Posting Date: Mar. 29, 2021

Department of Physics
University of Toronto
JOB POSTING – POSTDOCTORAL FELLOW

Area of Research: Experimental Astroparticle Physics

Description of duties: Two postdoctoral fellowship positions are available in the University of Toronto SuperCDMS group. This posting describes the **second** position, which is expected to be stationed at SNOLAB.

SuperCDMS is a direct-detection experiment that looks for interactions of dark matter in cryogenic germanium and silicon detectors equipped with sensors for the thermal energy of particle interactions. The SuperCDMS Collaboration has an illustrious history of world-leading dark matter results; the next generation of the experiment, featuring novel detector upgrades, is currently being installed in SNOLAB, Canada's premier astroparticle physics facility located 2 km below the surface in the Vale Creighton Mine near Sudbury. The elite international collaboration aims for world-leading sensitivity to a variety of dark matter candidates and masses over the next decade. The chief advantage of SuperCDMS's cryogenic technology is the extremely low detection thresholds achievable, while SNOLAB provides a low-background environment.

The Toronto SuperCDMS group is led by Prof. Miriam Diamond, Prof. Ziqing Hong, and Prof. Pekka Sinervo. The joint group works on all aspects of the experiment, including detector R&D and commissioning, experiment operation, detector testing and calibration, data acquisition, data quality monitoring, Monte Carlo detector simulation, and data analysis.

The group collaborates closely with the SuperCDMS group at SNOLAB on daily basis for the operation of the Cryogenic Underground TEst (CUTE) facility to support detector development and characterization, as well as the commissioning of the SuperCDMS SNOLAB experiment, with first operations expected in 2022. The group is also building a new local cryogenic facility for detector calibration efforts.

The successful applicants will take a significant role in building, simulating, and operating the next generation dark matter search experiment, taking parts in on-site shifts and off-site data quality monitoring, as well as lead the data analysis of test facility data and first physics data from SuperCDMS SNOLAB. Additional duties for the collaboration will consist of organizing meetings, documenting software, and reviewing and authoring internal reports as well as published papers.

This position is expected to be stationed at SNOLAB, and work closely with the existing SuperCDMS SNOLAB group led by Dr. Silvia Scorza. The successful applicant to this position

will take leadership in constructing and commissioning the SuperCDMS SNOLAB experiment and in operations of the CUTE facility.

This is an exciting time to join the collaboration: hands-on involvement with various aspects of the experiment right from the start of SNOLAB data-taking. It is also an exciting time for the dark matter search field in general, with discovery potential for a range of models to finally resolve the longstanding questions at the forefront of modern astroparticle physics.

Salary: Determined based on research experience
Please note that should the minimum rates stipulated in the collective agreement fall below the rates stated in this posting, the minimum rates stated in the collective agreement shall prevail.

Required Qualifications:
- Ph.D. in experimental particle physics, experimental astrophysics, or other related research areas, by the time of the appointment.
- Strong record of accomplishments in experimental physics.
- Excellent oral and written communication skills as demonstrated by presentations at conferences and a record of publication(s) in peer-reviewed journals.
- Experience with cryogenic experiments and/or strong coding skills are preferable
- Ability to descend the SNOLAB mineshaft and traverse the mine tunnels.

Application instructions

All individuals interested in this position must submit a CV, a publication list, and a short statement of research interest to zqhong@physics.utoronto.ca with the subject line "Postdoctoral Fellow – Experimental Astroparticle Physics" by the closing date. At least three letters of reference should also be sent directly by the referees to this address by the closing date.

Closing date: Review of applications will commence on 15 Apr. 2021, and the opportunity will remain available until filled.

Supervisor: One of the PIs in SuperCDMS Toronto group, depending on the active working area

Expected start date: June 1 2021, flexible

Travel: Travel to destinations (domestic and international) for conferences and workshops will be optional.

Term: Two (2) years, with the possibility for extension considered on a yearly basis thereafter

FTE:
This is a full-time position, and will require flexible scheduling to accommodate evening or overnight shifts for data-taking.

The normal hours of work are 40 hours per week for a full-time postdoctoral fellow (pro-rated for those holding a partial appointment) recognizing that the needs of the employee's research and training and the needs of the supervisor's research program may require flexibility in the performance of the employee's duties and hours of work.

Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement.

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The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ persons, and others who may contribute to the further diversification of ideas.