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Long-term cosmic-ray modulation model: A simplified ab initio approach

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Abstract content
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A simplified ab initio approach is followed to model long-term cosmic-ray modulation using a steady-state three-dimensional numerical code. Standard diffusion coefficients based on Quasilinear Theory (QLT) and Nonlinear Guiding Center Theory (NLGC) are used. The spatial dependence of turbulence quantities required as input for the drift- and diffusion coefficients follow from parametric fits to results from a turbulence transport model. The temporal behavior of these quantities is based on the magnetic variance. Effective values are used for the solar wind speed, magnetic field magnitude and tilt angle in the modulation model. Fairly accurate fits for the cosmic-ray spectra for the 1987, 1997 and the 2009 solar minima are obtained

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yes

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

PhD

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

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