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Antideuterons from dark matter and hadronization model dependence

The antideuteron channel is currently one of the most promising channels for indirect detection of dark matter. The coalescence model of antideuteron production is strongly dependent on two-particle correlations in each DM annihilation or decay event,

and the hadronization scheme chosen when generating Monte Carlo events could therefore have a profound effect on the predicted antideuteron spectra.

We investigate the antideuteron yield in dark matter annihilations and decays on an event-by-event basis using the HERWIG++ Monte Carlo generator, comparing to earlier results based on PYTHIA, thereby estimating the uncertainties involved.

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