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Particle acceleration at the interactions of shocks and discontinuities

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Abstract content

A theoretical model of particle acceleration by the interaction of a magnetic field directional discontinuity and a collisionless shock is presented. The geometry of the interaction region, the relative angles of the shock, discontinuity, and magnetic field highly influences the acceleration process. In certain geometries the particles can re-enter the acceleration region again and again, which leads to more effective acceleration and higher final energies. This mechanism can participate in the generation of energetic particles in Hot Flow Anomalies, and can play an important role in the pre-acceleration of anomalous cosmic rays.

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 389-392

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