INDIRECT DARK MATTER SEARCHES WITH THE ANTARES NEUTRINO TELESCOPE

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The ANTARES collaboration is building an undersea neutrino telescope in the Mediterranean Sea with an effective area of 0.1 km^2. Detailed studies of the site, required technology and detector performance have been performed to demonstrate the feasibility of such a detector. Several test and demonstrator lines have been deployed, operated and successfully recovered at depths of up to 2.4 km.
The physics scope of the ANTARES project is broad, covering the tracking of high energy muons from neutrinos for astrophysics studies up to the PeV scale, indirect Dark Matter searches and measuring atmospheric neutrino oscillation parameters. In this paper, the possibility for indirect searches for annihilating Dark Matter via production of neutrinos in the centre of the Earth and the Sun is discussed and evaluated in the framework of Neutralino annihilation in mSUGRA and MSSM models. The sensitivity of the ANTARES detector to indirect searches for Dark Matter is presented.