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Contribution ID: **3219** Type: **Oral not-in-competition (Graduate Student) / Orale non-compétitive (Étudiant(e) du 2e ou 3e cycle)**

Calibration and characterisation of an "achinos" multi-anode sensor for the SNOLAB commissioning of the NEWS-G experiment

Thursday, 9 June 2022 09:45 (15 minutes)

The NEWS-G experiment employs Spherical Proportional Counters (SPC) towards the direct search for light Dark Matter candidates in the 0.1 –10 GeV mass range. The detector provides high sensitivity to low-energy recoil detection thanks to the choice of various gases and operating pressures. In addition, the sensitivity is enhanced by the properties of the central anode where the avalanche takes place. The electric field drives the drift of the primary ionization and provides the amplification needed to detect sub-keV nuclear recoils down to single-electrons. A novel multi-anode sensor, named "achinos", at the center of the SPC allows for operation at higher pressures, and higher primary ionization collection efficiency thanks to enhanced electric fields at large radii.
Following the first implementation of the "achinos"for NEWS-G at LSM, France, the next use will take place at SNOLAB using Ne+7%CH4 as target gas. A series of characterization measurements towards achieving simultaneously high gain, stability and satisfying resolution in a two-channel "achinos"configuration is studied. In this talk, results of characterization and a series of calibrations will be presented.

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Session Classification: R1-1 Precision and Dark Matter Experiments (PPD) | Expériences de précision et sur la matière sombre (PPD)

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