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EPOS Models and Anti-Deuterium Production

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To extract an exotic signal from the very precise AMS-02 data, it is very important to determine the astrophysical background. The latter depends on the accuracy of the various cross-sections needed for the anti-proton or anti-nuclei production. To fully cover the phase-space, hadronic interaction models are needed to extrapolate from what is measured in laboratories to what is needed to model astrophysical sources or cosmic-ray propagation. The different versions of the EPOS event generator have been developed to understand heavy ion collisions, which allows them to be used in astroparticle physics. One particularity of these models is, that they include the production of a high energy density core which hadronize following a statistical production of secondary particles, even in light system. As a consequence, the production of anti-baryons is modified compared to traditional string fragmentation, and it is possible to produce anti-nuclei directly without using a coalescence model. The results of the model will be studied in particular in view of the recent LHC data on collective hadronization in p-p and p-Pb collisions.

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