30th International Cosmic Ray Conference

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Gamma-Ray Astronomy around 100 TeV with a large muon detector operated at very high altitude.

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Abstract content

Measurements at 100 TeV and above are an important goal for the next generation of high energy γ-ray astronomy experiments. In fact, the high energy end of γ-ray source spectra might provide clear discrimination between electron and hadron processes, thus allowing the identification of cosmic "PeVatrons", the sites of Cosmic Rays production and acceleration.
The most natural experimental solution to detect very low radiation fluxes is provided by the Extensive Air shower (EAS) arrays. They benefit from a close 100% duty cycle and a very large field of view ($\sim$2 sr). The exposure is large but the sensitivity is limited by their angular resolution and their poor cosmic ray background discrimination. At energies above 10 TeV the standard technique for rejecting the hadronic background consists in looking for {\it "muon-poor"} showers.
In this paper we discuss the capability of a large muon detector ($\sim$2500 m^2) operated with an EAS array at very high altitude (>4000 m a.s.l.) to detect γ-ray fluxes around 100 TeV. Simulation based estimates of energy ranges and sensitivities will be presented.

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

ARGO-YBJ 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 969-972

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