30th International Cosmic Ray Conference

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Evidence that a cluster of UHECRs was produced by a burst or flare

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Abstract content

The Ursa Major (UM) cluster of UHECRs consists of 5 events in the combined HiRes-AGASA sample above 10 EeV which are consistent with coming from a single point source, with little magnetic deflection. The probability of finding the cluster of 4 highest energy events by chance is about 2 10^-3; the probability that the 5th low energy event is a chance correlation, given the size of the low energy dataset, is one in 6. The spectrum of the UM UHECR cluster is in good agreement from that expected from a bursting or flaring source, and in poor agreement with that of a continuous source, with a factor 500 relative probability. The energy released in the burst or flare and the time-delay of the UHECRs compared to photons from the burst are determined, as a function of the unknown source distance. Compatibility of these constraints with various models of bursting sources is discussed.

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. 2 (OG part 1), pages 161-164

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