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Longitudinal Shower Profile Reconstruction from Fluorescence and Cherenkov light

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Abstract content

Traditionally, longitudinal shower profiles are reconstructed in fluorescence light experiments by treating the Cherenkov light contribution as background. In this talk we will argue that, due to the universality of the energy spectra of electrons and positrons, both fluorescence and Cherenkov light can be used simultaneously as signal to infer the longitudinal shower development. We present a new profile reconstruction method that is based on the analytic least-square solution for the estimation of the shower profile from the observed light signal and discuss the inter- and extrapolation of the profile with a Gaisser-Hillas function.

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 235-238

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