

McMaster awarded six new CRCs, \$8.9M to support research excellence

By Danelle D'Alvise, December 2, 2016

Associated Video: https://youtu.be/R_ySdP8Mv3Y

McMaster has been awarded six new Canada Research Chairs (CRCs) and three renewals, bringing a total of \$8.9M in new funding from a federal program aimed at retaining and attracting research leaders.

The nine Chairholders – announced today by Minister of Science Kirsty Duncan – are dedicated to fields of study that range in scale from microbes and molecules to extragalactic stars, and from basic science to addressing complex social issues.

One of McMaster's new CRCs, **Sara Bannerman**, examines the new media, device-connected world we live in, where ideas, knowledge, music, art and images are created and accessed in an ever-changing digital landscape.

As the **Canada Research Chair in Communication Policy and Governance**, Bannerman – an associate professor in the department of communications and multimedia – will build upon her research program that examines the history and future of copyright, and the use of online crowdfunding to facilitate the production of cultural works.

Bannerman's research will provide greater insight into the stakes involved – for creators and other users – in the new politics, new forms of authorship, new forms of labour, and new forms of governance that new technologies and globalization raise.

“McMaster is an excellent place to study art, culture, communications and policy. Some of the best researchers and creators in our fields work here,” says Bannerman. “I hope that my work will help us to think about the outsourcing of governance to networks, to technologies and to international institutions.”

With today's announcement, McMaster has 69 researchers currently holding a Canada Research Chair.

“This investment by the CRC program recognizes the outstanding research undertaken by McMaster's scholars and scientists,” said Rob Baker, Vice-President, Research. “Our Chairholders' pioneering ideas will help solve important societal problems, and make new discoveries that will benefit the health and well-being of all Canadians.”

McMaster's new and renewed CRCs

Paul Ayers, professor, chemistry & chemical biology, has been named the Tier 1 **Canada Research Chair in Theoretical Chemistry**. Ayers' research focuses on developing mathematical and computational tools to accelerate the trial-and-error process of chemical discovery. These new research tools will be disseminated as software that chemists can use to rapidly generate and test new ideas, and refine and redirect existing research directions. Ayers CRC builds upon his status as one of the world's leading experts on conceptual density functional theory.

Sara Bannerman, assistant professor, communications studies and multimedia, **Canada Research Chair in Communications Policy and Governance** (Tier 2)

Clinical epidemiologist **Dr. P.J. Devereaux** holds the **Canada Research Chair in Perioperative Medicine**. Devereaux will use the funding from his Tier 1 Chair to tackle a neglected area of research: more than 200 million adults undergo major non-cardiac surgery annually and millions of these patients will suffer a major vascular complication such as heart attack or stroke. His research program will bring together researchers from many disciplines to study the epidemiology, risk assessment, prevention, and management of these complications.

Victor Kuperman's Tier 2 **Canada Research Chair in Psycholinguistics** provides him with the opportunity to explore the causes of reading difficulty, and develop better methods of adult literacy teaching and learning. There are more than 15 million Canadians unable to read at a level necessary to be successful at work and day-to-day life, and little is known about how cognitive characteristics of readers affects success or failure in reading comprehension. Kuperman's [Reading Lab](#) conducts large-scale studies on individual variability in word and text recognition.

Chemical engineering professor **Prashant Mhaskar** has been renewed for second term as the **Canada Research Chair in Nonlinear and Fault-Tolerant Control** (Tier 2). Mhaskar's research program has three area of focus: impacting every process automation, by significantly improving the way feedback control action is determined; uniting statistical modeling tools with state-space based control tools for batch process control impacting production processes ranging from bio-pharmaceuticals to specialty chemicals; and solving the problem of fault-detection and handling for large scale chemical processes.

Ravi Selvaganapathy's **Canada Research Chair in Biomicrofluidics** has been renewed for a further five years to continue his research on microfluidic and microfabrication technologies. The mechanical engineering professor will focus on developing a number of applications, such as environmental sensors to monitor water quality in remote areas, medical sensors to assess severity of sepsis for patients in the intensive care unit, assays using organisms such as worms and flies to understand disease mechanisms and develop new drugs, as well as artificial organ constructs to assist with oxygenation of blood.

John Valliant, professor, chemistry & chemical biology, has been named the **Canada Research Chair in Medical Isotopes and Molecular Imaging Probes**. Recognized internationally for his work in radiochemistry and the creation and translation of molecular imaging probes, Valliant's Tier 1 CRC will support and expand his ongoing research on the imaging probes that enable

physicians and researchers to non-invasively see the activity of cells to diagnose disease. Valliant's research program will result in chemical innovations and the creation of new diagnostic imaging tools and therapeutics.

Dr. **Elena Verdú** has been renewed as the Tier 2 **Canada Research Chair in Inflammation, Microbiota and Nutrition**. Verdú has built a world-class research program in dietary-microbiota interactions, with a focus on celiac disease and non-autoimmune intolerance to gluten. The associate professor of medicine is focused on the urgent need to identify the mechanisms that influence celiac disease risk and to identify patients that will benefit from gluten restriction.

Astrophysicist **Christine Wilson** holds the **Canada Research Chair in Extragalactic Star Formation**, with the goal of understanding one of the most important unsolved problems in modern day astronomy – how stars form. Using the Atacama Large Millimeter/submillimeter Array (ALMA), Wilson will determine what causes the large variations in the rate of star formation from one galaxy to another by carrying out a pioneering and comprehensive survey of astrochemical tracers in nearby galaxies.

There are two types of Canada Research Chairs:

Tier 1 Chairs, tenable for seven years and renewable, are for outstanding researchers acknowledged by their peers as world leaders in their fields. For each Tier 1 Chair, the university receives \$200,000 annually for seven years.

Tier 2 Chairs, tenable for five years and renewable once, are for exceptional emerging researchers, acknowledged by their peers as having the potential to lead in their field. For each Tier 2 Chair, the university receives \$100,000 annually for five years.