

COMPUTED COSMIC RAY ANISOTROPIES AND SPECTRA IN THE OUTER HELIOSPHERE

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The observation of the directional distribution of energetic and cosmic ray particles has been done with the Voyager spacecraft over a long period. Since 2002, when the first flux enhancements of charged particles associated with Voyager 1's approach of the solar wind termination shock were observed, these anisotropy measurements have become of special interest. They play an important role to understand the magnetic field and shock structure and the basics of the modulation of cosmic ray and anomalous particles at and beyond the termination shock. They also serve as motivation to study the spatial behavior of galactic and anomalous cosmic ray anisotropies as a function of energy with numerical modulation models in order to illustrate how the theoretical anisotropies, at different energies, change from upstream to downstream of the termination shock, and what is predicted for the cosmic ray populations in the heliosheath. Observations made by Voyager 1 indicate that the termination shock region is more complicated than what was previously thought, hence the effects of e.g., the latitudinal dependence of the termination shock's compression ratio on the spectra of galactic and anomalous protons will be illustrated.