

## *Senate Research Report*

*October 17, 2017*

### News

Queen's University researcher Dr. Heather Castleden (Geography and Planning/Public Health Sciences) has received a \$2 million team grant from the Canadian Institutes of Health Research (CIHR) to lead an interdisciplinary research program on Indigenous leadership in renewable energy development for healthy communities.

Lead by Stephen L. Archer, Head of Medicine at Queen's University, the Queen's CardioPulmonary Unit (QCPU) opened its doors to the public for the first time on Friday, Oct. 6. The Canada Foundation for Innovation and the Ontario Ministry of Research, Innovation and Science have jointly awarded \$7.7 million in funding to establish this new, state-of-the-art facility. The new, QCPU, housed within the Queen's Biosciences Complex, allows the team to conduct world-class, transformative heart, lung, blood and vascular research to identify novel therapeutic targets and evaluate them in preclinical studies. The QCPU team will then translate these preclinical discoveries to humans through investigator-initiated clinical trials located in Kingston, Ottawa, Edmonton, Chicago, Minneapolis, Salt Lake City, and Sao Paulo, Brazil.

Queen's University physics researchers Stephen Hughes and Anthony Noble, and their Canada Foundation for Innovation (CFI) collaborators, were awarded a combined \$4.8 million in funding from the CFI Innovation Fund. Dr. Noble's team is building a next generation detector, PICO 500L, that will search for dark matter while Dr. Hughes and his CFI collaborators, including co-lead James Fraser, will establish a Queen's Nanophotonics Research Centre to explore the behavior of light and light-matter interactions on the nanometer scale. The funding was announced by the Honourable Kirsty Duncan, Minister of Science.

Letters of Intent can now be submitted for the 2017 [Queen's Research Opportunities Funds \(QROF\)](#) competition — a suite of internal research awards seeing major investments being made in support of the research enterprise at Queen's. Additionally, supported by a federal government block grant provided to Queen's by the Social Sciences and Humanities Research Council (SSHRC), Queen's has recently redesigned the [Social Sciences and Humanities Research Council Institutional Grant \(SIG\)](#) competition to support social sciences and humanities researchers with funding for research project development, pilot study work, or to attend or run knowledge-mobilization activities like workshops, seminars or scholarly conferences.

## Faculty Recognition and Awards

The 2018 Olaf Palme visiting Professorship has been awarded to Margaret Moore, Professor of Political Studies, by the Swedish Research Council for the autumn term 2018.

Queen's University researcher John Rudan (Surgery) has been formally inducted into the Canadian Academy of Health Sciences Fellowship, one of Canada's premier academic honours. An internationally recognized trailblazer in orthopaedic surgery, Dr. Rudan was selected for his global leadership, academic performance and scientific creativity.

Queen's National Scholar Norman Vorano has been named as one of only five recipients of a prestigious Pierre Elliot Trudeau Foundation Fellowship – one of the most competitive awards available to humanities and social science scholars in Canada. Dr. Vorano, assistant professor in the Department of Art History and Art Conservation and curator of Indigenous art at the Agnes Etherington Art Centre, was recognized for his work with Indigenous communities in the Canadian Arctic to record, understand, and share Inuit art history.

Queen's University researcher Gregory Jerkiewicz (Chemistry) has been awarded the Eminent Visitor Award by the Catalysis Society of South Africa (CATSA).

## Research Funding

| Researcher   | Department | Project Title   | Amount      |
|--|------------|---|-------------|
| Alzheimer Society – Research Grant                     |            |   |             |
| De Felice, Fernanda                                    | DBMS       | FNDC5/irisin as a novel therapeutic approach in Alzheimer's disease   | \$149,945   |
| American Institute of Bisexuality – Research Grant     |            |   |             |
| Pukall, Caroline                                       | Psychology | An investigation of the relationship between partner gender and sexual, relationship, and social wellbeing in individuals who self-identify as bisexual | US \$20,200 |
| Bayer Healthcare Pharmaceuticals Inc. – Research Grant |            |   |             |
| Glover, Benedict                                       | Medicine   | Patient specific reasons for attending the Emergency Department in the setting of a   | \$20,000    |

