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Data driven analysis of Galactic cosmic rays in the heliosphere: diffusion of cosmic protons and nuclei

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Galactic cosmic rays (GCRs) inside the heliosphere are affected by magnetic turbulence and Solar wind disturbances which result in the so-called solar modulation effect. To investigate this phenomenon, we have performed a data-driven analysis of the temporal dependence of the GCR flux over the solar cycle. With a global statistical inference of GCR data collected in space by AMS-02, PAMELA, and CRIS on monthly basis, we have determined the dependence of the GCR diffusion parameters upon time and rigidity. In this conference, we present our results for GCR protons and nuclei, we discuss their interpretation in terms of basic processes of particle transport and their relations with the dynamics of the heliospheric plasma.

Keywords

Collaboration

other Collaboration

Subcategory

Theoretical Methods

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