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Optimized neutrino point source search strategies for AMANDA and results from 2005

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Abstract content

Current point source searches mostly apply only the direction of the reconstructed event; furthermore, they reduce available information by grouping events into sky bins. In this analysis we use a search based on maximum likelihood techniques, utilizing both event direction and energy, to enhance our ability to detect point sources. Especially, use of energy information allows us to fit the spectral index of a hypothetical source along with flux. This method improves both sensitivity and discovery potential of the AMANDA-II array significantly. The method can naturally be applied to IceCube and allows superposition of data from detectors with different sensitivity and angular resolution, such as the IceCube array which changes and improves with each season of construction.

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 1437-1440

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