

NEWS-G, a spherical TPB with low Z target to search for sub-GeV Weakly Interacting Particles.

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Despite several large-scale direct detection experiments worldwide, dark matter remains elusive. Not favored by theory, the low mass region of the weakly interacting particles parameter-space ($<1\text{GeV}$) has been largely ignored until now, and time has come to broaden the search.

The NEWS-G project builds on the experience gathered with the SEDINE detector, which has been operated for several years at the Laboratoire Souterrain de Modane (FRANCE). The goal is to build a 1.4m diameter low-background spherical gaseous TPC with a single central electrode. It is designed to work with a gas pressure up to 10 bars and to use light target materials such as Ne, He and H in order to look for WIMP mass down to 0.1 GeV. This will be possible by the use of low activity materials, and by the selection of SNOLAB (CANADA) as location for the detector.

In this presentation, I will present the concept of spherical gaseous TPC, validated by the data taken with SEDINE. I will then introduce the NEWS-G detector whose construction is ongoing for a deployment at SNOLAB planned at the end of 2017.

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