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Capability of the scaler system of Milagro pond to observe Gamma Ray Burst

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Abstract content

Gamma-ray bursts (GRBs) have been observed up to energies of a few GeV by satellite observatories. In particular, GRB941017 showed a spectral component extending beyond 200MeV and distinct from the previously observed at keV energies. Ground based telescopes have marginally observed very high energy emission (>100GeV). For instance, the Milagrito observation of GRB970417a hinted at a distinct higher-energy component inconsistent with an extrapolation of the observed emission at keV-MeV energies. Therefore, observations of gamma-ray bursts at GeV energies will bring new insights about the emission mechanisms and constrain the current GRB models. Milagro is a wide field (2sr) high duty cycle (>90%) ground based water Cherenkov detector. It triggers mainly on extensive air showers (EAS) in the energy range from 100 GeV to 100 TeV. However, individual photomultiplier tube counting rates (scalers) are sensitive to EAS with energy as low as ~1GeV. In this work, the capabilities of Milagro to detect the high energy component of GRBs using the scalers system are presented and compared with other observatories such as the Pierre Auger Water Cherenkov tanks.

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

Milagro

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. 3 (OG part 2), pages 1195-1198

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