

Postdoctoral Fellow on nEXO Experiment at Carleton University

The nEXO group at Carleton university, with support from the Canadian Particle Astrophysics Research Center, has **two postdoctoral fellowship positions** open. The nEXO project is the leading candidate for the next-generation neutrino-less double beta ($0\nu\beta\beta$) decay search, for which it is proposed to install a 5-tonne enriched xenon time project chamber (TPC) in liquid phase at SNOLab. In preparation, the collaboration is conducting an intense R&D program to ensure that world-best detection sensitivity is achieved by nEXO. The Carleton group, which includes three professors, four graduate and several undergraduate students, is responsible for the following research programs:

- cryogenic infrastructure for HV breakdown studies and ion extraction tests in LXe
- single Ba ion detection and isotopic identification for a possible future upgrade of nEXO
- material screening using accelerator mass spectrometry (AMS)
- R&D on isotopic xenon enrichment using a distillation column

The candidates are expected to have a background in particle or nuclear physics with a **proven disposition toward experimental techniques, instrumentation development and experience manipulating ionizing particle detectors**. Each successful candidate will assume responsibility for more than one program from the previous list but there is flexibility with regard to specific choices and focus. Graduate and undergraduate students are already engaged in all of these programs and the postdoctoral fellows are expected to **participate in student supervision**. The group also contributes to the operation of the $0\nu\beta\beta$ prototype EXO-200 and, historically, graduate students and postdoctoral fellows have participated in data taking and analysis. A similar opportunity will be offered to future postdoctoral candidates, including **data analysis using sophisticated machine learning techniques**. The candidates are required to already have, or expected to obtain before employment, a Ph.D. degree in physics.

The EXO group at Carleton university is strongly committed to equity in employment and we welcome applications from all qualified persons, including women, indigenous people, ethnic minorities and persons with disabilities. Applicants should submit via email an application package which includes a **detailed CV**, a **research background and interests statement** which demonstrates appropriate skills and qualifications and arrange for **three reference letters** to be sent to Prof. Razvan Gornea using the address gornea@zoho.com