

The Centre for Particle Physics at University of Alberta is seeking a postdoctoral researcher for the Experimental Astroparticle Physics group, with emphasis on Dark Matter direct detection with the PICO and the DEAP experiments.

PICO is an international, world leading experiment in the spin-dependent sector of WIMP searches. Its detection principle is based on superheated liquids and utilizes the bubble chamber. The PICO collaboration is presently installing an upgraded 40L experiment at SNOLAB and is preparing a new generation experiment, PICO500 with substantially increased active mass and sensitivity.

DEAP-3600 is a direct dark matter search experiment using single phase liquid argon as target material sensitive in the spin-independent sector and located at 2km underground at SNOLAB. The DEAP collaboration is currently taking dark matter data and preparing the next ton-scale experiment: DEAP-400T.

The successful candidate will work on the current phase of the experiments:

- Data analysis/MC simulations for DEAP-3600, with ex-situ measurements in order to understand the optics and behavior of the detector.
- Commissioning and data analysis for PICO-40L,

She/He is expecting to play a major role in the preparation of the next ton-scale PICO-500 and DEAP-400T experiments. The research will be focused on gas purification and assay as well as research and development of a new hybrid bubble chamber using superheated scintillation liquids technology.

Interested candidates should have a PhD. in experimental particle physics with strong skills in purification techniques and experience in a low-background environment. Experience with detector development, construction, commissioning, or operation is highly desirable and proficiency with computing programming languages (C++, ROOT, Python) and simulation (GEANT4) are required. The position is based at University of Alberta, with occasional travels to the experimental site: SNOLAB (<http://www.snolab.ca/>). Given the requirement of on-site work, possession of a valid driver's license is required.

Applicants should send a cover letter, a brief statement of research interests, a CV including a list of publications and arrange for three letters of reference to be sent to :

Marie-Cécile Piro (mariecci@ualberta.ca)

Assistant professor, CPARC : https://www.cparc.ca/people/CPARC_faculty.php

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