Contribution ID : **432** Type : **Talk in parallel session**

The Search for Light Dark Matter with the NEWS-G Detector

Wednesday, 1 September 2021 17:45 (15)

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 Ne gas at the Laboratoire Souterrain de Modane (LSM) have already set competitive results for low-mass WIMPs. The forthcoming 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 calibration data.

Reference to paper (DOI or arXiv)

Your gender (free text)

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Session Classification : Discussion Panel Dark Matter 6

Track Classification : Dark Matter and its detection