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# Neutrino flux observation of the next galactic core-collapse supernova in the COSINUS dark matter detector

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The COSINUS (Cryogenic Observatory for Signatures seen in Next-generation Underground Searches) is a NaI based dark matter search that will perform a model-independent cross-check of the longstanding DAMA/LIBRA result. The experiment is currently under construction at the Laboratori Nazionali del Gran Sasso, Italy and will use NaI crystals operated as scintillating calorimeters. These detectors will be placed at the centre of a 7x7 m cylindrical water tank (approx. 268 tonnes), which acts as a passive shield against ambient and cosmogenic backgrounds. Additionally, the water tank will be instrumented with 28 photomultipliers arranged around the tank. This allows for active detection of Cherenkov radiation induced by impinging particles. In this presentation we explore the detection capabilities and sensitivity of the COSINUS experimental setup to the neutrino flux from core-collapse supernovae. The neutrino detection channels and potential available for Na-23 and I-127 isotopes present in the scintillating crystals will also be discussed.

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