable 3D medical imaging acquisition for interdisciplinary research	\$126, 644
Munhall, Kevin	Psychology	Eye tracking with mobile participants	\$38,155
Troje, Niko	Psychology	Motion platform and image generator for virtual reality setup	\$4,218
<b>NSERC: Strategic Projects</b>			
Champagne, Pascale	Civil Engineering	Bio-oil Recovery & CO2 Recycling by Waste Stream Enhanced Microalga Growth & Low Energy CO2-Related Extraction	\$592,170
Cumming, Brian	Biology	Assessment of the importance of nitrogen deposition and climate on aquatic production in boreal lakes downwind of the Athabasca oil sands region	\$271,062
Cunningham, Michael	Chemical Engineering	Stimuli Responsive Crystalline Nanocellulose (CNC) and Microcrystalline Cellulose (MCC)	\$353,160
da Silva, Ana Maria	Civil Engineering	Contamination of river beds by oil spills and impact on fish habitat	\$469,046
Jain, Praveen	Electrical and Computer Engineering	New power converters for energy storage systems	\$351,000
Jessop, Philip	Chemistry	CO2-Triggered Switchable Surfaces	\$378,240
Moore, Ian	Civil Engineering	Water: Management and assessment of infrastructure (WaterMAIN) to prevent leakage and collapse of water pipes and sewers	\$570,950
Smol, John	Biology	Predicting dissolved oxygen concentrations in Lake Trout lakes: Developing new tools for a multiple-stressor world.	\$365,200



<b>NSERC: Subatomic Physics</b>			
Boulay, Mark	Physics, Engineering Physics & Astronomy	DEAP-3600 Operation and Analysis	\$1,711,000
Noble, Anthony	Physics, Engineering Physics & Astronomy	Search for Dark Matter with PICO (PICASSO/COUPP)	\$114,025
<b>Ontario Institute for Cancer Research: Pathology Research Fellowship</b>			
Rauh, Michael	Pathology and Molecular Medicine	Transforming MDS diagnostics and prognostics through integrated somatic mutation and digital gene expression profiling	\$449,718
<b>SSHRC: Connection Grant</b>			
Bruno-Jofré, Rosa	Education	Catholicism and education: fifty years after Vatican II, 1962-1965 - a transnational interdisciplinary encounter	\$24,670
<b>SSHRC: Insight Development Grant</b>			
Bailey, Gauvin	Art	Art and Architecture in a Paper Empire: Utopianism and Intransigence in the French Atlantic World, 1608-1828.	\$63,989
Essert, Christopher	Faculty of Law	Property at the Periphery	\$58,100
<b>SSHRC: Insight Grants</b>			
Andrevski, Goce	School of Business	Strategic forbearance: the role of purposeful non-actions in competitive behaviour	\$136, 417
Bala, Nicholas	Law	Access to effective family justice: improving outcomes for children and parents	\$338, 840
Cockfield, Arthur	Law	A transaction cost perspective on Canada- United States cross-border tax information exchanges	\$83, 500
Côté, Jean	Kinesiology and Health Sciences	Transformational leadership in youth sport: fostering youth development and long-term participation	\$450, 000
Jainchill, Andrew	History	Sovereignty and reform in the early enlightenment	\$67, 107

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Koepl, Thorsten	Economics	Information acquisition in dark markets: credit rating agencies and financial stability	\$119,399
Lloyd-Ellis, Huw	Economics	Housing liquidity, mobility and the dynamics of house prices, home-ownership and inequality	\$101,573
Lovell, George	Geography	Unions of Spaniards, Indians, and Africans: the emergence of mixed-race populations in Guatemala	\$123,850
MacKenzie, Scott	Film and Media	The legacy of the Cold War: Arctic cinemas as the ice breakers	\$191,184
Moore, Margaret	Political Studies	Corrective justice and land	\$104,211
Schwartz, Joan	Art	Picturing Canada: photographic images and geographical imaginings in British North America, 1839-1889	\$186,845
Vierø, Marie-Louise	Economics	Foundations for growing awareness in economic models	\$126,300
Viswanathan, Leela	School of Urban and Regional Planning	Enhancing Indigenous-municipal relations in the context of land use planning in Southern Ontario	\$438,199
<b>SSHRC Partnership Development Grant</b>			
von Hlatky, Stéfanie	Political Studies	Global actors and community-level security: developing best practices	\$199,944
<b>SSHRC: Partnership Grant - LOI</b>			
Lyon, David	Sociology	Big data surveillance	\$20,000

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