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Secluded Dark Matter search in the Sun with the ANTARES neutrino telescope

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Models where Dark Matter (DM) is secluded from the Standard Model via a mediator have increased their presence during the last decade to explain some experimental observations. This is a special scenario where DM, which would gravitationally accumulate in sources like the Sun, the Earth or the Galactic Centre, is annihilated into a non-standard Model mediator which subsequently decays into Standard Model particles, two co-linear muons for example. As the lifetime of the mediator could be large enough, its decay may occur in the vicinity of the Earth and the resulting SM particles could be detected. In this work we will describe the analysis for secluded dark matter coming from the Sun with ANTARES in three different cases: a) detection of di-muons that result of the mediator decay, or neutrino detection from: b) mediator that decays into di-muon and, in turn, into neutrinos, and c) mediator that directly decays into neutrinos. Sensitivities and results of the analysis for each case will be presented.

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