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Cosmic Rays in IceCube: Composition-Sensitive Observables

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Abstract content

Cosmic ray showers that trigger the IceTop surface array generate high energy muons that are measured by the IceCube in-ice detector. The large surface and underground area of this 3-dimensional instrument at completion guaranties significant statistics for shower energy up to about 1 EeV. Since the number of muons is sensitive to the type of the primary cosmic ray nucleus these events can be used for the measurement of cosmic ray composition. Using the data taken in the existing array we measure the obsevables sensitive to the primary mass as a function of shower energy estimate with the surface array. The result is compared to simulations of the coincident events with different types of primary nuclei.

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

for the IceCube 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 143-146

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