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|  |  | background history of atrial fibrillation  |  |
| Canadian Dermatology Foundation – Research Grant   |  |  |  |
| Asai, Yuka   | Medicine                               | FaCES - Filaggrin and the Cutaneous Environment Study  | \$20,000   |
| Canadian Orthopaedic Foundation – 2016 Canadian Orthopaedic Research Legacy (CORL) Grant |  |  |  |
| Bicknell, Ryan   | HMRC                                   | A study of the trabecular bone density distribution in the scapula relevant to reverse shoulder arthroplasty   | \$20,000   |
| Cancer Research Society & Bladder Cancer Canada – Research Grant                         |  |  |  |
| Berman, David  | Cancer Biology & Genetics              | Proteomic biomarkers of urothelial stroma controlling cancer invasion and progression  | \$60,000 from each agency for a total of \$120,000 |
| CIHR – Catalyst Grant  |  |  |  |
| Davison, Colleen   | Public Health Sciences                 | Building capacity in deliberative dialogue and arts-based discussion facilitation: catalyzing skills for community health program development in Arviat, Nunavut | \$149,973  |
| Levesque, Lucie  | School of Kinesiology & Health Studies | Mobilizing Indigenous knowledge for community-driven wellness  | \$149,995  |
| Miller, Jordan   | School of Rehabilitation Therapy       | Determining the impact of a new physiotherapist led primary care model for low back pain - A pilot study for a   | \$100,000  |

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|  |                                | cluster randomized controlled trial   |             |
| Velez, Maria   | Obstetrics & Gynaecology       | Menopause and physical function in older women from the Canadian Longitudinal Study on Aging (CLSA) and the International Mobility in Aging Study (IMIAS) | \$70,000    |
| CIHR – Dr. James Rossiter Masters of Public Health Practicum Award |                                |   |             |
| Davison, Colleen   | Public Health Sciences         | Queen's University - Master's Award: Dr. James Rossiter MPH Practicum Award Program   | \$18,044    |
| CIHR – Foundation Grant  |                                |   |             |
| Lillicrap, David   | Pathology & Molecular Medicine | The intertwined biology, pathobiology and translational implications of factor VIII and von Willebrand factor   | \$3,552,094 |
| CIHR – Planning and Dissemination Grant                            |                                |   |             |
| Woo, Kevin   | School of Nursing              | Management of ischemic pain in order people with lower extremity artery disease: developing a consensus document  | \$11,019    |
| CIHR – Project Grant   |                                |   |             |
| Bennett, Brian   | DBMS                           | The HNE mouse: a new model of cognitive impairment and Alzheimer's Disease that displays neuronal and vascular pathologies                                | \$738,225   |

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| Chandrakant, Tayade | DBMS                             | Therapeutic targeting of immune-inflammation pathway via IL23-IL17 axis in Endometriosis                                 | \$619,650 |
| Duffy, Anne         | Psychiatry                       | Predicting the onset of bipolar disorder: A longitudinal high-risk study   | \$937,125 |
| French, Simon       | School of Rehabilitation Therapy | Imaging use for low back pain by primary contact practitioners   | \$707,626 |
| Greer, Peter        | Cancer Biology & Genetics        | FER as a novel therapeutic target in breast cancer   | \$100,000 |
| Ormiston, Mark      | Medicine                         | Cellular and molecular mechanisms of Natural Killer cell-mediated vascular remodeling in pulmonary arterial hypertension | \$830,025 |
| Scott, Stephen      | DBMS                             | Impact of temporary lesions of frontoparietal circuits on feedback processing during voluntary motor actions             | \$100,000 |
| Vanner, Stephen     | Medicine                         | Novel signalling mechanisms leading to pain in irritable bowel syndrome  | \$688,500 |
| Zhang, Shetuan      | DBMS                             | Molecular mechanisms of antibody-mediated QT prolongation and cardiac arrhythmias  | \$753,525 |

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| CIHR – Team Grant: Pathways IRT Component 2               |  |   |           |
| Levesque, Lucie   | School of Kinesiology & Health Studies     | Community mobilization training for diabetes prevention: Implementation and scale-up of a best practice training model for diverse Indigenous communities | \$674,220 |
| CIHR/NSERC – CHRP – Collaborative Health Research Project |  |   |           |
| Allingham, John   | DBMS                                       | Development of antibody-drug conjugates that use actin-targeting warheads   | \$497,500 |
| Fichtinger, Gabor   | School of Computing                        | Real-time breast cancer surgery navigation  | \$388,838 |
| Schreiner, John   | Physics, Engineering Physics and Astronomy | Gel dosimetry for brachytherapy dose delivery validation  | \$315,740 |
| GILEAD – Research Grant                                   |  |   |           |
| Flemming, Jennifer  | Medicine                                   | Cost-effectiveness of a Hepatitis C Screening Program in an Outpatient Endoscopy Unit   | \$52,000  |
| J.P. Bickell Foundation – Operating Grant                 |  |   |           |
| Ghasemlou, Nader  | DBMS                                       | Contribution of skin-resident gd T cells to the pathogenesis of inflammatory pain   | \$64,160  |
| Kingston Resuscitation Institute – Research Grant         |  |   |           |

