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The effects of a time dependent wavy neutral sheet on cosmic-ray modulation in the heliosphere – progress and challenges

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The heliospheric magnetic field, originating on the Sun, is frozen into the solar wind due to its high conductivity, and field lines are drawn out into spirals due to the rotation of the Sun. The two hemispheres of the heliosphere with oppositely directed magnetic field are separated by the so-called wavy neutral sheet. It has long been known that gradient- and curvature drift, as well as drift along the wavy neutral sheet, play a key role in cosmic-ray modulation. Previous attempts to numerically model this last effect have relied on a steady state, effective tilt angle approach to describe the neutral sheet. In this work a novel, truly time-dependent neutral sheet is introduced. Preliminary results, as to cosmic ray intensities calculated with a numerical modulation code wherein this new approach is implemented, are presented.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

PhD

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

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