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The proton-air inelastic cross section at sqrt(s) ~ 2 TeV from EAS-TOP.

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Abstract content

The proton-air inelastic cross section at sqrt(s) approximately 2 TeV has been obtained from the EAS-TOP Extensive Air Shower experiment data. The absorption length of cosmic ray proton primaries cascades is studied in the energy range just below the knee of the primary spectrum. Primary energies are selected through the EAS muon contents while proton originated cascades at maximum development are selected through the shower size Ne. The shower longitudinal development and detection fluctuations are determined by means of simulations performed using the CORSIKA code and the QGSJET interaction model. The simulations provide the proportionality factor k between the observed absorbtion length and the proton-air interaction length. The statistical and systematic uncertainties together with the connections with measurements of the total proton-proton cross section and proton-air calculations are discussed.

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

EAS-TOP

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 27-30

Primary author(s) : Dr. TRINCHERO, Gian Carlo (INAF Istituto di Fisica dello Spazio Interplanetario and INFN Torino)

Presenter(s) : Dr. TRINCHERO, Gian Carlo (INAF Istituto di Fisica dello Spazio Interplanetario and INFN Torino)

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