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| Szulewski, Adam                              | Emergency Medicine                 | HoloLens Binocular eye-Tracking Add-on - Eye tracing study   | \$2,662     |
| Laerdal Foundation – Research Grant          |                                    |  |             |
| Brooks, Steven                               | Emergency Medicine                 | Improving public access defibrillation in Scotland   | US \$22,500 |
| Medical Library Association – Research Grant |                                    |  |             |
| Ross-White, Amanda                           | Queen’s University Libraries       | Predatory journals and systematic reviews of literature  | \$1,000     |
| Medtronic – Research Grant                   |                                    |  |             |
| Bisleri, Gianluigi                           | Surgery                            | Endoscopic vessel harvesting   | \$70,000    |
| Mitacs Accelerate                            |                                    |  |             |
| Boegman, Leon                                | Civil Engineering                  | Three-dimensional simulation of Mississippi Lake for water quality   | \$45,000    |
| NSERC – Collaborative Research Development   |                                    |  |             |
| Liu, Yan-Fei                                 | Electrical & Computer Engineering  | Technology development of an intergrated GaN switch power modual for totem-pole bridgeless boost converter | \$150,000   |
| Zou, Ying                                    | Electrical & Computer Engineering  | Cognitive Aware Smart Service Composition  | \$268,000   |
| Kim, Il-Yong                                 | Mechanical & Materials Engineering | Lightweighting using multi-materials and parts integration   | \$400,000   |

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| NSERC – Connect Grant   |                                      |   |           |
|-------------------------|--------------------------------------|---|-----------|
| Champagne, Pascale      | Civil Engineering                    | Collaborative Introduction of an Algal Scale-up Biologist with an Industrial Biotech Company                                      | \$2,495   |
| NSERC – Discovery Grant |                                      |   |           |
| Fam, Amir               | Civil Engineering                    | Realistic laboratory rolling loading of bridge superstructure built using novel technologies combined with environmental exposure | \$255,000 |
| Graham, TC Nicholas     | School of Computing                  | Activity and Accessibility in Digital Games   | \$170,000 |
| Mosey, Nicholas         | Chemistry                            | Development and application of simulations methods to study friction and wear   | \$225,000 |
| Moyes, Christopher      | Biology                              | Origins of variation in mitochondrial metabolism  | \$195,000 |
| Ortiz, Julian           | Robert M Buchan Department of Mining | Geometallurgical modelling: algorithms for spatial prediction   | \$170,000 |
| Raptis, Leda            | DBMS                                 | Role of the signal transducer and activator of transcription-3 upon epithelial cell differentiation                               | \$140,000 |
| Troje, Nikolaus         | Psychology                           | Vision in virtual reality   | \$195,000 |
| Walker, Virginia        | Biology                              | Genes and their products for low temperature stress resistance  | \$300,000 |



|  |                                       |  |             |
|--|---------------------------------------|--|-------------|
| Zou, Ying                                      | Electrical & Computer Engineering     | Integrating user sentiment into software evolution processes                                       | \$130,000   |
| NSERC – Discovery Grant Accelerator Supplement |                                       |  |             |
| Martin, Ryan                                   | Physics                               | Point contact germanium detectors for rare event searches  | \$120,000   |
| Ortiz, Julian                                  | Robert M Buchan Department of Mining  | Geometallurgical modelling: algorithms for spatial prediction                                      | \$120,000   |
| NSERC – Engage Grant                           |                                       |  |             |
| Cicarelli, Gabriel                             | Mechanical & Materials Engineering    | Dual-fuel diesel injector study  | \$25,000    |
| Ghahreman, Ahmad                               | Robert M. Buchan Department of Mining | Process development for sulphate of potassium (SOP) recovery from schoenite mineral and flue gases | \$25,000    |
| Ramsay, Juliana                                | Chemical Engineering                  | Antimicrobial properties of graphene films   | \$25,000    |
| Rudie, Karen                                   | Electrical & Computer Engineering     | Cyber Resilience for Networks  | \$25,000    |
| NSERC – Industrial Research Chair              |                                       |  |             |
| Daymond, Mark                                  | Mechanical & Materials Engineering    | NSERC/UNENE Industrial Research Chair in Nuclear Materials   | \$1,125,000 |
| NSERC – Research Tools and Instruments         |                                       |  |             |
| Amsden, Brian                                  | Chemical Engineering                  | A micro-mechanical testing instrument  | \$137,624   |

