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Particle acceleration in relativistic, subluminal shock environments

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Abstract content

The understanding of the particle spectra resulting from acceleration in relativistic shocks as they occur in extragalactic sources is essential for the interpretation of the Cosmic Ray spectrum above the ankle ($E > 3 \times 10^{18}$ eV). It is believed that extragalactic sources like Active Galactic Nuclei and Gamma Ray Bursts can produce particle spectra up to $E \sim 10^{21}$ eV. In this contribution, subluminal shocks are investigated with respect to different shock boost factors Γ and the inclination angle between the shock normal and the magnetic field ψ . A correlation between the boost factor and the spectral behavior of the emitted particles is found. The results are compared to Gamma Ray Burst observations and the Cosmic Ray spectrum at the highest energies.

If this paper 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 287-290

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