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Constraints on supersymmetric models using antideuterons

Antideuterons are among the most promising Galactic cosmic-ray- related targets for dark-matter indirect detection, because their primary spectrum is flatter than the standard astrophysical component at low ki- netic energies (E < 2 − 3 GeV/n). We are performing a parameter scan in the supersymmetric (SUSY) parameter space using the SuperBayes pack- age in order to estimate the detection power of future experiments such as AMS-02 and GAPS. The primary antideuterons produced from pair annihilation of dark matter particles in the halo of our Galaxy is esti- mated by the latest DarkSusy package. For the calculation of the standard astrophysical background signal, including secondary and tertiary antideuterons, the USINE propagation package is used. The latter deals with the propagation of Galactic cosmic-ray nuclei (all existing nuclei) and antinuclei (antiprotons and antideuterons) in various models (Leaky Box and diffusion models). Preliminary results will be presented.

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