

New cosmic ray MIN-MED-MAX benchmark models for dark matter indirect signatures

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Takeaway

- This contribution is about the Galactic propagation models called MIN, MED and MAX that yield minimal, median and maximal fluxes of primary antimatter particles produced by dark matter annihilation or decay.
- These configurations have been extensively used in the astroparticle community to bracket the uncertainties on dark matter indirect signatures that arise from cosmic-ray propagation. As cosmic-ray data have considerably improved in the past decade, a revision was mandatory.
- Using the latest measurements of cosmic-ray nuclei, we have revised the parameters driving the propagation of charged species throughout the Galaxy. We have derived in particular the height L of the magnetic halo, a crucial quantity driving the intensity of primary antiprotons and positrons fluxes produced by dark matter.
- We obtain the new MIN-MED-MAX benchmarks for the BIG, QUANT and SLIM schemes, reducing theoretical uncertainties by a factor of 3-4 (positrons) and 5 (antiprotons) with respect to their initial version.