



Student – Radon SPC

Research Division
Summer 2023 term

About Us

SNOLAB is an international facility for world-class underground physics research and has an expanding programme 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

Radon is a product of the radioactive decay of uranium. It is part of a long decay chain, with long-life elements, and as a noble gas, it is difficult to keep away from sensitive equipment. When selecting materials for SNOLAB's low-background detectors, one would assay the amount of the radon emanated and estimated the contamination over the lifetime of the experiment. The radon is pumped out, concentrated into cryogenic traps and then counted in a Lucas cell: a small vial whose inner surface is coated with scintillating material, where alpha particles emitted during the radon decays create flashes of light.

A Spherical Proportional Counter is a gas detector. Using a single central electrode put at high voltage, it detects ionization in the gas. Depending on the target material and the size of the detector, it can be used for multiple applications (neutron detection, dark matter search...).

SNOLAB is investigating the use of a small diameter SPC as an alternative to Lucas cells to measure the radon activity in a gas.

Criteria

Education:

Applications from undergraduates of any levels will be accepted.



📍 Creighton Mine #9, 1039 Regional Road 24, Lively, ON P3Y1N2
☎ 705.692.7000 🌐 www.snolab.ca

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.

Experience:

Experience in basic data analysis, including data formatting, statistics, and computer programming is required. Knowledge of specific programming languages, such as Python, is an asset. Experience with FPGA programming and acquisition system would be useful. Candidates should be comfortable working in a team environment where frequent and open communication are encouraged and expected as part of the culture. Any additional experience working in a laboratory environment, especially a cleanroom environment, is also an asset.

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 pierre.gorel@snolab.ca and to studentjobs@snolab.ca as well: it will be added to a pool seen by the other Research Scientists/Managers and could be selected for other jobs. **Please do not fax or mail your applications.**

The application will include a cover letter and resume in a single PDF file with the name: <Name>_<ProjectApplying>_<AcademicYear>_<HomeInstitution>.pdf

Closing Date

Deadline to Apply: January 25 to February 15

The posting will remain open until the position is filled, but review of applications will commence on February 6th. 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

Posting Date: January 25th



📍 Creighton Mine #9, 1039 Regional Road 24, Lively, ON P3Y1N2
☎ 705.692.7000 🖱 www.snolab.ca