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Dependence of the lateral distributions of electrons with a fixed energy on shower parameters

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Abstract content

Basing on the EAS simulations with CORSIKA we investigate the lateral distributions of electrons with a fixed energy in large showers. We show how these distributions scale with electron energy, with air density and/or shower age. We fit some analytical functions to describe them in an easy way. This work is necessary when reconstructing the shower parameters from the light images obtained in EAS experiments basing on the fluorescence technique. The width of a shower track depends not only on the lateral distribution of electrons but also on the lateral distribution of the Cherenkov light accompanying the development of the shower. This light, when scattered by the atmosphere, adds to the fluorescence light and changes the images of showers seen by telescopes.

If this papers is presented for a collaboration, please specify the 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. 4 (HE part 1), pages 397-400

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