



Student – Radon Control System

RESEARCH GROUP

Winter term (January-May) 2022

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

SNO+ is a neutrino detector. It consist of 12m diameter spherical acrylic vessel, instrumented with about 10k photomultiplier tubes. At this point, the acrylic vessel is filled with liquid scintillator.

A re-purification campaign of the medium has begun and requires a set of measurements to confirm the efficiency of the process. One of the purification methods used during that time is gas stripping, a process that is effective for impurities with large vapor pressures, such as gases and volatile liquids. For SNO+ the volatile impurities of interest are radon, argon, krypton for radioactive backgrounds, and oxygen, which will degrade the optical purity. In order to determine the amount of impurities in the scintillator, a dedicated assay system was designed and will be coupled to the purification plant.

The successful candidate will contribute to the construction of the assay system. The student will then be involved in the commissioning, which will include measuring the internal radioactive backgrounds to estimate the detection efficiency of the assay system. Eventually, the student will take part in the measurements to estimate the scintillator purification efficiency.



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

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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.

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. 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.

Closing Date

Deadline to Apply: October 15, 2021

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

Posting Date: September 27, 2021



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