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Discordant measurements of proton and helium fluxes below the knee energy region

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Abstract content

The values of the spectral indices of the cosmic ions below the knee energy band are of notable importance for a quantitative account of the characteristic of the knee and the ankle of the differential energy spectrum of the cosmic radiation. Present available measurements of proton and helium spectral indices below the knee energy interval from a variety of experiments are examined. According to some measurements the proton dominance in the p/He flux ratio below 1013 eV transforms into a helium dominance above 1014 eV implying a break of the p and He spectral indices. On the contrary these trends remain unproven or disproven in other experiments. Focus relating these measurements to the origin of the knee and ankle is presented.

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 73-76

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