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Search for strange matter particles with the ANTARES detector

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Strange quark matter (SQM), composed of approximately equal numbers of up, down and strange quarks, could be the ground state of hadronic matter. Stable lumps of SQM, named nuclearites, may be present in the cosmic radiation and reach the Earth with non-relativistic velocities.

The ANTARES neutrino telescope, located in the Mediterranean Sea, is sensitive to the signal of massive nuclearites ($M_N \geq 10^{14}$ GeV). A dedicated analysis was developed for a flux of downgoing nuclearites, and the ANTARES sensitivity was determined using an extended set of data.

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