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The NEWS-SNO project

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The existence of Dark Matter in our Universe is nowadays well established, however, its exact nature still remains unknown. The goal of the NEWS-SNO (New Experiments with Spheres in SNOLAB) project is to search for particle candidates in mass regions not yet accessible by existing experiments. The planned NEWS-SNO detector consists of a spherical TPC (time-projection-chamber) out of ultrapure copper filled with up to 10bar of CH4 and He gas mixtures which is read out with one small central sensor set at high voltage. Thanks to the very light nuclear mass of the employed targets as well as the detector's very low energy threshold, the detection of spin-independent interacting WIMPS down to masses of 0.1 GeV/c2 is aimed at. This mass range for Dark Matter particles is motivated in a number of models based on dark sector forces and, e.g., millicharged models. Changing the nature and/or mixture of gas, the pressure, the applied high voltage or the sensor, respectively, are different handles that could be used to check a potential dark matter like signal.

An overview and status of the planned experiment at SNOLAB and of the prototype detector SEDINE currently taking data in the LSM underground laboratory in France will be given.

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