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A DEPENDENCE OF THE RIGIDITY SPECTRUM OF GALACTIC COSMIC RAY INTENSITY VARIATIONS ON THE RANGE OF THE PARTICLES RIGIDITY

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Abstract content

We study the dependence of the exponent of the power law rigidity spectrum of the galactic cosmic ray (GCR) intensity variations on the range of the GCR particles rigidity using data of neutron monitors and ground meson telescopes. We found that the rigidity spectrum of the GCR intensity variations is hard for neutron monitors with the effective rigidities $\sim 10\text{-}15\text{GV}$ and soft for neutron monitors and ground meson telescopes with the effective rigidities $\sim 25\text{-}50\text{GV}$. Based on the early found relationship between the rigidity spectrum exponent of the GCR variations and the exponent of the power spectral density of the IMF turbulence it was shown that the change of the exponent of the power law rigidity spectrum versus the rigidity of the GCR particles is stipulated by the changes of the exponent of the power spectral density versus the frequencies of the IMF turbulence. Namely, when the frequency decreases (or a rigidity of GCR particles increases) the exponent of the power law rigidity spectrum increases.

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. 1 (SH), pages 517-520

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