



# Undergraduate Student – Radon Assay Program

RESEARCH GROUP

Summer term May-September 2023

## About Us

SNOLAB is an international facility for world-class underground physics research and has an expanding program in astroparticle physics and underground science. Located in an air-conditioned clean room 2 km underground in the Vale Creighton Mine near Sudbury Ontario, with a suite of surface facilities and laboratories, SNOLAB is currently preparing for the next generation of experiments focusing on neutrino studies and the search for galactic dark matter.

## The Position

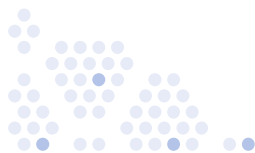
SNO+ is a neutrino detector. It consists of 12m diameter spherical acrylic vessel filled with liquid scintillator and submerged in ultrapure water (UPW). The main goal of SNO+ is a search for the neutrino-less double-beta decay ( $0\nu\beta\beta$ ) of  $^{130}\text{Te}$ .  $0\nu\beta\beta$ -decay is a rare nuclear process that will happen if neutrinos are Majorana-type particles, that is, they are their own antiparticles. One of the main concerns for these rare events is the presence of backgrounds, which could mask the signals of interest. The SNO+ detector has two inert cover gas systems to protect the detector from radon contamination, which is present in the mine air in high concentration. The successful candidate will contribute to the radon assay program, that monitor the radon level in the cover gas and in the UPW. The student will be responsible for performing the assays and analysing the data. The student will be based at SNOLAB, spending a fraction of their time in the underground laboratory.

## Criteria

### Education:

Candidates enrolled in physics or engineering program are accepted.

Must be 18 years or older, registered in post-secondary studies at an accredited institution or apprenticeship program, recent graduate (having graduated in the last 3-6 months) or individual returning to full-time or part-time studies in the next academic term.



📍 Creighton Mine #9, 1039 Regional Road 24, Lively, ON P3Y1N2

☎ 705.692.7000 🌐 [www.snolab.ca](http://www.snolab.ca)

University of Alberta | Carleton University | Laurentian University | Université de Montréal | Queen's University

## Experience:

Analytical skills and basic understanding of Particle Physics are required.

Work in cleanroom environment, low background techniques, hands-on experience with compressed gases and vacuum systems would be beneficial.

## Salary Range

Salary will be determined by education and qualifications. These positions are subject to availability of funding. To meet operational needs, shift work may be required.

## To Apply

Applications must be submitted to [abialek@snolab.ca](mailto:abialek@snolab.ca). Please do not fax or mail your applications. Interested students should include a cover letter and resume in a unique pdf file, named as "StudentName\_Project\_AcademicYear\_HomeInstitution".

For more details on the project, please contact Dr. Aleksandra Bialek via email [abialek@snolab.ca](mailto:abialek@snolab.ca).

## Closing Date

**Deadline to Apply: February 3, 2023**

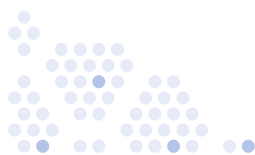
The posting will remain open until the position is filled. SNOLAB thanks all applicants for their interest, however, only those students considered for an interview will be contacted.

SNOLAB is committed to equity in employment and encourage applications from all qualified applicants, including women, Indigenous persons, members of visible minorities and persons with disabilities. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents.

SNOLAB will provide support in its recruitment processes to applicants with disabilities, including accommodation that takes into account an applicant's accessibility needs.

Further information about SNOLAB may be found at [www.snolab.ca](http://www.snolab.ca)

**Posting Date: January 25, 2023**



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