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Features of the S(500) distribution for Extended Air Showers Observed with the KASCADE-Grande array

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Abstract content

For the conditions of KASCADE-Grande the lateral particle density at about 500 m distance from the shower core S(500) has been shown by detailed simulation studies to be an approximate energy estimator, being nearly independent of the mass of the primary particle. This report presents some features of the S(500) observable of EAS registered with the KASCADE-Grande array installed at Forschungszentrum Karlsruhe. The measured energy deposits of particles in the scintillation detectors have been used to reconstruct the lateral charged particle distributions described by an LDF function for which the Linsley LDF has been found appropriate. With adjusting the charged particle density distribution and applying several cuts, the S(500) distribution of the data has been evaluated. Among other features, the S(500) dependence from the EAS angle of incidence and the power-law like shape of the distributions has been studied.

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

KASCADE-Grande

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olive, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 4 (HE part 1), pages 227-230

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