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Analysis of primary cosmic ray proton and helium components at the knee energy region with the Tibet hybrid experiment

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Abstract content

For the chemical composition in the “knee” energy region, we observe air shower core with hybrid detectors in Tibet, Yangbajin(4,300 m a.s.l.). We use the Tibet III air-shower array for the determination of the primary energy and the burst detector for the measurement of the energy flow of air shower core. Previous phase of our experiment used emulsion chamber(X-ray films and nuclear emulsion plates) for the detection of high-energy gamma families and obtained low fraction of the proton and helium spectra to the all particle spectrum at the knee from the analysis of 177 gamma-family events with three years observation. The operation of the core detector (without using X-ray films) has been continued to confirm the knee composition with higher statistics. Present paper reports the data analysis for about three years observation with lowered detection threshold yielding more than 2000 events.

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

The Tibet ASgamma 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. 2 (OG part 1), pages 117-120

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