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| Beninger, Richard   | Psychology                         | Locomotor activity monitors for rats   | \$52,766  |
| Cunningham, Michael | Chemical Engineering               | Water-soluble polymers for use in stimuli-responsive materials, water treatment and flocculation of oil sands tailings                     | \$150,000 |
| Davies, Theresa     | Mechanical & Materials Engineering | Detecting brain signals using electroencephalography and functional near infrared spectroscopy   | \$150,000 |
| Fichtinger, Gabor   | School of Computing                | Research platform for medical education informatics  | \$149,992 |
| Flanagan, John      | Psychology                         | Robotic device for studies of human movement perception and control  | \$150,000 |
| Hassanein, Hossam   | School of Computing                | UAV-based system for monitoring and tracking of oil and gas infrastructure   | \$149,720 |
| Jessop, Philip      | Chemistry                          | Process gas chromatography system for reactions and separations  | \$149,406 |
| Lafreniere, Melissa | Geography & Planning               | Advanced ion chromatography for assessing permafrost degradation impacts on water quality and organic carbon composition and dynamics      | \$147,815 |
| Lougheed, Stephen   | Biology                            | Operation and maintenance support to enhance research and highly qualified personnel training at the Queen's University Biological Station | \$284,176 |

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| Plaxton, William  | Biology                          | FRENCH Press  | \$39,741  |
| Smith, Steven   | DBMS                             | Centrifuge suite for protein structure/function studies   | \$149,390 |
| Take, William   | Civil Engineering                | An ultrahigh-speed camera to unlock the behaviour of rapid landslides, impulse waves, fracture propagation, and superhydrophobic surfaces | \$142,546 |
| NSERC – Subatomic Physics Individual (Early Career Researcher)            |                                  |   |           |
| Martin, Ryan  | Physics                          | Point contact germanium detectors for rare event searches   | \$225,000 |
| Ontario Institute for Cancer Research – Research Grant                    |                                  |   |           |
| Berman, David   | Pathology & Molecular Medicine   | In situ biomarkers of urothelial carcinoma invasion and progression   | \$47,146  |
| Ontario SPOR Support Unit – INSPIRE – TUTOR-PHC Ontario Alumni Fellowship |                                  |   |           |
| Bayoumi, Imaan  | Family Medicine                  | Funding equity for persons with mental illness under primary care reform in Ontario   | \$10,000  |
| Pfizer – Research Grant   |                                  |   |           |
| Glover, Benedict  | Medicine                         | Patient specific reasons for attending the Emergency Department in the setting of a background history of atrial fibrillation             | \$20,000  |
| Physiotherapy Foundation of Canada – CAMPT Founders Award                 |                                  |   |           |
| Miller, Jordan  | School of Rehabilitation Therapy | Evaluating a knowledge translation app to facilitate  | \$10,000  |

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|   |               | evidence based treatment of neck pain   |           |
| Prostate Cancer Canada – Movember Discovery Grant                           |               |   |           |
| Mueller, Christopher  | DBMS          | Markers of poor outcome in castrate resistant prostate cancer   | \$200,000 |
| Pukall, Caroline  | Psychology    | Healthcare experiences and health-related quality of life in LGBTQ+ individuals with localized prostate cancer: A longitudinal, mixed-methods study with a special focus on psychosexual outcomes | \$199,583 |
| SSHRC – Connection Grant  |               |   |           |
| Pande, Ishita   | History       | Sex in translation in post/colonial India: vernacular archives and global circulation   | \$21,437  |
| The Fields Institute for Research in Mathematical Sciences – Research Grant |               |   |           |
| Cellarosi, Francesco  | Math & Stats  | Conference on Dynamics in Number Theory and Geometry: Funding Support from Fields Institute   | \$25,000  |
| The Retina Foundation of Canada – 2015 Senior Clinical Research Grant       |               |   |           |
| Sharma, Sanjay  | Ophthalmology | Microbiome Diversity and age-related macular degeneration risk  | \$18,000  |
| The Royal College of Physicians and Surgeons of Canada – Research Grant     |               |   |           |
| McEwen, Laura   | Paediatrics   | Operationalizing programmatic assessment practice guidelines with   | \$31,075  |

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|---|------------------------------------|--|-----------|
|   |                                    | descriptions of stakeholder activities |           |
| William James Hendersen Foundation – Research Grant |                                    |  |           |
| Bryant, Tim   | Mechanical & Materials Engineering | HMRC Research                          | \$100,000 |

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