Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **3068** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) The NEWS-G light Dark Matter search experiment: Current status and preparation for experiment at SNOLAB

Monday 6 June 2022 16:00 (15 minutes)

The NEWS-G direct dark matter search experiment uses spherical proportional counters (SPC) with light noble gases to explore low WIMP masses. The first results obtained with an SPC prototype operated with neon gas at the Laboratoire Souterrain de Modane (LSM) have already set competitive results for low-mass WIMPs. The next phase of the experiment consists of a large 140 cm diameter SPC installed at SNOLAB with a new sensor design, lots of improvements in detector performance and data quality. Before its installation at SNOLAB, the detector was commissioned with pure methane gas at the LSM, with a temporary water shield, offering a hydrogen-rich target and reduced backgrounds. After giving an overview of the several improvements of the detector, preliminary results of this campaign will be presented, including UV laser and Ar-37 calibrations that allowed for precision characterization of the detector's energy response at the single-ionization regime.

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Session Classification: M3-8 Dark Matter Experiment II (PPD) | Experiences de matière sombre II (PPD)

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