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NEWS experiment: results from a 60 cm prototype run with Neon

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Modern precision astronomy strongly suggests the presence of Dark Matter particles whose hunt is among the forefront activities in particle physics nowadays. The NEWS-SNO project (News Experiment With Spheres in SNOLAB) is setting up to probe very low mass Dark Matter particles using a large spherical gaseous detector and very light target nuclei such as H, He and Ne. A 60 cm diameter prototype filled with neon gas was installed and operated in Modane (Laboratoire Souterrain de Modane) with a very low threshold which allowed to investigate less than 10 GeV WIMP (Weakly Interacting Massive Particle) Dark Matter. The analysis of the collected data to extract a Dark Matter signal will be presented and discussed. The attained performance paves the way forward for the larger scale detector to be installed at SNOLAB.

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