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3D Reconstruction of Extensive Air Showers from Fluorescence Data

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Abstract content

A method to reconstruct the 3-dimensional structure of extensive air showers, seen by fluorescence detectors, is described. The observation of the shower is done in 2-dimensional pixels, for consecutive time bins. Time corresponds to a third dimension. Assuming that the cosmic ray shower propagates as a plane wave front moving at the speed of light, a complex 3D volume in space can be associated to each measured charge (per pixel and time bin). The 3D description in space allows a simultaneous access to the longitudinal and lateral profiles of each shower. In case several eyes observe the same shower, the method gives a straight-forward combination of all the information.

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

Pierre Auger Observatory

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 913-916

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