Canadian Association of Physicists

Association canadienne des physiciens et physiciennes

Contribution ID: **4004** Type: **Oral (Non-Student) / Orale (non-étudiant(e))**

The PICO-40L Dark Matter Direct Detection Experiment

Monday 19 June 2023 14:15 (15 minutes)

PICO-40L is a bubble chamber detector with a target material of superheated C₃F₈, located at the SNOLAB underground research facility outside Sudbury, Ontario. With its abundance of non-zero-spin fluorine nucleons in the detector target and its effective blindness to electron recoil interactions, it is projected to set world-leading exclusion limits in the spin-dependent dark matter interaction parameter space. Unlike previous generations of the PICO experiment, PICO-40L employs a "Right Side Up" design, with the target fluid above the chamber compression and expansion system, which is expected to eliminate a class of backgrounds from previous versions of the detector. PICO-40L is currently in the commissioning stage and is expected to start its year-long blinded data-taking run in the mid-to-late summer of this year. The analysis strategy, as well as the results from the early commissioning runs, will be presented in this talk.

Keyword-1

PICO

Keyword-2

Dark Matter

Keyword-3

Primary author: CRANSHAW, Derek James (Queen's University)

Presenter: CRANSHAW, Derek James (Queen's University)

Session Classification: (PPD) M2-10 DM / Neutrino 0 | DM / Neutrino 0 (PPD)

Track Classification: Technical Sessions / Sessions techniques: Particle Physics / Physique des particules (PPD)