

## **BACKGROUNDER – Canadian Particle Astrophysics Research Centre**

### **About Particle Astrophysics**

Particle astrophysics is the study of the fundamental properties of the building blocks of nature and their influence on the evolution of structure in the universe. The questions being addressed are considered, worldwide, to be among the most important in physics today.

### **About the Canadian Particle Astrophysics Research Centre**

The new Canadian Particle Astrophysics Research Centre (CPARC) aims to strengthen partnerships between Queen's and other Canadian universities, expand on the scientific culture at Queen's University and partner institutions, create a research team with the ability to lead global-scale, next generation experiments, attract international collaboration and build on Canada's position as a leader in the field of particle astrophysics research.

The new centre will be headquartered at Queen's, with members located at seven affiliated Canadian universities – University of Alberta, University of British Columbia, Carleton, Laurentian, McGill, Université de Montréal and University of Toronto. The centre will also partner with the Canadian Institute for Advanced Research (CIFAR), the Institute of Particle Physics (IPP), the Perimeter Institute, SNOLAB and TRIUMF. These partnerships will allow researchers to extract maximum scientific output from the current suite of SNOLAB experiments, while also providing opportunities to embed students at all stages of their careers in this scientific culture, developing skills and creating training opportunities through linkages to colleges, industries and international programs.

To support the new Centre's continuing and future research and experiments, 41 positions for researchers, engineers, designers and technicians will be created. The centre will also provide opportunities for about 18 postdoctoral fellows and 40 graduate students on an annual basis. Queen's has already committed to adding seven new faculty members – including two Tier II Canada Research Chairs – in support of the centre and its research aims.

### **About the Canada First Excellence Research Fund**

The Canada First Research Excellence Fund (CFREF) was created in 2014 to support Canadian postsecondary institutions in their efforts to become global research leaders. The Fund helps Canadian universities, colleges and polytechnics compete with the best in the world for talent and partnership opportunities, and supports their efforts to make breakthrough discoveries, seize emerging opportunities and strategically advance their greatest strengths on the global stage. The Fund is governed by a steering committee comprising the presidents of the three federal research granting agencies—the Social Sciences and Humanities Research Council (SSHRC), the Natural Sciences and Engineering Research Council, and the Canadian Institutes of Health Research—and the deputy ministers of Health Canada and Innovation, Science and Economic Development Canada.

The inaugural CFREF competition was split into two parts, with a first competition awarding some \$350 million to five initiatives. This second competition, announced today, awarded \$900 million to 13 initiatives.

The successful proposals were selected through a rigorous merit review process. [Review panels](#) provided detailed evaluations of the relative strengths and weaknesses of the applications, based on the related selection criteria, and made observations on the budgets requested. The panels

comprised international experts with broad expertise representing a variety of domains and disciplines.

### **About Research at Queen's**

Queen's distinguishes itself as one of the leading research-intensive institutions in Canada. The mission is to advance research excellence, leadership and innovation, as well as enhance Queen's impact at a national and international level.

Particle astrophysics is an institutional priority at Queen's University. A leading research-intensive university, Queen's has consistently demonstrated its unwavering support for this field since the inception of the SNO project over two decades ago. In 2014, Queen's announced the appointment of Dr. Gilles Gerbier as the Canada Excellence Research Chair in Particle Astrophysics. Dr. Art McDonald's co-receipt of the 2015 Nobel Prize in Physics, and the awarding of the 2016 Breakthrough Prize in Fundamental Physics, came in recognition of his leadership role in the Sudbury Neutrino Observatory team – many of whom are now leaders on the CPARC initiative.

Through undertaking leading-edge research, Queen's is addressing many of the world's greatest challenges, and developing innovative ideas and technological advances brought about by discoveries in a variety of disciplines. Queen's University is a member of the U15 Group of Canadian Research Universities.