#### **30th International Cosmic Ray Conference**



Contribution ID : 231

Type : Oral

# Anomalous and galactic cosmic rays at a blunt termination shock

Tuesday, 10 July 2007 12:41 (0:12)

### Abstract content

The subsonic heliosheath beyond the termination shock (TS) of the solar wind plays a profound role in the transport of anomalous (ACR) and galactic cosmic rays (GCR). The energetic particle observations of Voyager-1, after crossing the TS in December 2004, indicate that the distribution of ACR is not uniform in the heliosheath. We point out that our concepts based on a simple 1-D shock cannot be directly applied for the TS, which is not a 1-D shock, since the spiral magnetic field lines intersect the TS multiple times. In a scenario like this, we cannot expect a uniform power law spectrum at the shock. Instead, a two-population spectrum can be anticipated. We present numerical simulations of the diffusive transport of ACR with parallel and perpendicular diffusion in a 2-D model including a blunt termination shock. The heliosheath is of major importance for the transport of GCR as well: a significant, perhaps dominant, fraction of the modulation of GCR occurs beyond the TS. We discuss the transport of GCR and ACR in the heliosheath and present numerical simulation results.

#### 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 853-856

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Session Classification : SH 5.3

Track Classification : SH.5.3