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IceTop/IceCube coincidences

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Abstract content

Small air showers that trigger single or several IceTop stations usually have one or several muons with energy high enough to reach the IceCube in-ice detector. In this work, we first use the coincident events to calibrate the timing resolution between and within the two detectors. Using muons tagged by IceTop single station triggers, which usually contain a single high energy muon, we also cross-check the in-ice muon direction and energy reconstruction. The muon flux at different depth is compared with simulations. Events with two small air showers hitting different IceTop stations almost simultaneously constitute an important background in the IceCube neutrino experiment. We estimate the rate of this type of background and present candidates for such events.

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

for IceCube 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 1209-1212

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