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Search for point sources of cosmic neutrinos beyond PeV energies with AMANDA

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Abstract content

The Antartic Neutrino Telescope AMANDA and its succesor IceCube can be used for searches for cosmic point sources of neutrinos with a wide range of energy. The highest of these energy bands spans from about 10ˆ5 to 10ˆ10 GeV. Several source models predict a significant neutrino flux in this part of the spectrum, for example from Active Galactic Nuclei. Since the interaction length of these neutrinos is smaller than the radius of the earth the observable area lies mainly in the southern sky, in contrast to point source searches at lower energies. Nonetheless, the low atmospheric muon background at these energies makes such an analysis feasible, and it would comprise some interesting source candidates, for example the blazar 3C273. We will present the first results of this analysis as applied to data collected with the AMANDA detector during the year 2004. In parallel, an equivalent analysis is developed for data from the IceCube configuration in 2006, including the determination of detector sensitivity and reconstruction efficiency. We will also present the status of this work.

If this papers is presented for a collaboration, please specify the collaboration

IceCube

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 5 (HE part 2), pages 1357-1360

Primary author(s) : Mr. ACKERMANN, Markus (DESY); Mr. FRANKE, Robert (DESY); Mr. LAUER, Robert (DESY)

Co-author(s) : Mrs. BERNARDINI, Elisa (DESY)

Presenter(s) : Mrs. BERNARDINI, Elisa (DESY)

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