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Model-independent search for neutrino sources with the ANTARES neutrino telescope

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ANTARES is the largest operational neutrino telescope in the Northern Hemisphere, located in the Mediterranean Sea at a depth of 2500 metres. The direction and energy of the observed particles are reconstructed from the

time and amplitude information recorded by the photomultipliers. The collected set of reconstructed events can be analysed with respect to the spatial, temporal and energy distribution.

The approach shown in this presentation focuses on the spatial distribution, searching unbiasedly for a significant

excess of neutrinos with an arbitrary size and shape from any direction in the sky. Techniques originating from the domain of pattern recognition and image processing are used.

In contrast to a dedicated search for a specific neutrino emission model this approach is sensitive to a wide range of

possible source structures. The result of this method applied to the ANTARES data will be presented.

Collaboration

ANTARES

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