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## The Cygno experiment

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In the last decades, the existence of dark matter (DM) has become one of the key elements of modern physics. Direct evidence of this exotic form of matter can be found by searching for extremely rare nuclear recoils of regular matter with energy of the order of few keV. The peculiar motion of the Earth around the centre of the Galaxy induces a strongly anisotropic structure in the angular distribution of the recoils. Thus, the measurement of the directional information would greatly benefit this field of research, by providing a better tool to positively claim for a DM discovery than only-energy sensitive detectors, and allowing to reject scattering induced by neutrinos, making directional detectors the only viable option to deeply venture into the neutrino fog. The CYGNO experiment follows this innovative path by developing a high-precision gaseous Time Projection Chamber to exploit the advantages of a directional detector in the rare event search field, such as few GeV DM. A large demonstrator of the final detector is going to be installed at the Gran Sasso National Laboratories (LNGS) and consists in a TPC filled with He:CF<sub>4</sub> gas mixture operating with a triple GEM amplification stage. The gas scintillating properties allow the realization of an optical readout which comprises photomultiplier tubes and extremely low-noise granular sCMOS camera sensors. We will present the characteristics of the directional TPC focusing on the set of information on the recoil tracks it can provide. In addition, we will present the latest results of the underground operation at LNGS of a 50 l, 50 cm prototype.

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