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GRB neutrino detection via time profile stacking.

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Abstract content

A method is presented for the identification of high-energy neutrinos from gamma ray bursts by means of a large-scale neutrino telescope. The procedure makes use of a time profile stacking technique of observed neutrino induced signals in correlation with satellite observations. By selecting a rather wide time window, a possible difference between the arrival times of the gamma and neutrino signals may also be identified. This might provide insight in the particle production processes at the source. By means of a toy model it will be demonstrated that a statistically significant signal can be obtained with a cubic km scale neutrino telescope on a sample of 500 gamma ray bursts for a signal rate as low as 1 detectable neutrino for 3% of the bursts.

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

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 1341-1344

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