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On the relation between the proton-air cross section and fluctuations of the shower longitudinal profile

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Abstract content

The current status and prospects of deducing the proton-air cross section from fluorescence telescope measurements of extensive air showers is discussed. As it is not possible to observe the point of first interaction, X_1 , directly, other observables closely linked to X_1 must be inferred from the measured longitudinal profiles. This introduces a dependence on the models used to describe the shower development. We will discuss the sensitivity of the fluctuations of the shower profile on σ_{p-air} . Systematic uncertainties arising from the model dependence, parameters of the reconstruction method itself and a possible non-proton contamination of the selected shower sample will be presented.

If this paper 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 679-682

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